Interreg
Danube Transnational Programme
EcoInn Danube

RECOMMENDATION PACKAGES: Packages to support cooperation of SMEs and R&D

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About this document

Document contents

This document presents the recommendation packages developed as part of the Eco-innovatively connected Danube Region (EcoInn Danube) project.

About the EcoInn Danube project

The general objective of the EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region.

Eco-innovation is the introduction of any new or significantly improved product (good or service), process, organisational change or marketing solution that reduces the use of natural resources (including materials, energy, water and land) and/or decreases the release of harmful substances across the whole life-cycle.

Context for developing recommendation packages within the knowledge transfer environment

Organisations that develop eco-knowledge and solutions may not be the best organisations to build commercial value from these. Organisations that need eco-solutions or have eco related problems to solve may not be in the best position to develop relevant knowledge/solutions. Therefore, it is often optimal that knowledge is transferred or exchanged between organisations that develop eco-solutions and those that use/commercialise the knowledge.

University of Cambridge defines knowledge transfer as a very broad range of activities to support mutually beneficial collaborations between universities (research centres), businesses and the public sector.

In terms of activities, knowledge transfer can be split into six forms:

People:	The placement of people in companies or in the public sectors can be a more directed way of exchanging knowledge on a short-term basis.
Publication and events:	Knowledge is transferred through publication of research outputs, and through events and networking.
Collaborative research:	This is a means of creating opportunities for innovative knowledge exchange bringing together research centres, industry secondments, business acumen and manufacturing expertise to help those with exploitable concepts to achieve commercial success. Through research agreements, collaborative research creates new ideas and approaches to modern industrial practice – from understanding markets and technologies, through product and process design, to operations, distribution and related services.
Consultancy:	The provision of specific expert advice and training to external clients by an organisation can be a very effective knowledge transfer mechanism – it can provide a platform for the exchange of both explicit and more tacit knowledge, and a window on areas of possible collaboration.
Licensing:	Licensing the right to use specific research outputs (IP such as patentable inventions) is an important knowledge transfer mechanism. Successful licensing arrangements are long-term relationships often leading to research collaborations and individual contacts.
New businesses:	Bringing research outputs to market through the formation of a new business can be particularly appropriate when the there isn't any obvious external partner to whom the idea could be

	licensed. New businesses based on research outputs often build their business models around collaboration with larger, established firms to access expertise, equipment and routes to market.

University of Cambridge. Source: https://www.cam.ac.uk/research/news/what-is-knowledge-transfer

There are two or more parties which partake in the transfer of eco-knowledge:

- Firstly, a demand side organisation has a specific issue or problem that they wish to solve. They do not own the necessary eco-knowledge or technology to solve the problem and often do not have the necessary resources to develop these solutions. These organisations may wish to "transfer in" knowledge to solve eco-problems. Examples of demand side organisations are large companies, SMEs, public sector, NGOs.
- Secondly, a supply side organisation develops eco-solutions to specific problems. They often do not have the resources or the mandate to commercialise the eco-solution in the best possible way. These organisations may wish to transfer eco-solutions to demand side organisations. Examples of supply side organisations are research institutions, universities, start-ups, SMEs, individual inventors etc.

Definition of recommendation package

A recommendation is "a suggestion or proposal as to the best course of action, especially one put forward by an authoritative body".

Recommendations in the context of the EcoInn Danube project are useful suggestions and proposals on how to bring an eco-solution into commercial value, particularly through forms of knowledge transfer.

Each recommendation relates to one or more of the following:

- specific eco-solutions
- specific problems or issues
- in specific areas within technology transfer
- specific target groups.

A recommendation package is a set of detailed proposals and suggestions to the target audience. The packages include the recommendation document itself, detailing the scenario and the actual recommendations that are given. The packages will also include templates, documents, books and topics that will be necessary to realise the recommendations and help the parties during their cooperation with other stakeholders in the eco-innovation environment.

Types of recommendation package

Consultations with EcoInn Danube project partners has concluded that there should be different types of recommendation packages. This is to ensure adequate flows of different types of information from different types of partners towards the target audience.

The types of recommendation packages are:

1. Partnership guidance type
2. Pitch type (1 specific stakeholder, other stakeholders unknown)
3. Events, consultations and interactions type (detailing a specific topic within knowledge transfer)

Details of the different recommendation package types are provided below.

Partnership guidance type

This type of recommendation package aims to aid successful interaction between specified stakeholders, often one from the demand side and one from the supply side. It contains recommendations and information about „how" to establish partnerships related to a specific eco-knowledge bundle or eco-technology.

This recommendation package type is developed when two or more specific stakeholders have matched in an eco-technological area or have expressed an interest in a partnership related to an eco-knowledge bundle or eco-technology. This positive match

can take place during matchmaking events, on the virtual lab or as a result of other forums. The parties should have expressed interest in a partnership, or in the view of the relevant EcoInn Danube project partner, the parties are sufficiently matched and should establish a partnership. The recommendation package is created in order to aid them in establishing the partnership and to begin the knowledge /technology transfer process.

Pitch type

This type of recommendation package aims to aid successful knowledge transfer and/or commercialisation for a specific (named) demand or supply side stakeholder. The other partner in the commercialisation process is expected to be a yet unknown or known, but "un-engaged" potential partner.

This type of package contains recommendations, guidance and information about „how" to establish partnerships related to the kind/size/location of potential partners and a specific eco-knowledge or eco-technology.

The recommendation package aids in establishing the partnership with a potential partner and to begin the knowledge- or technology transfer process.

Events, consultations and interactions type

This type of recommendation package aims to aid successful eco-knowledge transfer by focusing on given interactions of EcoInn Danube project partners with SMEs and R&D institutions (clients). The recommendation packages focus on a given issue, area or topic related to knowledge transfer. These include Intellectual property protection, Branding, ,Financing innovation and more

This type of recommendation package also includes technological consultations about the technology itself with recommendations about how to move forward with commercialisation.

Purpose of recommendation packages

The recommendation packages are aimed at reinforcement of R&I results generation and their transfer into economy in a transnational context. Thus, the recommendation packages will support generation and development of ecotechnologies based on environmental needs.

In total, the recommendation packages developed in the EcoInn Danube project will help to develop new and strengthen the existing interaction networks among representatives of the eco-innovation environment. More specifically, the recommendation package will aid the transfer of knowledge between actors by providing information and frameworks.

Target group of activity

The target group for the activity is broadly defined as „institutions willing to collaborate" but should in all cases include SMEs and R&D institutions/ higher education and research.

Authors

The following authors have contributed knowledge and expertise in developing these recommendations.

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List of Recommendation packages

1. Recommendations for SMEs and R&D institutions on getting started with IP commercialisation

Commercialization of intellectual property (IP) is what makes money out of one's ideas. Because an idea, as such, has no value until one makes it into a tangible object. The IP commercialization is a sequence of various activities, like the protection, management, evaluation, development and value-creation of ideas, inventions, and innovations aimed to implement them in practice.

Keywords: Commercialization, intellectual property, IP, management, strategy

Aims of this recommendation

This recommendation package provides guidance on how to get started on developing an IP management and commercialisation strategy at innovative SMEs and R&D institutions.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

Background to this recommendation package

Innovation and intellectual property are economic drivers of the contemporary economy – not in a few countries, but around the world.

Not every idea is suitable for being converted into business commodity. But for those ideas that can, it is good to know certain things to avoid making them tradeable. Topic related with this issue is the IP commercialisation (including IP protection, IP management and others).

Summary description

An essential starting point if you wish to commercialise your IP assets is the development of an IP Management and Commercialisation Strategy. This strategy will help a business define the IP assets they own; demonstrate how they intend to protect on a commercial basis and integrate them into their wider business strategy. The strategy should include an overview of the business, breakdown of IP relevant to the business (because not all areas of IP are relevant to every business), IP management (internal and external) along with an action plan detailing how the IP assets will be commercialised. A strategy to commercialise your IP should include:

Business related topics

- Identify the nature of the business, get known your existing and potential competitors and market (size, value) for your product or service.
- Prepare financial plan (for example of three years), that covers: assets, cash flow, balance sheet, debtors and creditors, asset liability income and expense of directors, use of loans and funds, fixed and variable costs, growth rate.

Identifying IP rights

Identify IP assets including IP rights held within your country and international basis. Include registered and unregistered rights (copyright, technical know-how, trade secrets and confidential information).

You should consider:

- Granted patents; pending patent applications; potentially patentable inventions
- Registered Trade Marks; Trade Mark applications; potentially registered trademarks including trading names and branding
- Registered Designs; Design applications; potentially registered designs
- Domain names; Technical know-how; Other forms of confidential information, including trade secrets and other commercial information, client lists
- Potential sources of copyright (databases, websites, promotional materials, product information, internal documentation, etc.)
- IP relevant contracts like licences, franchises, joint venture agreements, material transfer agreements, etc.

Third party threats and IP risks

Identify potential IP risks and consider what action can be taken to minimise them. Consider this:

- Third party IP rights and infringements of those rights
- Competition and potential acquirers of IP
- Consider potential financial issues relevant to the IP assets, for example financial (including tax) aspects of the ownership or licensing structure.

External and internal IP management

Consider how your IP is managed (external, internal) and use related practices:

- Use of confidentiality (non-disclosure) agreements
- Capturing and recording know-how and other confidential information;
- Capturing and evaluating potentially registrable IP (patentable inventions; registrable designs and trade marks);
- Publication clearance (to avoid loss of protectable IP)
- Improving staff awareness of IP issues and policies
- Reviews of IP rights and strategies including life cycle of IP and associated products on a regular basis

Summary of recommendation(s)

- Identify well the nature of your business and get known your existing and potential competitors and market for your product or service.
- Prepare financial plan for next three years. Valuate your IP.
- Manage your IP both external and internal.
- A business partnership (license, venture capital, spin-off, etc.) is always based on a bilateral contract. To draft a good IP contract, you should consider several questions. As a help you can use the Table 1 – Pre IP contract checklist.

List of useful links

Important websites:

http://www.iprhelpdesk.eu/

https://www.wto.org/index.htm

E-publications:

Your Guide to IP Commercialisation
http://www.iprhelpdesk.eu/sites/default/files/documents/EU-IPR-Guide-Commercialisation-EN.pdf

Commercialising Intellectual Property: Franchising
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-Commercialising-IP-Franchising.pdf

Commercialising Intellectual Property: Licence Agreements
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-Commercialising-IP-Licence-Agreements.pdf

Commercialising Intellectual Property: Spin-offs
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-Commercialising-IP-Spin-offs.pdf

Commercialising Intellectual Property: Joint Ventures
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-Commercialising-IP-Joint-Ventures.pdf

Commercialising Intellectual Property: knowledge transfer tools
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-Commercialising-IP-Knowledge-Transfer-Tools-EN.pdf

Intellectual Property Valuation
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-IP-Valuation.pdf

Your Guide to IP and Contracts
http://www.iprhelpdesk.eu/sites/default/files/documents/EU-IPR-Guide-IP-and-Contracts.pdf

Case study:

Celegon Srl: Making use of confidentiality and IP transfer agreements in business partnerships

http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Case-Study-Celegon.pdf

Other:

Patent information centres (PATLIB)
https://www.epo.org/searching-for-patents/helpful-resources/patlib.html

European Comission Funding and Tenders
https://ec.europa.eu/info/funding-tenders_en

Annexes

Table 1 – Pre IP contract checklist

Date of recommendation package

9th May 2019

Author

Slovak Centre of Scientific and Technical Information

Annexes

Table 1 – Pre IP contract checklist

Strategy of the parties

The parties must inform each other about the aims sought under their collaboration to anticipate any applicable laws and therefore, whether the business sought is feasible from a legal perspective, as well as to foresee any potential IP issues resulting from such collaboration.

Applicable laws and types of IP

It is essential that the parties know the mandatory rules that apply to their contractual relationship, and the types of IP that will be included in the agreement, in order to assist them in understanding the type of contractual relationship allowed and the impact that will have on the project. For instance, in some jurisdictions, trade marks may only be legally transferred or licensed when accompanied by the associated goodwill and, under German, Croatian, Hungarian, Czech, Slovakian and Austrian laws, assignments of copyright are not allowed.

Freedom-to-operate

Prior to carrying out any business project, the parties must establish whether they will actually be able to exploit any results derived from such project - e.g. through a freedom-to-operate (FTO) search - to determine whether a product's commercialisation would infringe third parties' rights. FTOs are often performed in the context of IP due diligence processes (see below).

IP protection

In a business collaboration, it is usually advised that each party protects their own background IP by any applicable means, such as the registration of IPRs or the collection of evidence where registration is not possible or not mandatory, such as with copyrights. This will avoid potential conflicts as to which party owns what and which rights of use each party enjoys regarding their own IP.

IP due diligence

The parties should gather and perform an in-depth analysis of all their IP-related information and documentation, in order to assess the risks potentially involved in a business collaboration or a transaction.

Confidentiality

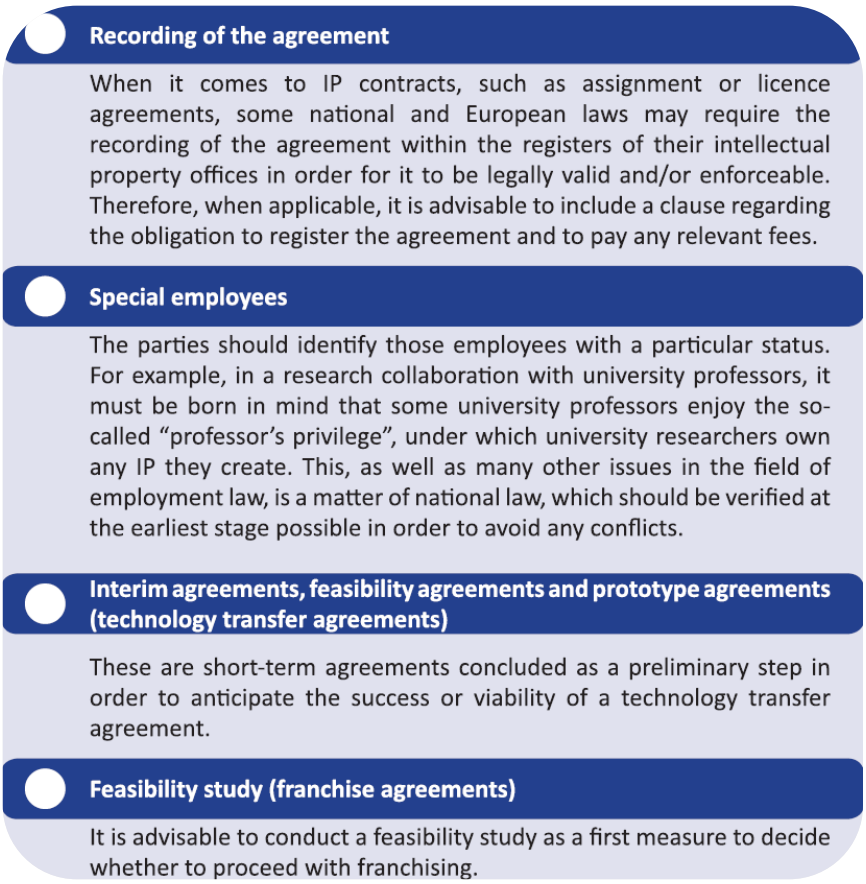
Contractual negotiations necessarily imply the disclosure of information by the parties. This information is often sensitive and its disclosure to third parties may damage the parties' respective and potential future business. Therefore, and to avoid any issues deriving from such disclosure, it is recommended to start by concluding a non-disclosure agreement (NDA) or include a confidentiality clause in the main agreement.

Material transfer agreement

In the area of research, it is common that the parties exchange tangible materials, such as biological materials, chemical compounds, prototypes or even software. To protect such materials and regulate their use by the recipient in these pre-contractual stages, concluding a material transfer agreement (MTA) is advised.

Competition laws

Business practices can sometimes be in conflict with the prohibitions contained in national and EU competition laws. When it comes to IP contracts, companies often enter into concrete arrangements, which may be considered as anticompetitive in accordance with such laws. Before including this type of arrangement in a contract, the parties should make sure whether such an arrangement is in compliance with competition laws. Lack of compliance with competition laws can entail significant fines and/or court proceedings.



Source: The European IPR Helpdesk – Your Guide to IP and Contracts, p. 23-25

2. Introduction to IP protection - Recommendations for SMEs and R&D institutions

If you have a great idea and want to follow through, you should think carefully about your idea first. Worldwide and across all industries almost everything with a good reputation is copied and plagiarized. Intellectual property (IP) can be protected from being plagiarized. To know how to defend against counterfeit goods and the background and risks associated with this global phenomenon is a must. Protection by law allows you to prevent others from using your IP and your creations become a tradeable commodity, which can you sell, license or pledge.

Keywords: Commercialization, intellectual property, IP, management, strategy

Events, consultations and interactions

Aims of this recommendation

The aim of the recommendation is to clarify all options for protection of invention or other intellectual creation to support the transfer of ecoinnovation and ideas into tradable practise.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

Background to this recommendation package

Every company or business has IP and it is important to know to identify it. If someone has invested a lot of effort, imagination, time and money to innovation or creation like technical innovation, logo, design, novel or similar, then for sure he wants to be the one who is going to profit from it. To do so it is necessary to protect the IP from being copied.

Summary description

IP we call all results from intellectual activity in the industrial, scientific, literary or artistic fields, such as:

- inventions
- industrial designs
- trademarks, service marks and commercial names and designations
- indications of source and appellations of origin
- literary, artistic and scientific works
- computer programs
- performances of performing artists, phonograms and broadcasts

An idea alone cannot be protected, however, under certain conditions the concrete form of the idea can be. Some examples:

- technical invention = PATENT
- new shapes or original patterns = DESIGN
- product names and logos = TRADE MARK
- artistic works (paintings, literary, songs, etc.), computer programs, database = COPYRIGHT

- the origin of specific food = INDICATION OF SOURCE
- three-dimensional structures in the field of semiconductors = TOPOGRAPHIES

These various types of IP protection – the Intellectual Property Rights – give you the possibility to turn your innovations and creations into a tradeable commodity that you can license or sell. The IP rights give creators and other producers of intellectual goods and services a certain time-limited rights to control the use made of those productions. For more information see the Table 1 – Intellectual property rights.

The IP rights are divided into two categories:

- Industrial Property (Patent, Trademark, Design, Indication of source, Topographies)
- Copyright and Related Rights (literary, artistic and scientific works, computer programs, database, performances of performing artists, phonograms and broadcasts)

Business systems, aesthetic forms and discoveries are not considered inventions and thus cannot be patented. Computer programs, as such, are not patentable, but inventions based on such programs can be.

You should define a protective strategy and decide what you want to protect, in which countries and for how long. Protection as Patent, Trade Mark or Design is territorial and fees for the protection wary by the countries. You can apply for national protection in specific countries you choose, or you can go on European Patent, International Patent, European Design, International Design, European Trade Mark or International Trade Mark. Consultation with a specialist (patent attorney) for developing an effective intellectual property strategy can save you a lot of money.

Good to know!

- Inventions and designs created as part of an employment relationship belong to the employer (by law, EU).
- If you want to apply your invention as a Patent, keep it secret as long as you have not applied. If you make your invention public in any form before you apply for a Patent, it is no longer patentable. To be patentable, an invention must be novel.
- Do a research before applying for a Patent to find out whether is your idea new or something similar has already been done. Do searches in internet databases, search the technical, scientific and patent literature, and attend the trade exhibitions or look through product catalogues. Searches can be done by specialists as well.

Summary of recommendation(s)

- Make clear, what do you want to protect – invention, trade mark, design or all these simultaneously.
- Decide in which countries you want to protect your IP.
- Make a search, if your invention is worldwide novel and can apply for a Patent.
- If you want to protect your invention as a Patent, keep the invention secret until you apply for the protection.
- Do not hesitate to consult with a specialist (patent attorney) for developing an effective IP strategy.

List of useful links

Important websites on IP:

WIPO https://www.wipo.int/portal/en/

EPO https://www.epo.org/index.html

EUIPO https://euipo.europa.eu/ohimportal/en

E-publications on IP:

What is IP?
https://www.wipo.int/edocs/pubdocs/en/intproperty/450/wipo_pub_450.pdf

Intellectual Property Handbook
https://www.wipo.int/about-ip/en/iprm/

Understanding Industrial Property
https://www.wipo.int/edocs/pubdocs/en/wipo_pub_895_2016.pdf

Understanding Copyright and Related Rights
https://www.wipo.int/edocs/pubdocs/en/wipo_pub_909_2016.pdf

European Patent
http://www.iprhelpdesk.eu/sites/default/files/documents/IPR-Chart-European-Patent.pdf

International Patent Application
http://www.iprhelpdesk.eu/sites/default/files/documents/IPR-Chart-International-Patent-Application-PCT.pdf

European Design
http://www.iprhelpdesk.eu/sites/default/files/documents/IPR-Chart-Community-Designs.pdf

International Design
http://www.iprhelpdesk.eu/sites/default/files/documents/IPR-Chart-International-Design-Hague-System.pdf

European Trade Mark
http://www.iprhelpdesk.eu/sites/default/files/documents/IPR-Chart-EU-Trade-Mark-EN.pdf

International Trade Mark
http://www.iprhelpdesk.eu/sites/default/files/documents/IPR-Chart-International-Trade-Mark-Madrid-System-EN.pdf

Case study:

Vtree Energy: Building a solar future through intellectual property
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Case-Study-Vtree.pdf

Other:

Articles 114 and 118 of the Treaty on the Functioning of the European Union (TFEU) – Intellectual, industrial and commercial property
http://www.europarl.europa.eu/factsheets/en/sheet/36/intellectual-industrial-and-commercial-property

Date of recommendation package

9th May 2019

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Annex: Intellectual Property Rights

Intellectual property rights

	Trade mark protection	Patent protection	Design protection	Copyright and related rights
Protection for	*Registered signs from misuse by others*	*Inventions i.e. new technical solutions to technical problems*	*Forms i.e. the exterior appearance of an object*	*Works of literature and art (including computer programs)*
Period of protection	*10 years (indefinitely renewable)*	*Max. 20 years*	*5 years (renewable thereafter 4 × 5 years up to a maximum of 25 years)*	*Up to 70 years after the death of the author (50 years for computer programs)*
How to protect	*Registration in the trade mark register*	*Granting of the patent*	*Registration in the design register*	*Automatically at the moment of creation*
Validity of protection	*Teritorial (countries in which registered)*	*Teritorial (countries in which granted)*	*Teritorial (countries in which registered)*	*Worldwide*
Scope of protection	*Defined by the sign and the goods and services classes*	*Defined in the patent claims*	*Defined by the representation*	*Defined by the concrete work*
Minimum requirements	*• Does not infringe on others' rights* *• Distinctive* *• Not descriptive* *• Not against public order or public morality*	*• Novel* *• Industrially applicable* *• Inventive step* *• Disclosure of invention*	*• Novel* *• Overall impression must clearly differentiate from existing forms* *• Not against public order or public morality*	*Literary and artistic creations of the mind that possess an individual character*
Can not be protected	*• Simple signs* *• Abbreviations* *• Generic designations* *• Coats of arms* *• etc.*	*• Animal breeds, plant varieties* *• Diagnostic, therapeutic or surgical procedures on humans or animals* *• Use in keeping with public order or public morality* *• Certain biotechnological inventions*	*• Purely technical functions* *• Ideas and concepts* *• Anything that violates federal law (e.g. protection of coats of arms) and treaties*	*• Content (ideas and concepts)* *• Laws and official decrees* *• Decisions by authorities* *• Means of payment* *• Patent documents*
Exceptions of protection	*When not used as a trade mark*	*Private use, research and teaching*		*Private use, citations, back-up copies and reporting of current events*

3. Introduction to IP strategy – Recommendation for SMEs and R&D institutions

More often than not, entrepreneurs receive a warning from a competitor due to patent-infringing products, or they find that their company name has been registered as a trade mark by a competitor. Good news is, that such things can be avoided! All you need to know is: what intellectual property (IP) owns your competitor, what kind of protection is suitable for your IP, how and where to apply for the IP protection and what are going to be the costs for the protection, etc. – you need to have an IP strategy to maximize your future business success.

Keywords: Commercialization, intellectual property, IP, management, strategy

Events, consultations and interactions

Aims of this recommendation

The aim of this recommendation is to explain to companies how to plan the protection of intellectual property (e.g.: products, trade secrets, company name) and avoid additional costs or lawsuits with competitors' related to intellectual property.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

Background to this recommendation package

IP can play a significant role even in small companies, it can make up a considerable share of its overall value. Experience is, that successful products are being copied. And that's the reason, why it is at an early stage important to integrate the managing of your IP – IP strategy – Into your company's strategic process.

Summary description

If you are ready to invest a lot of energy and money in developing your product, then it should be also worth paying money to protect it. There are many ways you can protect the product and the IP behind it, and you should define the IP strategy. Here are a few questions helping to define your strategy:

1) What do you want to protect? A technical invention, new shape, product name, painting, novel, etc.? The answer should bring various types of IP protection for your product.

- COPYRIGHT AND RELATED RIGHTS

If your product belongs to this group, you don´t need to do anything – it is protected from the moment of creation. Manufacturers are protected against counterfeiting and copying through the Federal Law on Unfair Competition.

This law protects primarily against a conduct of business which is contrary to good faith-practices or immoral. Acts which are considered unfair and illegal are things such as deceiving and misleading consumers.

- TRADE SECRET

You can keep your invention secret. Compared to Patent it is (relative) cheap and permanent form of protection. If someone else discover your solution, can use it freely. For more information see Table 1 – Trade secret vs. paten - comparison.

- PROTECTIVE RIGHTS

If your invention meet the criteria for applying to a Patent, Design, Trade Mark, you should get know the criteria for applying first. Some of these need to be kept secret due to novelty criteria (Patent, Design). Protective rights are assets and soon as you have applied or filed for protection, you can sell, license (lease, franchise), or pledge your rights.

- PUBLISHING WITHOUT LAW PROTECTION

When an invention has been once published, it is no longer considered novel and cannot be patented. If you want to patent, think about this with every information you want to publish. Publishing can be used as a strategy – prevents someone else from obtaining a viable patent for your invention.

2) Is your invention new? Before applying for a Patent, you have to be hundred percent sure, that your invention is worldwide new. Do a search in patent databases, internet and professional catalogues to find out, or order a professional search.

3) In which countries to protect your intellectual property? Think about which markets are interesting for your product. Protective rights give the owner not only advantages, but duties as well – to pay for the protection and to monitor your competition. Especially successful products are always being imitated or copied. Once you own right to a Trade Mark, Design or Patent, to stay protected you have to pay for the protection and manage your rights. Do you have enough financial sources? Are you prepared to defend your rights in all countries you want the protection in?

4) Collaborating with external partner? Collaboration does not only imply opportunities but also risks. At the stage where you explore the opportunity to collaborate with someone external, it is advisable that both parties sign a non-disclosure agreement (NDA). An NDA allows parties to share knowledge safely disclose trade secrets.

We recommend that you consult a specialist (patent attorney) for developing an effective IP strategy.

Summary of recommendation(s)

- Clear what you want to protect and where, as well as the type of protection.
- Be sure, that your invention applying for a patent is worldwide new. Keep it secret until you apply for the protection!
- Register your intellectual property.
- Protect only as much as necessary, but think about all aspects of your business (image of your business can be built through Trade Mark, etc.). Enforce your protection systematically – otherwise there's no point in protecting your IP.
- Think about whether it would be wise to have providers, distributors or other business partners sign non-disclosure agreements.
- Ensure that confidential information within or without your company stay protected. Use a non-disclosure agreement (NDA) on meetings with external partners.
- Consider a specialist for patent search or for developing an effective IP strategy.

List of useful links

Important websites:

Espacenet https://worldwide.espacenet.com/

PATENTSCOPE https://www.wipo.int/patentscope/en/

TMview https://www.tmdn.org/tmview/welcome.html

DesignView https://www.tmdn.org/tmdsview-web/welcome.html

E-publications:

How to search for patent information
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-How-to-Search-for-Patent-Information.pdf

How to search for trade marks
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-How-to-Search-for-Trade-Marks.pdf

Design searching
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-Design-Searching_0.pdf

Trade secrets: An efficient tool for competitiveness
http://iprhelpdesk.eu/sites/default/files/newsdocuments/Fa

ct-Sheet-Trade-Secrets-Efficient-Tool-Competitiveness-EN.pdf

Intellectual Property Valuation
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-IP-Valuation.pdf

Non-Disclosure Agreement: a business tool
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-Non-Disclosure-Agreement-EN.pdf

Document templates:

One-way Non-Disclosure Agreement (Template)
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/One-Way-Non-Disclosure-Agreement-EN.pdf

Mutual Non-Disclosure Agreement (Template)
https://www.iprhelpdesk.eu/sites/default/files/newsdocuments/European%20IPR%20Helpdesk%20-%20mutual%20NDA%20-%202014.pdf

Case study:

Fortuna Federn/Phoenix: How bitter experience changed a company's IP approach
http://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Case-Study-Fortuna-Phoenix.pdf

Annexes

Table 1 – Trade secret vs. patent - comparison

Date of recommendation package

9th May 2019

Author

Slovak Centre of Scientific and Technical Information

Annex

Trade secret vs. patent - comparison

	Trade secret	Patent
Suitable for process or product	*Both*	*Mainly products*
Exclusive use right	No	Yes
Length of protection	*Unlimited (potentially)*	*20 years (if not challenged)*
Costs	*High ongoing costs to maintain secrecy*	*High costs to obtain*
Reverse engineering allowed	*Yes*	*Usually no*
European harmonisation	After directive transposition	Yes
Non-disclosure clauses in contracts	Yes	No
Internal controls required to establish the right	Yes	No
Codified knowledge	*No*	*Yes*
Tacit knowledge disclosure	*No*	*No*
Subject matter	*Broader*	*Statutory*
Timing	*Any*	*After invention*

4. Recommendation for Slovak institutions on the EIA (Environmental Impact Assessment) Process

Keywords: strategic environmental assessment, Slovak subjects application, environmental impact assessment of projects, mandatory assessment, buildings, intervention in the natural environment, landscape changes, mineral raw material

Events, consultations and interactions

Aims of this recommendation

This Recommendation package presents a practical tool for Slovak subjects in the EIA process. It clearly identifies the basic steps of this complicated process and helps to get familiar with selected terms and specifications required in the EIA process. Several supporting documents have been drawn up on the EIA at national level, but the simplification and clarification of this process needs to be addressed. For the preparation of EIA documentation, because of the complexity of the process, the proposers mostly sub-contract experts. This Recommendation package thus helps to make the process more transparent and to make the process more accessible to the wider public. The checklist for a good evaluation report, translated from English to Slovak, is also of practical use and is therefore more accessible to a wider range of Slovak entities that are required to report the intention of the proposed activity or its change according to the legislation in force. The checklist is listed in Annex I of this document. This document does not deal with the Strategic Environmental Assessment (SEA).

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions
- Companies
- Public institutions
- National and local public authorities

Background to this recommendation package

This document provides a guideline on the Environmental Impact Assessment process in Slovakia. All of the EU countries have to respect the common EU legislation however certain differences between national procedures are common. This guide provides a review on the EIA process in Slovakia, presents the actual national legislation and steps of the EIA process. A useful tool is a checklist for the EIA evaluation report elaboration which is translated from English to Slovak in order to fully assist Slovak applicants in this process.

Summary description

Environmental Impact Assessment is a legally defined process that assesses the likely impacts of the proposed activity or its change on the environment, including impacts on human health. EIA can be seen as a preventive tool for protecting and creating the environment that is used to predict, analyze and interpret significant environmental impacts of proposed activities or changes to them.

The process of assessing the impacts of the proposed activity on the environment, the so-called mandatory environmental impact assessment and its change consists of the following basic steps:

1. Preliminary Environmental Study and its commenting,

2. Determining the scope of the assessment and the time schedule,
3. Environmental Impact Statement and its commenting,
4. Public hearing of Environmental Impact Statement,
5. Expert review,
6. Final record.

In all phases of the procedure, consultation with the concerned public and the authorities should be ensured. When it comes to assessing cross-border effects, it is also necessary to consult with the concerned party.

Under the proposed activity or a change of the proposed activity, it is understood in particular the realization of buildings, other facilities, intervention in the natural environment or in the landscape changing the physical aspects of the site, including mining of mineral raw material.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

In the Slovak Republic, the legal framework for this area is defined by 2 legislation frameworks:

1. Act No. 24/2006 Coll. on Environmental Impact Assessment and on Amendments to Certain Acts, as amended ("the EIA Act"). The EIA Act has been amended in June 2017.
2. Decree of the Ministry of Environment of the Slovak Republic No. 113/2006 Coll., laying down the details of professional competence for environmental impact assessment, constitute the current legislative framework of EIA in Slovakia.

The Slovak legislation regarding EIA ensures full compatibility with EU law and international conventions binding on the Slovak Republic.

EIA PROCEDURE according to the Act No. 24/2006 Coll.

All of the assessment steps are interconnected and all the subjects of the appraisal process enter practically already in the initial phase. Time schedules for each step (stage) are designed to allow a rigorous assessment of the proposed activity without undue delays. The assessment process ends with a final position (final record).

The EIA procedure depends on the activity category – if the activity is listed in Part A or B of Annex No. 8 of the EIA law. This division defines the threshold values. They are expressed by limit values and criteria (e.g. performance, number of products produced, quantity of input material, size of the affected area, number of accommodation places, etc.).

Specification of individual procedures:

1. Mandatory assessment – if the planned activity by its parameters meets the criteria set out in Part A of Annex No. 8 of the EIA Act, it is mandatory to assess its foreseeable impact on the environment. In the final record, the competent authority shall state whether it agrees or disagrees with its implementation, under which conditions it agrees and in which implementation variant, as well as the required scope of the after-project analysis.

2. Screening procedure (not mandatory) – it is applied to activities where minor or no effect is foreseen or it is not entirely certain how severe the environmental impact could be, and this degree of severity should be confirmed. In the screening procedure are assessed the activities listed in Annex No. 8 Part B of the EIA Act. The conclusion is a decision whether the activity will be or will not be assessed.

3. Change of the proposed activity – this means increasing the scope of activity or changing the subject matter without changing the site.

How to integrate climate change and biodiversity into EIA

The EU recommends to include these topics in the appraisal process already in the initial stages (screening and scoping). This will increase the probability of their involvement in the remaining EIA stages and be brought to the attention of all the key stakeholders concerned. The theme of biodiversity and climate change should be put into the specific context of the project, as each EIA process is unique. It is necessary to identify the stakeholders to be involved in the decision-making process related to biodiversity / ecosystems and climate change. They should identify the key issues of these global issues at the very beginning of the process.

Assessment of cumulative and synergistic impacts

The EIA Act requires that impact assessments should take into account the interaction with other impacts – i.e not only the immediate impacts of the proposed activity. These are the cumulative and synergistic effects of the proposed activity with other activities that might influence the environment and health of the affected population in the given area. Only when assessing the impacts of all activities carried out in the territory can the environmental impact assessment be effective and comprehensive. This requirement must be reflected in the assessment report

(submitted by the proposer) as well as in the considerations and in the final record of the competent authority.

The cumulative impacts should include:

- Projects that have been implemented in the past and their negative effects persist,
- the expected impacts of the projects under preparation, which are in the approval process,
- impacts of projects and activities directly and indirectly related to the project under consideration.

BASIC STEPS OF THE EIA PROCESS

- Assessment of the environmental impacts of the proposed activity or its change (Mandatory assessment) – procedure and steps are illustrated here: https://www.enviroportal.sk/uploads/files/EIA_SEA/SchemaEIA1.jpg
- Assessment of the environmental impacts of the proposed activity or its change (Screening procedure) – procedure and steps https://www.enviroportal.sk/uploads/files/EIA_SEA/SchemaEIA2.jpg

Summary of recommendation

EIA is a two-step process. The first part consists of the collection and analysis of relevant information. The proposer prepares an intention (by himself or by an expert) and describes the likely impacts of the proposed activities on the environment. This identification of possible impacts should be as precise and objective as possible. In order to standardize the quality of the submitted documentation, the requirements on experts were introduced in the national legislation.

In the second phase, this information is assessed by competent authorities. They should carefully assess possible impact on the environment before deciding whether to permit the activity or not. A competent authority may conclude that the economic benefits of the project may outweigh the environmental damage they may cause. However, implementation of such an action without taking into account environmental consequences can not be allowed. Projects and activities that can cause significant environmental impacts should not be allowed to be implemented unless their possible environmental impacts are fully evaluated.

In-depth details / explanations of recommendations with links

References to the relevant resources recommended to be followed in the EIA process. These resources provide more detailed information on selected steps of the EIA process:

1. A brief flyer informing about the EIA process and its steps in Slovakia: https://www.enviroportal.sk/uploads/files/EIA_SEA/2018/EIASlovenskonovember-2017web16012018.pdf
2. Annex 8 of the EIA act: https://www.enviroportal.sk/uploads/2011/03/page/agendy/podnikatel/posudzo_20/Priloha_c_8_zakona.pdf
3. Assessment of the environmental impacts of the proposed activity or its change (Mandatory assessment) – procedure and steps https://www.enviroportal.sk/uploads/files/EIA_SEA/SchemaEIA1.jpg
4. Assessment of the environmental impacts of the proposed activity or its change (Screening procedure) – procedure and steps https://www.enviroportal.sk/uploads/files/EIA_SEA/SchemaEIA2.jpg
5. Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment
   1. EN version: http://ec.europa.eu/environment/eia/pdf/EIA%20Guidance.pdf
   2. SK version: https://www.enviroportal.sk/uploads/files/EIA_SEA/Usmernenie-pre-integraciu-klimatickych-zmien-a-biodiverzity-v-EIAslovensky.pdf
6. Environmental Impact Assessment of Projects. Guidance on the preparation of the Environmental Impact Assessment Report. This methodological manual, in addition to the standard features to be included in the assessment report, also includes a checklist for the preparation of a quality evaluation report. The checklist reflects 7 areas that are contained in 7 sections. It may serve to (not only) Slovak subjects in preparing a good EIA report.
   3. http://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf

Conclusions of recommendations

An important preventive tool to prevent the negative impact (not only) of industrial activities on the environment is the

Environmental Impact Assessment (EIA) process. Main objective of the EIA process is primarily to protect the environment from potential negative impacts. The benefits of the recommendation package are specific guidelines for developing a good assessment report in line with European legislation and recommendations, as well as getting acquainted with the concrete steps and stages of the EIA process, which is of considerable practical significance. This Recommendation package presents a practical tool for Slovak subjects in the EIA process. It describes basic steps of the EIA process and introduces selected terms and specifications required in the EIA process. A practical checklist listed in Annex I presents an effective self-evaluation tool for preparation of a good EIA report. It includes the evaluation grid in order to check whether all of the questions are reflected and properly answered.

Annexes

Annex 1: Checklist for the preparation of a quality evaluation report.

Date of recommendation package

March 2019

Author

Slovak Centre of Scientific and Technical Information

Annexes

Annex 1

Checklist for the preparation of a quality evaluation report. The checklist reflects 7 main areas. It may serve to (not only) Slovak subjects in preparing a good EIA report. Source: Environmental Impact Assessment of Projects. Guidance on the preparation of the Environmental Impact Assessment Report. The checklist has been translated from English to Slovak and an evaluation grid has been added in order to fully assist Slovak subjects to develop a good EIA evaluation report.

Checklist k správe o hodnotení EIA		Relevantná otázka?	Obsahuje správa danú skutočnosť?			Poznámka
Sekcia 1 Popis projektu			NIE	ÁNO	ČIASTOČNE ÁNO	
Ciele a popis projektu						
1.1	Sú vysvetlené ciele projektu a potreba projekt realizovať?					
1.2	Je popísaný program implementácie projektu, ktorý podrobne opisuje odhadovanú dĺžku času (napr. predpokladaný dátum začiatku a ukončenia) pre stavbu, prevádzku a vyraďovanie z prevádzky?					
1.3	Sú popísané všetky hlavné charakteristiky projektu?					
1.4	Je identifikované každé miesto (aj čiastkové) realizácie projektu za použitia máp, plánov, a aj schém ak nevyhnutné?					
1.5	Je popísané rozloženie miesta, kde bude projekt realizovaný? (vrátane pozemných úrovní, budov, iných fyzických objektov, podzemných prác, skladovacích zariadení, vodných prvkov, výsadby, prístupových ciest, hraníc areálu)					

1.6	Je pri lineárnom projekte popísaný koridor trasy, vertikálne, horizontálne vyrovnanie, tunelovanie a zemné práce?					
1.7	Sú popísané aktivity týkajúce sa stavebných prác (vrátane požiadaviek na užívanie pôdy)?					
1.8	Sú popísané aktivity týkajúce sa prevádzky projektu (vrátane požiadaviek na užívanie pôdy)?					
1.9	Sú popísané všetky činnosti spojené s vyraďovaním projektu z prevádzky? (napríklad uzatvorenie, demontáž, demolácia, odstránenie, obnovenie miesta, opätovné použitie, atď.),					
1.10	Sú popísané ďalšie činnosti nevyhnutné pre projekt? (napríklad dopravný prístup, voda, kanalizácia, likvidácia odpadu, elektrina, telekomunikácie)					
1.11	Sú identifikované ďalšie možné stavby ako následok projektu? (napr. nové domy, byty, cesty, vodná a kanalizačná infraštruktúra)					
1.12	Sú identifikované nejaké existujúce aktivity, ktoré sa budú musieť zmeniť alebo zaniknúť v dôsledku realizácie projektu?					
1.13	Sú identifikované iné existujúce alebo plánované stavebné činnosti, s ktorými by projekt mohol mať kumulatívne efekty?					
1.14	Je opísaný celý projekt, napr. vrátane všetkých pridružených / doplnkových prác?					
1.15	Sú niektoré činnosti opísané ako súčasť "celého projektu" vylúčené z hodnotenia? Sú takéto vylúčenia opodstatnené?					
Veľkosť projektu						
1.16	Je plocha pozemku, ktorá je zabraná všetkými stálymi komponentmi projektu, kvantifikovaná a zobrazená na mape? (vrátane prístupových úprav, terénnych úprav, pomocných zariadení)					
1.17	Je plocha pozemku dočasne zabraná kvôli projektu kvantifikovaná a zobrazená na mape?					
1.18	Je popísané obnovenie a znovu-použitie pozemkov dočasne zabraných projektom? (napr. v dôsledku ťažby nerastných surovín, a pod.)					
1.19	Je identifikovaná veľkosť akejkoľvek štruktúry alebo iných prác, ktoré sú súčasťou projektu? (napríklad podlahová plocha a výška budov, hĺbka výkopov, plocha alebo výška výsadby, výška konštrukcií, ako sú násypy, mosty alebo komíny, prietok alebo hĺbka vody)					
1.20	Je popísaný tvar a vzhľad všetkých štruktúr alebo iných diel, ktoré sú súčasťou projektu? (napríklad typ, povrch a farba materiálov, architektonický návrh budov a konštrukcií, druhy rastlín, povrch zeme atď.),					

1.21	V prípade urbánnych alebo podobných stavebných projektov, sú uvedené počty a iné charakteristiky nového obyvateľstva alebo podnikateľskej komunity?					
1.22	Pre projekty, ktoré zahŕňajú vysťahovanie ľudí alebo podnikov, boli popísané počty a iné charakteristiky tých, ktorí boli vysídlení?					
1.23	V prípade projektov dopravnej infraštruktúry alebo projektov, ktoré vytvárajú značnú dopravnú záťaž, je popísaný typ, objem, časový model, geografické rozloženie novej dopravnej situácie, vrátane odklonenia dopravy?					
Výrobné procesy a použité zdroje						
1.24	Sú popísané všetky procesy, ktoré budú súčasťou prevádzky? (výrobné alebo inžinierske procesy, výroba primárnych surovín, poľnohospodárske alebo lesné produkčné metódy, ťažobné procesy)					
1.25	Sú popísané typy a množstvá výstupov produkovaných projektom? (môžu to byť primárne alebo finálne výrobky,produkty ako napr elektrická energia, voda alebo služby, ako sú domy, doprava, maloobchod, rekreácia, vzdelávanie, komunálne služby (voda, odpad, atď.),					
1.26	Sú prediskutované typy a objemy zdrojov (vrátane vody, pozemkov, pôdy, biodiverzity), surovín, energií potrebných pre výstavbu a prevádzku?					
1.27	Sú prediskutované environmentálne dopady získavania zdrojov, napr. prírodných zdrojov (vrátane vody, pozemkov, pôdy, biodiverzity), surovín, energií?					
1.28	Je prediskutovaná efektívnosť a udržateľnosť používania zdrojov, napr. prírodných zdrojov (vrátane vody, pozemkov, pôdy, biodiverzity), surovín, energií?					
1.29	Je identifikované a kvantifikované použitie, uskladňovanie, narábanie a produkcia nebezpečných materiálov? • počas výstavby; • počas prevádzky; • počas vyraďovania z prevádzky.					
1.30	Je prediskutovaný transport zdrojov, vrátane prírodných zdrojov (vrátane vody, pozemkov, pôdy a biodiverzity) a surovín na miesto projektu a počet transportov? (vrátane cestnej, železničnej a námornej dopravy) • počas výstavby; • počas prevádzky; • počas vyraďovania.					
1.31	Je riešený environmentálne relevantný sociálny a sociálno-ekonomický dopad projektu? Budú napr. vytvorené nové pracovné miesta alebo naopak zaniknuté? • počas výstavby; • počas prevádzky; • počas vyraďovania.					
1.32	Sú odhadnuté prístupové plány a počty dopravných pohybov, ktoré dopravia pracovníkov a návštevníkov projektu? • počas výstavby; • počas prevádzky; • počas vyraďovania.					

1.33	Je prerokované bývanie a poskytovanie služieb pre dočasných alebo stálych zamestnancov projektu? (to je dôležité pre projekty, ktoré predpokladajú prechod pracovnej sily do oblasti, či už kvôli výstavbe alebo v dlhodobom horizonte)					
Odpady a emisie						
1.34	Sú identifikované typy a množstvá tuhého odpadu vygenerované v projekte? (vrátane výstavby alebo demolácie odpadov, spracovaných odpadov, vedľajších produktov, nadbytočných alebo kazových výrobkov, nebezpečných odpadov, poľnohospodárskych alebo lesných odpadov, odpadov z čistenia staveniska, banských odpadov, odpadov z vyraďovania) • počas výstavby; • počas prevádzky; • počas vyraďovania.					
1.35	Je uvedené zloženie a toxicita alebo iné nebezpečenstvá zo všetkých tuhých odpadov produkovaných projektom?					
1.36	Sú opísané metódy zberu, skladovania, spracovania, prepravy a konečného odstránenia týchto tuhých odpadov?					
1.37	Sú uvedené miesta na konečné zneškodnenie všetkých tuhých odpadov, berúc do úvahy príslušný (-é) plán (-y) odpadového hospodárstva?					
1.38	Sú identifikované typy a množstvá odpadových vôd produkovaných projektom? (vrátane kanalizácie a odtoku, procesných odpadov, chladiacej vody, a pod.) • počas výstavby; • počas prevádzky; • počas vyraďovania.					
1.39	Je uvedené zloženie a toxicita alebo iné nebezpečenstvo všetkých odpadových vôd vyprodukovaných projektom?					
1.40	Sú opísané metódy zhromažďovania, skladovania, spracovania, prepravy a nakoniec likvidácie týchto odpadových vôd?					
1.41	Sú uvedené miesta na konečné zneškodnenie všetkých odpadových vôd?					
1.42	Sú identifikované typy a množstvo emisií plynných a tuhých častíc? (vrátane emisií z procesov, fugitívnych emisií, emisií zo spaľovania fosílnych palív v stacionárnych a mobilných zariadeniach, emisií z dopravy, prachu z manipulácie s materiálom, zápachu) • počas výstavby; • počas prevádzky; • počas vyraďovania.					
1.43	Je uvedené zloženie a toxicita alebo iné riziká všetkých emisií do ovzdušia produkovaných projektom?					
1.44	Sú opísané metódy zberu, spracovania a konečného vypúšťania týchto emisií do ovzdušia?					
1.45	Sú identifikované miesta na vypúšťanie všetkých emisií do ovzdušia a boli identifikované charakteristiky vypúšťania? (napríklad výška komínu, rýchlosť a teplota uvoľňovania)					
1.46	Sú popísané metódy na zachytávanie, spracovanie a uskladňovanie týchto emisií?					

1.47	Sú identifikované miesta na uskladňovanie všetkých emisií a sú uvedené charakteristiky týchto uskladňovacích jednotiek? (napríklad typ úložnej jednotky, skladovacia kapacita, použité metódy)					
1.48	Je identifikovaný potenciál spätného zhodnocovania odpadov a zvyškov? (vrátane opätovného použitia, recyklácie alebo získavania energie z pevného a kvapalného odpadu)					
1.49	Sú identifikované a kvantifikované akékoľvek zdroje hluku, tepla, svetla alebo elektromagnetického žiarenia z projektu? (vrátane zariadení, procesov, stavebných prác, dopravy, osvetlenia atď.),					
1.50	Sú popísané metódy na odhad množstva a zloženia všetkých typov odpadov a emisií a tiež uvedené možné komplikácie?					
1.51	Sú uvedené neistoty spojené s odhadmi odpadov a emisií?					
1.52	Sú zohľadnené niektoré riziká spojené s projektom? • riziká pri manipulácii s nebezpečnými materiálmi; • riziká vyplývajúce z požiaru, výbuchu; • riziká dopravných nehôd; • riziká vyplývajúce z poruchy alebo zlyhania procesov alebo zariadení; • riziká vyplývajúce z vystavenia projektu prírodným katastrofám (zemetrasenie, záplavy, zosuvy atď.).					
1.53	Sú popísané opatrenia na prevenciu a reakciu na nehody a nezvyčajné udalosti? (preventívne opatrenia, školenia, pohotovostné plány, núdzové plány, systémy včasného varovania atď.)					
1.54	Existuje plán, ktorý podrobne opisuje pripravenosť na mimoriadnu udalosť (napríklad navrhnutý ako súčasť opatrení na zmiernenie vplyvov správy o hodnotení vplyvu činnosti na životné prostredie)?					
1.55	Je tento plán v súlade s inými požiadavkami v rámci platných národných alebo EÚ právnych predpisov, napr. Smernica Seveso (smernica 2012/18 / EÚ o kontrole nebezpečenstiev veľkých havárií s prítomnosťou nebezpečných látok), ktorá sa týka havarijných plánov?					
	SPOLU					
SEKCIA 2 Popis environmentálnych faktorov, ktoré môže projekt ovplyvniť						
Východisko: Aspekty životného prostredia						
2.1	Sú popísané existujúce využitia pozemkov zabraných pozemkov projektom a okolitých území a sú identifikovaní nejakí obyvatelia žijúci na týchto pozemkoch alebo ich užívajú? (vrátane bývania, komerčných aktivít, poľnohospodárstva, rekreácie, a všetkých budov a objektov?					
2.2	Je popísaná topografia, geológia, pôda pozemkov, ktoré zaberie projekt a okolité územia?					
2.3	Sú popísané nejaké významné topografické alebo geologické znaky oblasti a sú popísané podmienky a využitie pôdy? (vrátane stability a erózie kvality pôdy, poľnohospodárskeho využitia a kvality poľnohospodárskej pôdy)					
2.4	Je biodiverzita krajiny ovplyvnená projektom a okolité územie opísané a znázornené na vhodných mapách?					

2.5	Sú popísané druhy (vrátane ich populácie a biotopov) a typy biotopov, ktoré môžu byť ovplyvnené projektom? (Osobitná pozornosť by sa mala venovať všetkým druhom a biotopom chráneným podľa smerníc o biotopoch a vtákoch)					
2.6	Sú popísané územia NATURA 2000, ktoré môžu byť projektom dotknuté?					
2.7	Je popísané vodné prostredie oblasti? (vrátane odkazov na akékoľvek plány manažmentu povodí / program opatrení podľa rámcovej smernice o vode, toky a statické povrchové vody, podzemné vody, ústia riek, pobrežné vody, vrátane odtoku. Nerelevantné, ak projekt neovplyvní vodné prostredie.					
2.8	Sú popísané hydrológia, kvalita vody a využitie akýchkoľvek vodných zdrojov, ktoré môžu byť projektom ovplyvnené? (vrátane akýchkoľvek plánov manažmentu povodia / program opatrení podľa rámcovej smernice o vode, využitie pre zásobovanie vodou, rybolov, kúpanie, vybavenie, likvidácia odpadových vôd)					
2.9	Sú popísané miestne klimatické a meteorologické podmienky? (Nerelevantné, ak projekt neovplyvní atmosferické prostredie)					
2.10	Je popísaná existujúca kvalita ovzdušia vrátane (ak relevantné) limitných hodnôt stanovených smernicami 2008/50/ES a 2004/107/ES, ako aj príslušnými programami prijatými podľa týchto právnych predpisov? (Nerelevantné, ak projekt nebude mať vplyv na ovzdušie)					
2.11	Je opísaná existujúca hlučnosť vrátane prípadných odkazov na mapy hluku a akčné plány stanovené v smernici o hluku v životnom prostredí (2002/49 / EU)? (Nerelevantné, ak projekt neovplyvní akustické prostredie)					
2.12	Je popísaná existujúca situácia týkajúca sa svetla, tepla a elektromagnetického žiarenia? (Nerelevantné, ak tieto charakteristiky životného prostredia nebudú ovplyvnené projektom)					
2.13	Boli popísané materiálne statky nachádzajúce sa v lokalite ovplyvnenej projektom? (vrátane budov, iných stavieb, nerastných zdrojov, vodných zdrojov)					
2.14	Sú popísané nejaké lokality alebo prvky archeologického, historického, architektonického alebo iného komunitného alebo kultúrneho významu v oblasti, ktorá môže byť ovplyvnená projektom, vrátane všetkých určených alebo chránených lokalít?					
2.15	Je popísaná krajina alebo mestská oblasť, ktoré môžu byť ovplyvnené projektom, vrátane akejkoľvek označenej alebo chránenej krajiny?					
2.16	Sú popísané demografické, sociálne a sociálno-ekonomické podmienky (napríklad zamestnanosť)?					
2.17	Sú popísané nejaké budúce zmeny v niektorom z vyššie uvedených aspektov životného prostredia, ktoré sa môžu vyskytnúť v prípade absencie projektu? (tzv. dynamická základňa)					
Zber dát a metódy						

2.18	Je oblasť štúdie definovaná dostatočne široko, aby zahŕňala všetky oblasti, ktoré by mohli byť projektom významne ovplyvnené?					
2.19	Boli kontaktované všetky príslušné národné a miestne orgány s cieľom zbierať informácie o východiskovej situácii?					
2.20	Boli preskúmané všetky zdroje údajov a informácií z existujúcich databáz, bezplatných služieb a iných relevantných environmentálnych hodnotení?					
2.21	Sú zdroje dát adekvátne uvedené?					
2.22	Je poskytnuté odôvodnenie o tom, prečo boli použité konkrétne existujúce súbory údajov, na rozdiel od tých, ktoré použité neboli?					
2.23	Kde bol realizovaný zber dát za účelom popisu východiskovej situácie, boli popísané použité metódy, komplikácie, ktoré sa vyskytli a nejaké nejasnosti?					
2.24	Boli metódy použité adekvátne k účelu?					
2.25	Sú popísané metódy použité na predikciu vplyvu projektu na klimatické zmeny? (ak relevantné)					
2.26	Sú popísané metódy použité na predpovedanie vplyvu zmeny klímy na projekt?					
2.27	Sú analyzované pochybnosti spojené s predpovediami vývoja klimatických zmien? (Ak relevantné)					
2.28	Uvažoval navrhovateľ o hodnotení životného cyklu projektu s cieľom popísať vplyv projektu na zmenu klímy? (ak relevantné)					
2.29	Boli vysvetlené nejaké dôležité medzery v údajoch o existujúcich predpovediach o životnom prostredí / vývoji (napr. zmena klímy) a prostriedky, ktoré boli použité pri riešení týchto medzier počas hodnotenia?					
2.30	Ak by sa vyžadoval zber údajov, aby sa primerane charakterizovala východisková situácia, ale neboli z nejakého dôvodu uskutočniteľné, vysvetlili sa dôvody a navrhli sa návrhy na uskutočnenie prieskumov v neskoršom štádiu?					
	SPOLU					
Sekcia 3 Popis možných významných dopadov projektu						
Popis dopadov						
3.1	Je popísaný proces, ktorým bol stanovený rozsah hodnotenia pre správu o hodnotení?					
3.2	Je zrejmé, že bol prijatý systematický prístup k rozsahu?					
3.3	Bola realizovaná konzultácia počas stanovenia rozsahu?					
3.4	Boli prezentované pripomienky a názory konzultantov?					
Predikcia priamych dopadov						
3.5	Sú popísané priame, primárne dopady na užívanie pozemkov, ľudí a majetok a ak relevantné, tak aj kvantifikované?					

3.6	Sú popísané priame, primárne dopady na geologické vlastnosti a charakteristiky pôdy a ak relevantné, tak aj kvantifikované?					
3.7	Sú popísané priame, primárne dopady na biodiverzitu a ak relevantné, tak aj kvantifikované? Ak relevatné, odkazuje sa na územie NATURA 2000?					
3.8	Sú popísané priame, primárne dopady na hydrológiu a kvalitu vôd a ak relevantné, tak aj kvantifikované?					
3.9	Sú popísané priame, primárne dopady na využívanie vodného prostredia a ak relevantné, tak aj kvantifikované?					
3.10	Sú popísané priame, primárne dopady na kvalitu vzduchu a ak relevantné, tak aj kvantifikované?					
3.11	Sú popísané priame, primárne dopady na klimatické zmeny a ak relevantné, tak aj kvantifikované?					
3.12	Sú popísané priame, primárne dopady na akustické prostredie (hluk a vibrácie) a ak relevantné, tak aj kvantifikované?					
3.13	Sú popísané priame, primárne dopady na teplo, svetlo, elektromagnetické žiarenie a ak relevantné, tak aj kvantifikované?					
3.14	Sú popísané priame, primárne dopady na materiál a na čerpanie prírodných zdrojov (napr. fosílne palivá, minerály)?					
3.15	Sú popísané priame, primárne dopady na miesta kultúrneho významu?					
3.16	Sú popísané priame, primárne dopady na kvalitu krajiny a na pohľady a názory a ak relevantné, tak aj kvantifikované?					
3.17	Sú popísané priame, primárne dopady na environmentálne súvisiacu demografiu, sociálne a sociálno-ekonomické podmienky v danej lokalite a ak relevantné, tak aj kvantifikované?					
3.18	Sú popísané sekundárne dopady na niektoré z vyššie uvedených environmentálnych aspektov, vyvolané primárnymi dopadmi alebo inými dopadmi a ak relevantné, tak aj kvantifikované? (napr. dopady na biodiverzitu vrátane druhov a biotopov chránených smernicami 92/43 / EHS a 2009/147 / ES spôsobené znečistením pôdy, ovzdušia alebo vody alebo hlukom, dopady na používanie vody spôsobené zmenami v hydrológii alebo kvalite vody; dopady na archeologické náleziská spôsobené vysychaním pôdy)					
3.19	Boli popísané dočasné, krátkodobé dopady počas výstavby alebo počas časovo obmedzených fáz projektu alebo vyraďovania z prevádzky? (napríklad emisie produkované počas výstavby)					
3.20	Sú popísané trvalé dopady na životné prostredie spôsobené výstavbou, prevádzkou alebo vyraďovaním z prevádzky?					
3.21	Sú popísané dlhodobé dopady na životné prostredie, ktoré boli spôsobené počas životnosti projektových činností alebo spôsobené nahromadením znečisťujúcich látok v prostredí?					
3.22	Sú dopady, ktoré by mohli vzniknúť v dôsledku nehôd, mimoriadnych udalostí, prírodných katastrof alebo katastrof spôsobených ľudskou činnosťou, popísané a v prípade potreby kvantifikované?					

3.23	Sú popísané účinky na životné prostredie spôsobené činnosťami vedľajšími k hlavnému projektu? (vedľajšie činnosti sú súčasťou projektu, ale zvyčajne sa uskutočňujú vo vzdialenosti od hlavného miesta projektu, napr. výstavba prístupových ciest a infraštruktúry, pohybové cesty, získavanie kameniva alebo iných surovín, výroba a dodávka energie, likvidácia odpadových vôd alebo odpadov).					
3.24	Sú popísané nepriame účinky na životné prostredie spôsobené následným vývojom? (následným vývojom sú iné projekty, ktoré nie sú súčasťou hlavného projektu a ktoré sa stimulujú realizáciou projektu, napríklad poskytnutím nového tovaru alebo služieb potrebných pre projekt, na ubytovacie možnosti pre nových obyvateľov alebo podnikov stimulovaných projektom)					
3.25	Sú popísané kumulatívne účinky na životné prostredie projektu spolu s inými existujúcimi alebo plánovanými stavebnými činnosťami v lokalite? (mali by sa opísať rôzne budúce scenáre vrátane scenára najhoršieho prípadu, ako aj účinky na zmenu klímy a biodiverzitu).					
3.26	Sú popísané cezhraničné vplyvy na životné prostredie projektu, a to buď počas výstavby alebo prevádzky?					
3.27	Je popísaný geografický rozsah, trvanie, frekvencia, reverzibilita a pravdepodobnosť výskytu každého vhodného dopadu?					
Predpovedanie dopadov na ľudské zdravie a otázky trvalo udržateľného rozvoja						
3.28	Sú popísané primárne a sekundárne účinky na ľudské zdravie a dobré životné podmienky, a v prípade potreby kvantifikované? (napr. účinky na zdravie spôsobené uvoľňovaním toxických látok do životného prostredia, zdravotné riziká vyplývajúce z veľkých nebezpečenstiev súvisiacich s projektom, účinky spôsobené zmenami vektorov ochorenia spôsobenými projektom, zmeny v životných podmienkach, účinky na zraniteľné skupiny).					
3.29	Sú analyzované dopady na biodiverzitu, globálne klimatické zmeny, používanie prírodných zdrojov, riziko katastrof?					
Hodnotenie významu dopadov						
3.30	Je jasne vysvetlený význam alebo dôležitosť každého predikovaného dopadu s odkazom na právne alebo politické požiadavky, iné normy a počet, dôležitosť a citlivosť ľudí, zdrojov alebo iných vnemov?					
3.31	Ak sú dopady hodnotené podľa právnych noriem alebo požiadaviek, použili sa príslušné miestne, národné alebo medzinárodné normy a dodržiavali sa príslušné pokyny?					
3.32	Sú popísané pozitívne účinky na životné prostredie, ako aj negatívne účinky?					
3.33	Použili sa metódy na predpovedanie opísaných dopadov a dôvody ich výberu? Vyskytli sa pri tom nejaké ťažkosti alebo neistoty vo výsledkoch?					
3.34	Ak existuje pochybnosť o presných podrobnostiach projektu a jeho vplyve na životné prostredie / zmenu klímy, boli opísané predpovede najhoršieho prípadu?					

3.35	Ak sa vyskytli ťažkosti pri zostavovaní údajov potrebných na predpovedanie alebo vyhodnotenie vplyvov, boli tieto ťažkosti uznané a prediskutované ich dôsledky na výsledky?					
3.36	Je jasne popísaný základ hodnotenia dôležitosti vplyvov?					
3.37	Boli dopady opísané na základe toho, že všetky navrhované opatrenia na zmiernenie boli zavedené?					
3.38	Je úroveň ošetrenia každého dopadu primeraná jeho významu pre rozhodnutie o povolení projektu? Diskutuje sa o kľúčových otázkach a vyhnú sa irelevantným alebo nepotrebným informáciám?					
3.39	Je vhodný dôraz kladený na najvážnejšie nepriaznivé účinky projektu a menší dôraz na menej významné účinky?					
3.40	Zohľadnili sa pri príprave správy o posudzovaní vplyvov na životné prostredie dostupné výsledky iných relevantných hodnotení podľa právnych predpisov EÚ alebo vnútroštátnych právnych predpisov (za účelom obmedzenia duplicity hodnotení)? Ak áno, ako to bolo urobené?					
	SPOLU					
Sekcia 4 zvažovanie variantov						
4.1	Boli zohľadnené rôzne varianty navrhnuté počas rozsahu hodnotenia a ak nie, bolo poskytnuté odôvodnenie?					
4.2	Identifikovali a zvážili navrhovatelia a odborníci, ktorí pripravujú správu o hodnotení, ďalšie varianty (k tým, ktoré boli navrhnuté pri určovaní rozsahu)?					
4.3	Sú popísané procesy, v rámci ktorých bol projekt vypracovaný, a sú opísané varianty k návrhu projektu, ktoré boli zvážené počas tohto procesu?					
4.4	Boli popísané varianty návrhu vzhľadom na tento proces?					
4.5	Boli varianty k technológii zvážené počas tohto procesu?					
4.6	Boli opísané varianty k miestu počas tohto procesu?					
4.7	Boli opísané varianty k veľkosti projektu počas tohto procesu?					
4.8	Boli opísané varianty škály počas tohto procesu?					
4.9	Je zaznamenaná východisková situácia v nulovom variante?					
4.10	Sú varianty realistické vzhľadom k projektu? (t.j. realizovateľné možnosti projektu, ktoré spĺňajú ciele)					
4.11	Boli poskytnuté hlavné dôvody pre výber navrhovaného projektu vrátane uvedenia hlavných dôvodov výberu zvolenej možnosti vrátane porovnania vplyvov na životné prostredie?					
4.12	Sú hlavné environmentálne dopady variantov porovnané s výsledkami navrhovaného projektu?					
4.13	Zohľadňujú sa opatrenia na zmiernenie v hodnotení variantov?					
	SPOLU					
Sekcia 5 opis zmiernenia						
5.1	Ak existujú významné nepriaznivé účinky na akýkoľvek aspekt životného prostredia, bolo možné diskutovať o možnostiach zmiernenia týchto účinkov?					
5.2	Boli opatrenia, ktoré navrhovateľ zaviedol s cieľom zmierniť dopady, jasne opísané a ich vplyv na rozsah a význam vplyvov bol jasne vysvetlený?					

5.3	Boli popísané negatívne dôsledky stratégie zmierňovania následkov?					
5.4	Ak je vplyv opatrení na zmiernenie vplyvov na veľkosť a význam vplyvov neistý, bolo to vysvetlené?					
5.5	Je jasné, či sa navrhovateľ zaviazal zaviesť navrhované zmierňovanie alebo uznal, že opatrenia na zmiernenie sú len návrhy alebo odporúčania?					
5.6	Opatrenia na zmiernenie vplyvov pokrývajú aj fázu výstavby a prevádzky projektu?					
5.7	Boli vysvetlené dôvody navrhovateľa na výber navrhovaného zmierňovania?					
5.8	Boli jasne definované zodpovednosti za implementáciu zmierňovania, vrátane úloh, zodpovedností a zdrojov?					
5.9	Ak zmiernenie významných nepriaznivých účinkov nie je uskutočniteľné, alebo ak sa navrhovateľ rozhodol, že nenavrhuje žiadne zmierňovanie, boli tieto dôvody jasne vysvetlené?					
5.10	Je zrejmé, že odborníci, ktorí vypracovali správu o hodnotení vplyvu na životné prostredie a navrhovateľ, posúdili celý rozsah možných prístupov k zmierňovaniu, vrátane opatrení na predchádzanie alebo zníženie a podľa možnosti kompenzáciu vplyvu alternatív stratégie alebo lokality, zmeny návrhu a usporiadania projektu, zmeny metód a procesov, zmeny v implementačných plánoch a postupoch riadenia, opatrenia na opravu alebo nápravu vplyvov a opatrenia na kompenzáciu vplyvov?					
	SPOLU					
Sekcia 6 opis monitorovacích opatrení						
6.1	Ak sa očakávajú nepriaznivé účinky na akýkoľvek aspekt životného prostredia, bol potenciál na monitorovanie týchto efektov analyzovaný?					
6.2	Sú opatrenia, ktoré navrhovateľ implementuje na monitorovanie účinkov, jasne opísané a ich cieľ bol jasne vysvetlený?					
6.3	Je jasné, či sa navrhovateľ zaviazal zaviesť navrhovaný monitorovací program alebo sú monitorovacie opatrenia len návrhy alebo odporúčania?					
6.4	Boli vysvetlené dôvody navrhovateľa na výber navrhovaného monitorovacieho programu?					
6.5	Boli jasne zadefinované zodpovednosti za implementáciu monitorovania vrátane úloh, zodpovedností a zdrojov?					
6.6	V prípade, že monitorovanie nepriaznivých účinkov nie je uskutočniteľné alebo ak sa navrhovateľ rozhodol nepredložiť žiadne monitorovacie opatrenia, boli dôvody na to jasne vysvetlené?					

6.7	Je zrejmé, že odborníci, ktorí vypracovali správu o hodnotení vplyvu na životné prostredie a navrhovateľ, posúdili celý rozsah možných prístupov k monitorovaniu vrátane monitorovacích opatrení vzťahujúcich sa na všetky existujúce právne predpisy v oblasti životného prostredia, monitorovacie opatrenia vyplývajúce z iných právnych predpisov s cieľom zabrániť duplicite, monitorovanie opatrení na zmiernenie očakávané významné účinky sa zmiernia podľa plánu), monitorovacie opatrenia schopné identifikovať dôležité nepredvídané účinky?					
6.8	Boli navrhnuté opatrenia na monitorovanie a riadenie konzekvenčných dopadov?					
	SPOLU					
Sekcia 7 kvalita						
Kvalita prezentácie						
7.1	Je správa o hodnotení dostupná v jednom alebo viacerých jasne definovaných dokumentoch?					
7.2	Je dokument logicky organizovaný a jasne štruktúrovaný tak, aby čitateľ ľahko vyhľadal informácie?					
7.3	Existuje obsah na začiatku dokumentu (dokumentov)?					
7.4	Existuje jasný opis postupu, ktorý bol dodržaný?					
7.5	Je prezentácia komplexná, ale stručná, vyhýbajúc sa irelevantným údajom a informáciám?					
7.6	Obsahuje prezentácia efektívne využitie tabuliek, obrázkov, máp, fotografií a iných grafických prvkov?					
7.7	Využíva prezentácia efektívne prílohy s cieľom prezentovať podrobné údaje, ktoré nie sú podstatné pre pochopenie hlavného textu?					
7.8	Sú všetky analýzy a závery adekvátne podporované údajmi a odkazmi?					
7.9	Sú správne použité všetky zdroje údajov a odkazy na nich?					
7.10	Bola terminológia konzistentne používaná v celom dokumente?					
7.11	Je umožnené čítať správu ako jeden dokument s krížovým odkazom medzi sekciami, ktoré pomáhajú čitateľovi prechádzať dokumentmi?					
7.12	Je prezentácia nestranná a objektívna?					
Netechnické zhrnutie						
7.13	Obsahuje správa o hodnotení vplyvov na životné prostredie aj netechnické zhrnutie?					
7.14	Poskytuje zhrnutie stručný, ale komplexný opis projektu, jeho prostredia, vplyvy projektu na životné prostredie, navrhované zmierňujúce opatrenia a navrhované monitorovacie opatrenia?					
7.15	Obsahuje zhrnutie dôležité nejasnosti týkajúce sa projektu a jeho vplyvov na životné prostredie?					
7.16	Vysvetľuje zhrnutie proces žiadosti o stavebné povolenie a úlohu EIA v tomto procese?					
7.17	Poskytuje zhrnutie prehľad o prístupe k hodnoteniu?					

7.18	Bolo zhrnutie napísané netechnickým jazykom? Vyhýbalo sa technickým výrazom, podrobným údajom a vedeckej diskusii?					
7.19	Bolo by toto zhrnutie zrozumiteľné pre laickú verejnosť?					
Expertíza						
7.20	Je kompetencia odborníkov, ktorí sú zodpovední za prípravu správy o hodnotení, uvedená alebo inak vysvetlená?					
7.21	Splnil navrhovateľ vnútroštátne alebo miestne právne požiadavky a postupy pre výber odborníkov zodpovedných za prípravu správy o hodnotení?					

5. Recommendation to partner engaged in research and development in the field of industrial waste.

Recommendation to stakeholder engaged in research and development in the field of industrial waste processing so that they can be reused and able to replace raw inputs.

Keywords: intellectual property protection, Non-disclosure Agreement (NDA), waste management, REACH, establishing cooperation among companies in ecoinnovation

Partnership guidance

Aims of this recommendation

The purpose of this publication is to identify issues that have led to unsuccessful technology implementation with the stakeholder's business partner and suggestions on how to remove them.

The aim is the Identification of problems in the implementation of innovative technology in waste management.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Companies
- Research and development (R&D) institutions
- EcoInnovators

Background to this recommendation package

The company based in Slovakia was addressed to provide consultations that would lead to the identification of business problems that prevent innovative ideas from being put into practice and suggestions / recommendations that would lead to their removal.

This recommendation package is intended for small and medium-sized enterprises, research and development centres with innovative ideas and solutions that encounter problems in their implementation.

The company deals with research and development in the field of industrial waste processing so that they can be reused and able to replace raw inputs. The company is a member of the research and development centre for raw materials extraction and processing at Slovakian university and member of National Technology Platform for Production, Development and Innovation of Raw Materials, where he collaborates on the "Recycling and Substitution" platform.

Eco-solutions provided by the company:

1.) Agglomeration of products or waste for re-use as a substitute for purchased raw materials. This is the palletisation of dusts, respectively dust briquetting, sawdust with the possibility of incorporating waste replacing waste aggregates and as well as waste replacing used fuel both dry and wet.

2.) Unwinding / resistance to dust. These are mainly waste and, semi-finished products from metallurgical iron and non-ferrous metals. (Steel and blast-furnace sludge and dust, iron ore dust, oily ores arising from the production of pig iron and steel, powders from electric arc furnaces, old waste

dumps, shaft mines in the production of non-ferrous metals, etc.)

3.) Search for the use of landfilled products, by-products and waste generated during production. Producers are trying to get rid of them and eliminate it, but it's not always possible. Hence, industrial waste dumps of large dimensions are created. But with the appropriate chemical composition, respectively its modification and adjusted granulometry to the required parameter, it is possible to reuse it with another producer as a replacement for purchased inputs.

Summary description

THE COMPANY has been operating in the field of waste management research and development since 1997. In the long run, it has been exclusively devoted to the research and development society. In the field of industrial waste treatment, it examines appropriate technological processes that enable the waste to be processed so that it can be reused in the production. The company has several successful collaborations with industrial waste producers on its account. However, significant cooperation has been achieved not only to save the partner's financial resources but also to improve the protection of the environment. At present, with developed processes and technologies, approximately 2,000 tonnes of waste is processed per month, which is low compared to the original processing plan of 15,000-30,000 tonnes of waste per month. The results of the research are carried out at the producer of waste with the assistance of our partners.

On the other hand, it is the waste producer, producers who have replaced their expensive raw inputs with cheaply purchased and processed waste into the desired form of great savings.

Plan of the company was based on European legislation for iron and steel producers from the Commission's Implementing Decision of 28 February 2012, published in accordance with Directive 2010/75 / EU on Industrial Emissions Leadings for Best Available Techniques (BAT) for Iron and Steel Production 08.03.2012 in the Official Journal of the European Union 2012/135 / EU. The relevant EU document sets out the necessary steps and investments to modernize the production of iron and steel. Our development as well as our own investment, in cooperation with our investment partners and banks, will help iron and steel producers meet the BAT 8 and / BAT 9 (Management of residues from processes such as by-products and waste) as well as BAT 31 (Residues from production).

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

At our research-development base in Slovakia we have handling equipment (VZV, UNC loader, pallet trucks ...) 6 m long rotary kiln (maximum temperature up to 1,300 oC), 5 m long rotary dryer (max. 600 °C), integrated heating unit (ITA, max. Temperature up to 600 °C suitable both for heating and cooling), electric stack with max. temperature up to 1400 oC, pelletizing plate, weighing machine, magnetic separator, pellet, crushers, conveyors, feeders, 250l mixer, sieves as well as other tools that we modify on a particular customer, respectively we test the supplied samples. Every customer, although using the raw materials inputs from different vendors from the same industry, and so its waste is different. Therefore, for each potential customer, we handle a series of experiments with its waste. We try to process all or most of its waste. Based on the annual occurrence of waste, we try to incorporate all waste into the tested recipes in a proportionate manner.

Summary of status of knowledge transfer

We routinely negotiate with different companies and find appropriate economic solutions for processing different products (whether from their production or third party production). In many big companies, the unpublished law is a plan and its fulfilling. Unfortunately, many people in the decision-making positions perceive this as something superfluous, which will not help him to fulfil the plan and take the necessary time to solve everyday problems in production. Another problem is to agree on a contract. Most of these companies have foreign owners, who are in charge of sending executives from abroad from their other operations or from their headquarters. They are motivated by and pushing only for a profit, and they often negotiate arrogantly out of power. In their positions they rotate and stay in Europe respectively in Slovakia for max. 2-3 years. With such partners, we quickly end up even potentially interesting and win-win cooperation. Unfortunately, their attitude is sometimes difficult to understand.

After successful trials, we offer our partners a build-up facility at the waste producer´s location and the waste producer, based on a lease of the technology line, is renting its capacity. The same applies if the manufacturer decides to purchase waste from third parties to replace the raw materials inputs processed by the waste so far used and purchased. The producer of waste does not have to look for

investment funds that are not planned and thus the implementation of the project is considerably simplified and accelerating. Since waste treatment is a decision to build a new technological waste treatment line, it is time-consuming to obtain the necessary approvals of the state administration and the municipality. (EIA, Integrated Permit, etc.)

Summary of recommendation(s)

The EU, its member countries and especially Slovakia must put more pressure on the producers of waste but also control them whether they are doing what they should do. It is not a waste disposal solution to register as REACH material and continue to treat it as waste, that is, the REACH registrated material is landfilled in the landfill. The waste producer is responsible for classifying the waste into the EWC. How is it possible that the same waste is grouped into two different groups by two different producers? One is the other waste and the other is hazardous waste.

The increase in charges under the EU waste landfill directive, which has been in existence for many years, will finally lead to a life of economic pressure on producers of waste who, under this economic pressure and sanctions, will be actively addressing their waste.

Note: Current landfilling fees in Slovakia are among the lowest in the EU.

In-depth details / explanations of recommendations

Discussion on steps that could lead to new negotiations:

Consider the use of occasional communication (Issues communications), which is mainly used to introduce new products and technologies to the market. The target group must first be revived, and then implement support activities. Tools that can be used for this purpose: press briefing, making statements, providing information to the media.

Recommendations and Marketing Ideas:

The basis is to develop a simple and functional communication plan, prepared solutions, a support material - a communication manual.

Expert consultations outside the Eco-Inn Partner Competence:

Possibility to get a professional consultant for occasional communication.

Website with description of regulations and environmental recommendations:

Building a good name takes place on several levels. Of course, its growth is helped by clients and their good references, but it is necessary to get clients first. But how do you get involved in a lot of competition? One of the options is to present in the online world via a website and social networks. In addition to the products and services offered, it is possible to dedicate space and to educate the client - professional and comprehensive information on issues related to a field closely related to your technology (without losing your know-how or the unique nature of your technology!) The potential client gets the conviction that what you are doing you fully understand. Of course, it is important that it really is. An educated client may ask questions that will help him distinguish between quality and quantity in big competition. Educated clients are those who, on the basis of their satisfaction, can make good references to attract other clients. However, for a business is necessary to have its brand - in addition to the business name, some graphic form that the client associates with it, and on the basis of which it will differentiate it from the competition. In addition to the name itself, the brand is often associated with products or services - if you would get trademark registration for these labels, the value of your business would increase.

Case study - if you produce different wastes, we can do wide range of raw materials, do not focus just on a specific business:

The development of unique technology, in addition to the amount of time invested, also requires the amount of money invested. Therefore, apart from the primary technology goal, it is good to reflect even before the development (or soon after the start of development) on the possible simple departures of technology that bring an extended portfolio of services or resulting products. Such thinking can bring you a wider portfolio of clients and thus a more efficient and faster return on investment.

Patents:

For a licensee to use a new technology or purchase of a tailor-made device that includes a new technology, it is important to know that the technology deployed does not infringe the rights of third parties. This can be declared, for example, by the fact that the provider is the owner of the patent (or utility model) to the technology offered.

The patent is a document that provides its owner with a guarantee that the patented technology (invention) can only be used by and licensed to it (paid) or even an unlimited

number of licenses, which represents multiple financial revenues in an unlimited number. At the same time, the patent gives the owner a considerable competitive advantage in the given field, which gives the opportunity to take a lead in business for a long time. A competitive advantage of this type can also bring to the owner an opportunity to buy a technology patent or an exclusive license, either a higher one-time buy-out or a higher regular financial income. In particular, however, it is important that the patent provides certainty to both the patent proprietor and the licensee that the use of the patent technology is without prejudice to the rights of third parties and does not threaten any financial or other legal problems. Violation of the rights of third parties to an existing patent may have only a liquidating effect for the company.

Contract for Future Contract, NDA:

For a company that develops a unique technology, it is important to be sure that the money invested in research returns it, ideally to evaluate and not to "go down the drain" for a well-guessed, but not too wise, oral deal with the other party. At present, it is necessary to use different written contracts in the course of business negotiations.

The first treaty is the Non-disclosure Agreement (NDA). It is advisable to conclude this before the first meeting, in which you are going to tell the potential candidate the specifics of your developed technology, which are a competitive advantage and could be misused. Abroad, these treaties are quite common, they decide not to justify the suspicion of the other party, but on the contrary they are concluded to prove good faith and honesty.

Before entering into the cooperation with the other party (whether the development of technology or the additional development of existing custom-made technology), it is essential that such cooperation be underpinned by contract. The terms of the agreement shall be agreed in advance with all the conditions under which the development will take place: time horizons, personal responsibility, location of development, as well as prototype testing, financial performance, maturity dates, etc. Whatever is important for both parties is to be mentioned in the contract. It is good to think about the possible problems that may arise in the future as well as the solution to the contract, which may save some future amendments to the treaty.

Conclusions of recommendations

- Use of occasional communication (Issues communications)such as press briefing, making statements, providing information to the media
- Communication plan, prepared solutions, a support material - a communication manual
- Hire a professional consultant for occasional communication
- Website with description of regulations and environmental recommendations
- Case study
- Patents
- Contract for Future Contract, NDA

List of useful links

List of documents supporting the recommendation.

https://www.smartsheet.com/communications-strategy-how-to-templates

https://www.projectmanager.com/templates/communications-plan-template

Non-disclosure agreement template free download available on https://seqlegal.com/free-legal-documents/non-disclosure-agreement

Date of recommendation package

22. February 2019

Author

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6. Financial support for ITUD: Recommendation for developers of the Interactive Tool for Urban Design on public financial support mechanisms

Developers and owners of the Interactive Tool for Urban Design (ITUD) are recommended to apply for external public funding to support maintaining, further developing and testing the tool, which would lead to its validation and extending of its use.

Keywords: Tool for Urban Design, funding, Horizon 2020, COST, Smart cities

Events, consultations and interactions

Aims of this recommendation

The aim of the recommendation is to consult the options for external funding which is needed for further development of an interactive urban design tool that eliminates the material and energy consumption in urban planning and allows planning and contributing to smart cities concept.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- EcoInnovators
- Municipalities, cities
- Smart cities

Background to this recommendation package

The recommendation package suggest the developers and owners of the Interactive Tool for Urban Design apply for external public funding to support maintaining, further developing and testing the tool.

The EcoInn Danube project, which is to enhance cooperation of innovation actors in the field of eco-innovations, goes in line with the recommendation, which in ideal case would lead to validation and extending of use of the Interactive Tool for Urban Design - unique tool linking latest interactive technologies, virtual reality, handheld analytics, and physical model analytics for more responsible and sustainable urban development.

ITUD is a progressive tool capable to provide direct feedback in form of simulations or analyses in the initial stages of the creative process of design. It can be used in different settings – urban planning at local political level, public engagement/participation, education, commercial use, etc. – still it has not been launched widely yet. It is quite obvious that maintaining, further developing and testing the tool, which would lead to its validation and extending of its use, needs to be supported by external, potentially public funding.

The audience of this report are the tool developers and owners, the funding agencies, and any entity involved in the process of urban planning (public administration, faculties of architecture, architects, urban planners, etc.), who would benefit from the tool extension the most. Their role in

gaining external funding would rest in partnering with the developers in projects aiming to further develop, test, and extend the tool in practice.

Summary description

Background of the identified challenge, in a general sense, has been summarized in an article at verdict.co.uk: “The influx of people in urban centres is fuelling the demand for basic services such as water, energy, transportation, waste management and housing. At the same time, climate change is forcing cities to increase their commitment to sustainability and resilience, while minimising harm to the environment. Frequently faced with scarce time and resources, city planners have to prioritise projects and ensure that they allocate capital in a way that best serves citizens’ needs. VR [virtual reality] has the potential to revolutionise the process of urban planning; supporting cities in making optimal choices.” (“Here’s how virtual reality is going to make city planning easier”, 22nd June, 2017; available at https://www.verdict.co.uk/heres-how-virtual-reality-is-going-to-make-city-planning-easier/). By other words, virtual reality can be applied in urban design and local government contexts, and it might change the way how urban development and planning is conceived for good.

ITUD is a tool of the above explained kind, developed by professionals from the field of urban planning, which disposes of great potential to be extended it in the country, region, or even on transnational level, and be the impetus for change of urban development and planning.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

As explained at the official website, ITUD is a unique tool which has linked the latest interactive technologies, virtual reality, handheld analytics, and physical model analytics. Thanks to its intuitive work environment, it is possible to communicate with a sketch and a physical model, what also makes this tool capable to connect to the existing workflow instantly. One can create a 3D virtual model without a computer, while analysing and simulating are ongoing. Anyone can be involved in the creative process of developing and/or consulting visions and ideas. ITUD combines manual sketches, physical work models and virtual models with ongoing mathematical analysis. ITUD can analyse sunshine, wind flow, or urban economics, assess compliance with a land-use plan or convert population of a certain living space. Thanks to objective analysis delivered by the tool, arguments for an open discussion are provided. As a matter of fact, ITUD is capable to provide direct feedback in form of simulations or analyses in the initial stages of design and planning. Based on the nature of this tool, its users are greatly encouraged to look for more variants, therefore raising the chance to pick the solution suitable for most of the involved parties.

Summary of status of knowledge transfer

During a workshop aimed at the topic of responsible research and development in digital technologies, representatives of ITUD presented the tool as a good practice, outlining the social and environmental responsibility inherent for the Interactive Tool for Urban Design. Based on the relations created, and the status quo analysed, it was found out the tool is a “living” organism which needs continuous development, while it also should be tested by external entities to a wider extent. Further development and testing – what should in ideal case to be supported by public funding – will most probably lead to its validation and extension among multiple entities.

Summary of recommendation(s)

ITUD is an innovative tool capable to provide direct feedback in form of simulations or analyses in the initial stages of the creative process of urban design and development. It can be used in different settings – urban planning, public administration, public engagement/participation, education, commercial use, etc. – still it has not been launched widely yet, not even at country level (in Slovakia). It is natural that maintaining, further developing and testing this tool, which would lead to its validation Interactive Tool for Urban Design and extending of its use, needs to be supported by external funding. Taking into account the nature of this tool – present social and environmental responsibility, sustainability and progressiveness – financing the maintenance, further development and testing of the tool in live operation could be covered by public resources. This is why developers and owners of the tool are recommended to apply for such funding, and carry out projects which would lead to fine-tuning the tool and its wide usage in different settings and by multiple actors.

In-depth details / explanations of recommendations with links

As a matter of fact, the Interactive Tool for Urban Design – a very progressive and innovative digital technology solution

for urban planning and design – should be subject to continuous development, testing in live operation, what could consequently lead to its validation by entities involved in any way to urban design and planning, and also to its extension among multiple actors of the urban planning and design process. It is quite natural that the maintenance, further development and testing in live operation requires external funding. The tool has got a very strong social and environmental responsibility, and sustainability aspect, therefore it has a great potential to attract not only private but also public funding.

One of the platforms made available especially for smart city solutions, operated by the Office of the Deputy Prime Minister of the Slovak Republic for Investments and Informatization, is: https://www.smartcity.gov.sk/. It is proposing a functionality of an active filter, offering the possibility to look for Horizon2020 calls in Participant portal, as well as calls in frame of the Operational Programme Integrated Infrastructure and Operational Programme Quality of Environment. Other than that, list of Information and Counselling Centres all around Slovakia can be found at the platform together with their contact details. Third functionality serves to present functioning practices, projects and/or initiatives from Slovakia and elsewhere.

Eventually, the European Cooperation in Science and Technology (COST) funding opportunity could be used for certain type of activities planned as for the future of the Interactive Tool for Urban Development. All the information on open calls and possibilities to get support are provided at: https://www.cost.eu/.

Another funding opportunity supporting innovative product development is the Eurostars program. Information about it are available here: https://www.eurostars-eureka.eu/.

Conclusions of recommendations

The Interactive Tool for Urban Design, having a strong sustainability dimension, and supporting social and environmental responsibility while planning and designing urban development, needs funding for its maintenance, further update and testing. This is why the developers and owners of the tool are strongly encouraged to apply for external funding, looking especially for public one. The options offered are accessible at https://www.smartcity.gov.sk/. At this platform, information on Horizon2020 calls are published, while more concrete information and personal consultations are offered by the National contact points supporting this program in Slovakia, here: http://h2020.cvtisr.sk/sk/narodne-kontaktne-body.html?page_id=963. Additionally, COST and Eurostars programs were identified as potentially suitable ones for consideration.

List of useful links

List of documents and information supporting the recommendation:

- article “Here’s how virtual reality is going to make city planning easier” available at: https://www.verdict.co.uk/heres-how-virtual-reality-is-going-to-make-city-planning-easier/
- contact details of respective National contact points, as national supporting structures for Horizon2020 can be found here: http://h2020.cvtisr.sk/sk/narodne-kontaktne-body.html?page_id=963
- Interactive Tool for Urban Design: http://www.itud.sk/
- Participant portal for finding funding options: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home

Date of recommendation package

18.2.2019

Author

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7. Recommendation for Faculty of Public Administration of Pavol Jozef Šafárik University on introducing more environmental sustainability in education and research

Recommendation for Faculty of Public Administration of Pavol Jozef Šafárik University in Košice on introducing more environmental sustainability in education and research

Keywords: Environmental management education, curricula improvement, circular economy at universities, support to ecoinnovations from universities, encouragement of students, Events, consultations and interactions

Target group of this recommendation package

- Research and development (R&D) institutions
- Educational institutions
- Training centres
- National and local public authorities in area of education and environment
- Ecoinnovative companies

Background to this recommendation package

The Faculty of Public Administration of Pavol Jozef Šafárik University in Košice is recommended to incorporate the topic of environmental sustainability into existing courses to a higher extent, potentially open new courses concerned in this regard, as well as get involved in research topics of this kind to a greater extent. This process can only happen if partnerships with eco-innovative actors representing sustainability development will be established, and required funds for developing new content, widening the curricula and for carrying out research projects in sustainability topics will be ensured. This would ideally lead to capacity building of future policy makers, politicians, community leaders, public administrators, etc. operating in public governance and administration, who will be fully capable of fulfilling Sustainable Development Goals set in United Nations Agenda for Sustainable Development – a plan of action for people, planet and prosperity.

Background to the recommendation package

- The recommendation package suggests the Faculty of Public Administration, Pavol Jozef Šafárik University in Košice (PJŠU) incorporates the topic of environmental sustainability into existing courses to a higher extent, potentially opens new courses concerned in this regard, as well as it might get involved in research topics of this kind.
- The EcoInn Danube project, which is to enhance cooperation of innovation actors in the field of eco-innovations, goes in line with the recommendation, which in ideal case would lead to more cooperation (faculty versus other eco-innovation actors), higher expertise of graduates and a public administration more open towards eco-innovative solutions.
- The situation that has led to this recommendation report can be described as a free room for introducing more of green topics into the faculty's operation, which is also a

general requirement of the society heading towards circular functioning (circular economy based on three pillars).

- The audience of this report is certainly composed of education and research institutions, especially of those ones offering – similarly as the Faculty of Public Administration, PJŠU – education to future policy makers, local politicians, EU lobbyists, etc.

Summary description

Background of the identified problem, in a more general sense, has been summarized by Daniel J. Fiorino from American University who says that: "…sustainability should define the conceptual focus for the field of public administration in the coming decade. Sustainability involves three systems: environmental, economic, and political/social systems. The challenge of governance, and thus of public administration, is to sustain each of these systems on its own while maintaining an appropriate balance among them." In order to face these challenges and fulfil the 2030 Agenda for Sustainable Development, adopted by the UN, demand for more socially and environmentally responsible governance and also demand for quality human resources in public sector to deal with these complex issues is needed. Such an approach would be a very important change in public governance. A significant role in building these capacities is played by educational and research institutions, especially by those offering public administration study programs.

The Faculty of Public Administration of PJŠU in Košice, as identified during personal meetings with an employee of the Faculty, and also based on the available study programs offered by the Faculty, it has been found out there is a free room to incorporate the topic of environmental sustainability into existing courses to a higher extent, potentially also to open new courses concerned in this regard, as well as the Faculty has a great potential to get involved in research topics of this kind to a higher extend.

Taking into account the recommendations would in ideal case lead to more cooperation (faculty versus other eco-innovation actors), higher level of capacities of graduates in sustainability approaches, and consequently a public administration more open towards eco-innovative solutions.

Summary of status of knowledge transfer

Based on the political science research and professor background of the author of the recommendation, who follows the offer of the higher education institutions, in terms of study programs and courses, a certain level of mismatch has been identified; concretely between the offer in public administration study fields on one side and the required innovative practices in the area of public administration for sustainable development on the other. United Nations Agenda for Sustainable Development – a plan of action for people, planet and prosperity – outlines the critical role of public institutions in fulfilling Sustainable Development Goals. This critical role, represented by people working in this area, has to be therefore greatly supported by education institutions preparing high-quality human resources for public administration.

Options and scenarios

There are three different sub-recommendations which can function well separately or also as a package.

1. First, and the easiest step would be to incorporate the topic of environmental sustainability into existing courses to a higher extent.

2. Second option or step (depending on the approach) would also be to open new courses concerned in regards of sustainable studies, eco-innovations, and circular economy.

3. Thirdly, the Faculty has a great potential to get involved in research activities in these topics (sustainable studies, eco-innovations, and circular economy) to a higher extend.

Summary of recommendation(s)

The United Nations Agenda for Sustainable Development outlines the critical role of public institutions in fulfilling Sustainable Development Goals. This critical role is in practice represented by people working in this area, and has to be therefore greatly supported by education institutions preparing the high-quality human resources for public governance and administration. The current situation though shows a certain level of mismatch between the offer in public administration study fields on one side and the required innovative practices in the area of public administration for sustainable development on the other. This is why one of the representatives offering public administration studies for future practitioners is recommended to reflect on this mismatch and: 1. provide more content in frame of existing courses related to sustainability studies; 2. establish new courses explicitly concentrating on sustainability, eco-innovations/eco-solutions and circular approaches (e.g. Sustainable development, Ecosystem protection, Circular economy, Environmental management, Global challenges: impacts on

the ecosystem and future perspectives, etc.); 3. build new partnerships for research activities in topics of sustainable development in public administration, which will not only help to set right the composition of courses but also develop and strengthen the sustainability study field at the institution.

In-depth details / explanations of recommendations with links

More eco-related content, courses and research activities are recommended to the Faculty of Public Administration of PJŠU in Košice. This can on one side be maintained via external financial support, eventually from the Erasmus+ program (concretely via Key action 2: Strategic Partnerships in the field of higher education or Knowledge Alliances; for more information consult the Erasmus+ Programme Guide; https://ec.europa.eu/programmes/erasmus-plus/resources/programme-guide_en), and on the other enhanced by the know-how of actors dealing with sustainability development topics in education and research activities (in case of Slovakia e.g. INCIEN – Institute of Circular Economy; http://www.incien.sk/).

Conclusions of recommendations

Faculty of Public Administration of Pavol Jozef Šafárik University in Košice is recommended to use free room available to incorporate the topic of environmental sustainability into existing courses to a higher extent; potentially also to open new courses concerned in this regard (sustainability development); as well as the Faculty has a great potential to get involved in research topics of this kind to a higher extend. This process is advised to be co-maintained by external funding, e.g. from Erasmus+ program and also to be supported content-wise by actors disposing of know-how in sustainability and eco-innovation topics in education and research settings, e.g. INCIEN.

List of useful links

List of further readings supporting the recommendation:

- Lack of sustainability studies at universities and how to implement these sorts of changes in the curricula: article “Sustainability in tertiary curricula: what is stopping it happening?” available at https://www.emeraldinsight.com/doi/full/10.1108/14676370410517387
- Example on integrating sustainability in the studies: article “Integrating Sustainability Into Undergraduate Computing Education” available at http://delivery.acm.org/10.1145/1740000/1734439/p524-cai.pdf?ip=193.87.7.132&id=1734439&acc=OPEN&key=4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E4D4702B0C3E38B35%2E6D218144511F3437&__acm__=1550066392_48fce581638cdf5a27470c844d733c7b
- How the concept of sustainability should become the focus for public administration: article “Sustainability as a Conceptual Focus for Public Administration” available at http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.662.8450&rep=rep1&type=pdf
- Innovative practices in public administration: United Nations “Compendium of Innovative Practices in Public Governance and Administration for Sustainable Development” available at https://publicadministration.un.org/publications/content/PDFs/Compendium%20Public%20Governance%20and%20Administration%20for%20Sustainable%20Development.pdf
- Successful sustainability experiences from local communities in different countries and an overview of existing public administration practices responding to global environmental challenges: article “Sustainable Development and Public Administration: Challenges and Innovation in Citizen Engagement” available at https://www.omicsonline.org/open-access/sustainable-development-and-public-administrationchallenges-and-innovation-in-citizen-engagement-2315-7844-1000219.php?aid=92089
- Looking for a link between the principles of sustainable development and the principles of public administration: article “Sustainable Development in Public Administration: A Match With Practice?” available at https://journals.sagepub.com/doi/10.1177/1087724X06287496

Date of recommendation package

13.2.2019

Author

Slovak Centre of Scientific and Technical Information, Slovakia

8. Recommendation for agricultural Bulgarian company to partner with unspecified company in the area of aeromonitoring of agricultural crops

Recommendation to agricultural Bulgarian company to find relevant partners from the EU region and successfully achieve partnership (further working together).

Keywords: Internationalization, network, partnership, funding, aero monitoring, agriculture, consultation, online web platform, Partnership guidance, Pitch

Aims of this recommendation

The aim of this recommendation package is to help agricultural Bulgarian company to find relevant partners from the EU region and successfully achieve partnership (further working together). It's a start-up company which has working activity on national level, but also seek to cooperate with relevant partners from the EU.

Target group of this recommendation package

- agricultural Bulgarian company
- Start-ups
- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

Background to this recommendation package

The purpose of this type of recommendation via "Pitch" is to give suggestions to agricultural Bulgarian company for taking up it's market on EU level, not only on national level (Bulgaria). The company shown interest into cooperating with relevant economic partners in Europe.

Recommendation packages are part from the EcoInn Danube project deliverables and play main role as an output of the project. The general objective of the EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region. Eco-innovation is the introduction of any new or significantly improved product (good or service), process, organisational change or marketing solution that

Quick read

- The purpose of this recommendation package is to give specific guidance to Bulgarian agricultural company on how to reach partners from abroad for joint cooperation;
- The recommendations are focused on uploading the relevant technology on the Virtual lab, elaborated for the needs of the EcoInn project and consultation to EEN experts from CCI-Vratsa EEN centre.

reduces the use of natural resources (including materials, energy, water and land) and/or decreases the release of harmful substances across the whole life-cycle. The agricultural Bulgarian company showed interest to the EcoInn project by personal contacts and shared its problems with finding demand supply from abroad. EcoInn project team from CCI-Vratsa expressed their interest into helping the company finding partners through recommendation packages part of the EcoInn Danube project. This report will be helpful to other stakeholder companies which are working in the same field as the agricultural Bulgarian company so they can gain access to knowledge to what measures to take for finding demand supply from abroad.

Summary description

The stakeholder is a new company in the area of aeromonitoring of agricultural crops and approached us in the area of eco-innovation for help in finding economic partner from EU. The partner and the stakeholder had previously known each other from personal contacts and participation in public events. Knowing that CCI-Vratsa experts work in EcoInn Danube project and also are part from the EEN network, the stakeholder company decided to contact us to help solve its issue.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

The agricultural Bulgarian company is a quick growing company, staring at the future. The company is trying to integrate new digital technologies and models in to Bulgarian agricultural. According to their experience, the digitalization is the next step Bulgarian farmers should take. The company motto is “Give wings to your yields”.

If precision technology drove the farming revolution of recent years, monitoring crops from the sky using drones will drive the next, as agronomists, agricultural engineers and farmers turn to UAVs (or UAS) to gain better crop insights and more accurately plan and manage their operations.

A drone provides a holistic view of crop’s growth, enabling ag professionals to quickly and precisely identify issues, and better planning and monitoring of improvements like ditches and fertiliser applications.

Drone data can be employed to extract soil characteristics such as temperature, moisture, slope, elevation and more, enabling more accurate soil sampling and the production of more suitable seeding prescriptions.

Professionals like agronomists are increasingly employing drone data to better understand which plants emerge, their population and spacing metrics. This information can then drive replanting decisions, thinning and pruning activity, and improve crop models. Drone data, collected at critical growth stages throughout the growing season, can help agronomists and ag engineers to improve their model, predictions and planning. The result is that teams can better anticipate both a harvest’s quality and final yield.

The company has two main products - Scout and Nitro Scout. They can locate problem spots quickly, easily, and with extreme precision. Using the service “Scout”, you can get a detailed map of the field giving information on the health of the crop. The exact amount of fertilizer delivered at the right time and at the right place - is the basis for profitable farming. Company services are available for end customers.

Summary of status of knowledge transfer

The agricultural Bulgarian company deal with aeromonitoring of agricultural crops in partnership with the best European companies in this filed. Through their services, famers can integrate innovative solutions that make them more successful and competitive. The company was established with the main objective of promoting and imposing precision farming methods coming from America and Western Europe. Using unmanned aircraft, so-called drones, the company take crops and then analyse and process the information gathered. Thanks to the use of top technologies, the use of nitrogen fertilizers is reduced, resulting in a sustainable production.

Summary of recommendation(s)

Recommendations in this document will be based on CCI-Vratsa experience in working with different stakeholders. Since the chamber is host organisation of the EEN centre, it’s experts have expertise in European markets. Thanks to that they can surely help with finding partners to the relevant stakeholder.

For this report the recommendations are two:

- submit eco-solution offer on the Virtual lab of the EcoInn project/upload offer eco-solution

- contact EEN experts from CCI-Vratsa

1. The Virtual lab is an online matchmaking tool created as part of the EcoInn Danube project co-funded by the Interreg Danube Programme. It enhances and enables cooperation and finding matches between demand and supply of eco-innovations. General objective of the EcoInn Danube project is to enhance cooperation of innovation actors in the field of ecoinnovations with special emphasis on development and application of ecotechnologies in the Danube Region.

2. Experts from the EEN center in Vratsa can surely help with finding EU market partners for The agricultural Bulgarian company. Their experience in connecting supply and demand offers is high and longterm. The suggestion that might offer the experts from the EEN centre could be to make a profile on the EEN online matchmaking tool – Merlin.

In-depth details / explanations of recommendations

1. The agricultural Bulgarian company can upload its technology and submit an offer for eco-solution on the Virtual lab and, can surely increase its chances for finding EU market partner. If any demand supplier express interest into the agricultural Bulgarian company technology, he can contact EcoInn Danube team from CCI-Vratsa contact person, and establish cooperation. Financial cooperation between the supply and demand side is beyond the scope of the project. Nevertheless the company can receive a lot of useful information by registering to the Virtual lab. In the section "Events"- scheduled events regarding eco-innovation can be found, divided by date and giving information about the country and the venue. The information is uploaded regularly each month. Through the "Stakeholders map" the relevant company can find information about different stakeholders group divided by country, type and tags. Information about description of the stakeholder, location, e-mail, webpage and address could also be found. And finally but not last, Virtual lab "Expert database" can be very sufficient. There could be found information about expert in different fields of expertise, ordered by country, organisation, address/phone number, webpage, area of research/specialization and scope of activities.

2. Consultation with EEN experts from the Chamber of Commerce and Industry – Vratsa.

CCI-Vratsa's EEN experts can give detailed information to the Bulgarian agricultural company about internationalisation of its products. This could be done in few steps:

- EEN experts can create a profile of the client where the client can fill a "Business co-operation proposal form ";

- After creating the profile it will be uploaded to the Merlin network – EEN's online matchmaking tool. Once registering the client, in this case the Bulgarian agricultural company, can be informed about profiles of potential business partners and events that are of interest to the relevant business;

- After registering to the EEN's online tool, there is a big chance for the Bulgarian agricultural company to internationalize its product and find relevant partners. If this happen, the EEN expert will receive an Expression of interest in the Merlin network.

Conclusions of recommendations

Restate main points of Recommendation package:

- Contact EEN experts from CCI-Vratsa
- The Bulgarian agricultural company needs to provide complex information about its activities
- Create an EEN profile
- Expression of interest

List of useful links

List of documents supporting the recommendation.

EEN Vratsa website: http://een.cci-vratsa.org/

EEN Bulgaria homepage: http://www.een.bg/bg/

Merlin website: https://een.ec.europa.eu/

Chamber of Commerce and Industry – Vratsa website: http://cci-vratsa.org/en/home/

Date of recommendation package

07.01.2019

Author

Chamber of Commerce and Industry-Vratsa, Bulgaria

9. Consultation for internationalization by EEN experts

Recommendation to give consultation to eco-innovative companies how to internationalize their product through EEN network. CCI-Vratsa is a host organisation of an EEN centre and expert from the centre will give advices and recommendations how to achieve partnership through the EEN network.

Keywords: internationalization, partnership, network, collaboration, online profile, expression of interest, Events, consultations and interactions

Aims of this recommendation

The aim of this recommendation package is to give consultation to eco-innovative companies how to internationalize their product through EEN network. CCI-Vratsa is a host organisation of an EEN centre and expert from the centre will give advices and recommendations how to achieve partnership through the EEN network.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

Background to this recommendation package

The purpose of this type of recommendation through consultation is to give an example how innovative technology developers can internationalize their idea through EEN network. CCI-Vratsa is host organization of EEN Centre and it's experts are helpful for elaboration of this type of recommendation.

Recommendation packages are part from the EcoInn Danube project deliverables and play main role as an output of the project. The general objective of the EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region. Eco-innovation is the introduction of any new or significantly improved product (good or service), process, organisational change or marketing solution that reduces the use of natural resources (including materials, energy, water and land) and/or decreases the release of harmful substances across the whole life-cycle.

Audience of this recommendation package are innovators who are searching for a way to internationalize their developed technology. Eco-innovators are also main target group of the EcoInn Danube project.

Summary description

The type of consultation with EEN expert is elaborated for the needs of the eco-innovators to internationalize their solution. Since CCI-Vratsa is host organization of EEN centre, EcoInn Danube team decided that it will be relevant for the needs of the recommendation packages, to make such a consultation with EEN experts.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

The European Information and Innovation Center in Vratsa is part of the European Commission's Small and Medium

Business Support and Consulting Europe Network. The center serves companies from the regions of Vratsa, Montana, Vidin, Pleven and Lovech. The Enterprise Europe Network was launched in early 2008 as an initiative of the European Commission to help small and medium-sized enterprises develop their full potential and innovation capacity.

The Enterprise Europe Network is the largest information and consulting network to support business, not only in Europe, but also in the world. It promotes innovation to make it a market success for companies. The Network provides support and services to small and medium-sized enterprises (SMEs), especially in the early stages of their development, to become more innovative and to strengthen their technological capacity. SMEs are encouraged to participate in research programs and apply for funding. Improving cooperation with innovation clusters and implementing a number of regional initiatives. Providing access to innovative technologies helps SMEs to resist global competition.

The Enterprise Europe Network brings together the resources and capacity of the existing European Information Centers (370 of which were the Euro Info Center in Vratsa) and the European Innovation Centers (71 Centers) by the end of 2007. The network brings together over 600 organizations, including Chambers of Commerce, Regional Development Agencies, University Technology Centers, and more. The network employs more than 6,000 highly qualified experts. The network centers operate in more than 60 countries (including 28 EU Member States, candidate countries - Serbia, Macedonia, Albania, Turkey, etc., members of the European Economic Area and other countries such as Armenia, Israel and Switzerland).

Summary of status of knowledge transfer

Since CCI-Vratsa is host organization of EEN centre, both its experts work in close relation and on relevant activities. CCI-Vratsa EcoInn Danube team contacted their EEN experts colleagues for the help of implementing consultation based on internationalization of eco-innovative solutions for the needs of EcoInn recommendation packages.

Summary of recommendation(s)

Meeting between the relevant stakeholder and the EEN expert – The first step is to arrange a meeting between the relevant eco-innovator and expert from the EEN centre. During the meeting they can discuss what are the needs of the stakeholder and what is his view for internationalization of his product. Therefore, the EEN expert will give recommendations what are the next steps for achieving this goal.

Profile of the client – If both parties agree on working together for achieving their goal, the next step is to make a profile of the client. The eco-innovator will be asked to fill a "Business co-operation proposal form". The BCD forms are disseminated through various communication channels in the different countries.

Submit to Merlin – After creating the client profile, it will be uploaded to the Merlin network – EEN's online matchmaking tool. Once registering the client, in this case the eco-innovator, can be informed about profiles of potential business partners and events that are of interest to the relevant business.

Expression of interest – After registering to the EEN's online tool, there is a big chance for the potential eco-innovators to internationalize their solutions. If this happen, the EEN expert will receive an Expression of interest in the Merlin network. Therefore both EEN centres which are involved in the expressed interest of the stakeholders, need to prepare a partnership agreement.

In-depth details / explanations of recommendations

The recommendation will be explained in 4 main steps.

1. Meeting between client and EEN expert – The purpose of this meeting is to engage both sides. The client have the opportunity to explain what exactly is his need and therefore the EEN expert can give relevant consultation on the topic.

2. Profile of the client – thanks to the consultation provided by the EEN expert, the client will have the opportunity to have a business profile which could be uploaded to the EEN Network. For the needs of this activity the client can fill in a document called "Business co-operation proposal form". He can fill the document by himself or ask for cooperation the EEN expert who can help him fulfil the document. The information which needs to be filled is in the form of 3 main parts: A – Company profile-Description of the Company; B – Co-operation Proposal – Description of the co-operation sought and C – Describe the required characteristics of the potential partner.

Part A – The client is asked to fill general information about the company followed by company's current products/ services or activities and if the stakeholder is already engaged in Trans-National Co-operation. It's also necessary to give information about the size of the company, its turnover, language for communication and percent of Trans-National Activity.

Part B – In this part the client need to explain kind of co-operation he is looking for. In the case of this recommendation package, the relevant stakeholders is an eco-innovator who has a technology solution. So he can give detailed information for his eco-solution and by this way to be more "attractive" for the sought business partners. When the stakeholder is searching for specific partner the "Business co-operation proposal form" gives him this opportunity.

Part C – In this part the client need to describe the required characteristics of the potential partner. Such as: type of the partner sought, filed of activities, number of employees, Trans-National Co-operation experiences, expected input.

Conclusions of recommendations

Restate main points of Recommendation package:

- CCI-Vratsa's EEN experts are experienced in providing relevant information to companies who are searching for internationalization of their products/activities
- Eco-innovators who created eco-innovative solutions can rely on EEN experts for giving all the needed data for finding partners on the EU market

List of useful links

A list of documents supporting the recommendation.

EEN Vratsa website: http://een.cci-vratsa.org/

EEN Bulgaria homepage: http://www.een.bg/bg/

Merlin website: https://een.ec.europa.eu/

Chamber of Commerce and Industry – Vratsa website: http://cci-vratsa.org/en/home/

Date of recommendation package

15.02.2019

Author

Chamber of Commerce and Industry-Vratsa, Bulgaria

10. Digital transformation of eco-innovative solutions

Recommendation to Bulgarian eco-innovators on how to digitalize and digitally transform their solutions through ERASMUS+ project implemented by Chamber of Commerce and Industry Vratsa.

Keywords: digital transformation, digitalization, SME's, self-learning-tool, Events, consultations and interactions

Aims of this recommendation

The aim of this recommendation package is to give consultation to Bulgarian eco-innovators on how to digitalize and digitally transform their solutions through ERASMUS+ project implemented by Chamber of Commerce and Industry Vratsa.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)

Background to this recommendation package

The era of digital transformation is changing our world – business models that have been established over several decades are simply disappearing. Any company that doesn't act now is threating its own existence. The purpose of this type of recommendation through consultation is to give an example how Bulgarian eco-innovators can make a digital transformation on their products and solutions by the help of ERASMUS+ project called – Strategy Development Tool for the Digitalisation of SME (Digitalisation), taking into consideration the nowadays digital era.

Recommendation packages are part from the EcoInn Danube project deliverables and play main role as an output of the project. The general objective of the EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region.

Eco-innovation is the introduction of any new or significantly improved product (good or service), process, organisational change or marketing solution that reduces the use of natural resources (including materials, energy, water and land) and/or decreases the release of harmful substances across the whole life-cycle.

Audience of this recommendation package are SME's and eco-innovators who want to digitally transform their products, services and solutions.

Summary description

This type of consultation is considered helpful by CCI-Vratsa EcoInn Danube team for eco-innovators and SME's who want to take e further step into the digital era. CCI-Vratsa experts work on an ERASMUS + project which focus on tools for digitalisation of SME's products and services through online learning tool. This corresponds with the innovative approach of EcoInn Danube project and the given recommendations will be handy for the relevant stakeholders.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

The project “Digitalisation” is implemented under the ERASMUS +, Key Action: Cooperation for Innovation and the exchange of good practices, Action: Strategic Partnerships.

The main objective of the project is to develop innovative “Self-learning Tool”, available online, used directly at the workplace to prepare the strategic setting of the digitalisation process within the company and to initiate its implementation in the company’s operational processes. There are 7 project partners, having also associated partners who support the dissemination of project contents and results : online survey, test phase, support multiplier, events, advertise products, spread information on local, regional, national and European levels.

Specific objectives are:

- Sensitize target group to opportunities and risks of digitalization;

- guiding target group throughout the process of developing and implementing digitalisation strategy in their business;

- increase knowledge and competences of professional associations;

- increase competiveness of target group.

The digital transformation of the economy entails new challenges for staff. Globalization, ICT developments, new technological products and services, are some of the drivers of the new trend that is leading the global market: Digital Transformation. The project “Digitalisation” develops a “Self-learning Tool”, which will be used in the workplace in order to prepare European SMEs for the strategic setting of the digitalisation. For the trainee, the self-learning tool is an opportunity to improve and expand skills for particularly relevant field of activity in the labor market.

Summary of status of knowledge transfer

A Bulgarian design eco-innovators and SME’s want to digitally transform their products, services and solutions. This can be achieved by taking part in one ERASMUS + project, implemented by CCI-Vratsa experts. The main goal of the project is to give the opportunity to SME’s to prepare the strategic setting of the digitalization process and to initiate the implementation of the “Self-learning Tool” into the operational processes.

Summary of recommendation(s)

Many companies simply try to modernise existing processes or areas of business with the help of digital technologies. With this approach they lose sight of interesting new business possibilities and also of still unidentified risks for their business. The successful digital transformation requires digitalisation but is necessary not to lose sight of the foundational process of digital transformation by becoming fixated on digitalisation.

What is digitalisation? Example: an existing process is depicted digitally in order to arrange the steps as efficiently as possible so that an offer is sent by the system in direct response to a custom enquiry, the delivery of an object is automatically initiated after an order and the corresponding receipt is also immediately submitted and simultaneously forwarded to the internal accounting department or the interface to the tax advisor. To put it simply: what used to be in done in an analogue form, e.g. on paper, is converted into bits in bytes. This has already been happening in companies for several years and yet there is still further room for improvement in almost all SME. Digitalisation is often equated with automation.

What is digital transformation? To put it simply: digital transformation is never “driven” by technology. Just because a digital solution exists doesn’t mean that this is simply digitalised straight away. In a process of digital transformation your customer is always at the centre of your analysis. It is all about finding new or different ways to solve your customers’ problems. Your goal is to solve known and also new customer problems with the best technological possibilities. Technology is only a means to an end. This is why it’s important for you to spend time looking at the driving forces that are changing your business world. This still applies, even if you’re sure that artificial intelligence (AI), for example, doesn’t have any consequences for your business at the moment. Let yourself be inspired and look ahead to tomorrow’s world. Your process of digital transformation that is definitely still to be done will already profit from this.

Through the Online-learning Tool SMEs and eco-innovators can go through 3 steps toward their digitalisation path:

- Quick check tool – check in few minutes to what extent the company is prepared for the digital transformation;

- Driving forced that Change the World – blockchain, big data an much more – a short and understandable explanation;

- Digital Transformation: Step by step instructions – materials for working, learning and planning regarding the development and implementation of SME individual strategy.

In-depth details / explanations of recommendations

In depths details about the Self-learning tool, which is the main instrument for the relevant SMEs and eco-innovators on how to get introduced in to the digital era by 3 main steps.

1. Quick check tool:

- The idea of the quick check is to give information to the relevant stakeholder about his level of knowledge regarding the digitalisation and digital transformation. The quick check tool will give initial idea of the stakeholder current position. With the help of short learning units, stakeholders will learn on this basis about the most important technologies developments.

The questions asked are in the area of: Big data, Cloud services, 3D printing and Custom manufacturing, Internet of Things and Wearables, Artificial intelligence, Augmented reality and Virtual reality, Robotics & Drones, Customer digital experience and Social media, Blockchain technology, Cyber security, Change management, Project management, Risk management, Analysis of external factors of influence, Analysis of strengths and weaknesses.

2. Digital technologies and management course

2.1 Strategic management:

- The course cover the topics of: Strategic management, project management (manage your project before it starts managing you!), risk management (manage risks effectively on your digital transformation projects), change management (the key to successful digital transformation), knowledge management, PESTLE analysis, extended GAP analysis, SWOT analysis, Business model CANVAS, prioritisation tool.

2.2 Digital technologies:

- The course cover the topics of: Big data and real time analytics, Cloud services, Apps and Mobile Solutions, Custom manufacturing and 3D printing, Internet of things and Wearables, Augmented reality and Virtual reality, Robotics and Drones, Customer digital experience and Social media, Blockhain technology, Cyber security.

3. Digital transformation: Step-by-step Instructions

- Digital transformation is – even when it involves using the most modern technology – first and foremost a managerial risk. No one should blindly follow trends simply because everyone is talking about them. So how can you master this process of digital transformation? The best way is just to take one step at a time. To do this you need the right tools. These are know-how in project management, knowledge management, change management and risk management. You also need good methods that work well, such as e.g. the SWOT analysis. This isn't new, but it is useful. By the way, this doesn't just apply to your process of digital transformation, but to all challenges that you come across in your daily business.

If you systematically follow the step-by-step instructions you will end up with a planning list at the end to tell you what you should do next. You will have dealt in detail with the opportunities and risks of digital transformation for your company and will be able to start the implementation – so that your company will still be a successful operator in the market in five or ten years' time.

Conclusions of recommendations

Restate main points of Recommendation package:

- SMEs and eco-innovators have to make e further step into to digital era;
- "Digitalisation" project overview provide information about the initial steps for digitalisation of products and services;
- Explanation for digitalisation and digital transformation;
- Quick check tool, Digital technologies and management course, Step-by-step instructions.

List of useful links

List of documents supporting the recommendation.

Chamber of Commerce and Industry – Vratsa website: http://cci-vratsa.org/en/home/

Digitalisation project - http://www.cci-vratsa.org/en/strategy-development-tool-for-the-digitalisation-of-sme/

Date of recommendation package

17.05.2019

Author

Chamber of Commerce and Industry-Vratsa, Bulgaria

11. “Revival” of eco innovative solution

Recommendation to help and encourage the development of second-chance entrepreneurship attitude and self-confidence with guiding and mentoring relationships and thus restart their business successfully.

Keywords: management, technology, business strategy, business plan, marketing, risk management, stress management, motivation and support, Pitch

Aims of this recommendation

The goal of this type of recommendation package is to help the innovative company to revive their product, through ERASMUS + project called Revival entrepreneurship through second chance (2Revive). The main aim of the project is to help and encourage the development of second-chance entrepreneurship attitude and self-confidence with guiding and mentoring relationships and thus restart their business successfully.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)

Background to this recommendation package

This recommendation package is focused on company wish to revive their developed eco-solution by giving it a second-chance and restart their business successfully. For this purpose, CCI-Vratsa EcoInn Danube team will give a recommendation to the company to participate in a European project, called Revival entrepreneurship through second chance (2Revive).

Recommendation packages are part from the EcoInn Danube project deliverables and play main role as an output of the project. The general objective of the EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region. Eco-innovation is the introduction of any new or significantly improved product (good or service), process, organisational change or marketing solution that reduces the use of natural resources (including materials, energy, water and land) and/or decreases the release of harmful substances across the whole life-cycle.

The company contacted CCI-Vratsa EcoInn Danube team knowing that the Chamber is also participating in another EU projects. Therefore, it was recommended to them to take part in the ERASMUS+ Revival entrepreneurship through second chance (2Revive). This recommendation will be also useful for another SME’s which are in the same situation as the above-mentioned stakeholder. Participation in the project could help them to restart their business idea and to give it a second chance for success.

Summary description

At this point devices like Air-Conditioner are not working in a smart and efficient way. They can be controlled only locally and they are consuming much power. So, the company is an automation device for b2b clients (small hotels, offices and enterprises). It can decrease electricity bills, while controlling Air-Conditioners and other devices in a smart way. This can be done manually, through smartphone or the company web site.

The relevant stakeholder saw an opportunity to revive their business idea by becoming part of the 2REVIVE project after receiving consultation by CCI-Vratsa, EcoInn Danube team.

Using the online self-assessment tool will give the company enlightened visibility on their strengths and weakness which will allow them to identify and overcome the obstacles

towards re-starting a successful venture. EcoInn Danube team from CCI-Vratsa recommend the company can use the guide for second chance entrepreneurs from which can get detailed information, instruction and checklist to re-build a successful business.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

The company have an automation device for b2b clients (small hotels, offices and enterprises). It can decrease electricity bills, while controlling Air-Conditioners and other devices in a smart way. This can be done manually, through smartphone or from the company web site.

The main innovation with this product comes from the smart usage of electricity devices, mainly air conditioners. This is done by small trackers which are providing information about the location of the users. Based on that the information is used for controlling the devices, for example ACs will heating/cooling only when there is a need. For this eco innovative solution our target users are hotels and small businesses where the main expenses are related to electricity consumption. This will decrease the damage on the environment, will improve the efficiency and increase the customer profit.

The company eco-technology is in the Energy efficiency sector. The desired goal to be achieved with the using the recommendations from CCI Vratsa EcoInn Danube team is reviving the eco-technology.

Summary of status of knowledge transfer

First part of the recommendations to the company Is to become stakeholder of the project 2REVIVE after receiving consultation from CCI-Vratsa team for what is the project about and what will be their benefit.

Specific objectives of the project are:

• Encourage individuals to learn from their past experience by providing them with the right tools for understanding reasons behind their failure, their entrepreneurial potential and attitude;

• Support ex-entrepreneurs in developing their skills and motivation for entrepreneurial activity – practical guide with detailed information on regulations and laws and educational resources for “second chance”, instructions and checklists will help them to rebuild a business;

• Provide successful entrepreneurs, owners of SMEs, VET teachers, trainers and mentors with a step by step mentoring plan and guidelines on how to effectively pass their knowledge to their mentees;

• Enhance the cooperation and networking of entrepreneurs, enterprises, vocational and education institutions.

The Online self-assessment tool it is a free online application to be used by second-chance entrepreneurs in the form of quiz where they are able to assess themselves according to the answers in the real time. The self-assessment tool is developed as a web-based application in that could be accessed from laptop, tablet and other similar devices project meeting and compatible with most commonly used operating systems.

The Guide to second-chance entrepreneurs’ success enhances the basic skills to start a business and adds additional value with the specific aspects of starting over and provides unsuccessful entrepreneurs the knowledge and skills that they lacked during the first try. The guide support second-chance entrepreneurs surmount societal attitudes and find the right stimulus and motivation.

The target groups of the project are both successful and failed entrepreneurs, VET providers, owners of SMEs from all Europe.

Summary of recommendation(s)

The recommendation packet will be based on CCI Vratsa work in the project Revival entrepreneurship through second chance. The recommends are directed to the company, which have issue after reading their eco-technology. During the pitch with the company EcoInn Danube team from CCI-Vratsa found and focused on few main points on their issue.

CCI Vratsa team for first main point recommend the company to make the online self-assessment tool. The aims of the online assessment tool are to encourage second-chance entrepreneurs to learn from their past experience by providing them with the right tools for understanding reasons behind their downfall, their future potential and towards another try. Through this tool target groups can identify areas strength and weak points with potential of improvement for the purpose of continuous learning.

The second recommendation for the company is to participate in Guide to second-chance entrepreneurs' s success, which aim is to provide detailed information, instructions and checklist for entrepreneurs to help re-build a successful business. It is targeted especially to unsuccessful entrepreneurs and companies. The Guide to second-chance entrepreneurs success combines the essence knowledge and skills that an entrepreneur should have with the prism of someone who have already tried this path but didn't make it.

By complying with the recommendations given by CCI Vratsa EcoInn team, the company has to revive its eco-technology.

In-depth details / explanations of recommendations with links

The recommendation from CCI-Vratsa EcoInn Danube team to the company it is participate in the project, in that way to revive their eco technology. This recommendation is appropriate for successful entrepreneurs, entrepreneurs which are not failed in their first try, owners of SMEs.

The online self-assessment tool and the Guide to second chance entrepreneur's success is can be reached on website of the project at the following link: http://2revive.eu/. One of the benefits of using the self-assessment tool it is defining the company their strengths, weakness or lacks in your experience as entrepreneur.

The self-assessment tool is an online application to be used by entrepreneurs in the form of quiz where they will be able to assess themselves according to the answer that give with points to answer in real time. The quiz is separated in seven different and important categories for companies. According the sum of points the company will receive advices to make further steps to revive their eco-technology. In the end of along with results also are shown resources as books, trainings for helping people go through their obstacles that are front them.

Participation in the Guide to second-chance entrepreneurs' s success, and find detailed information, instructions and checklist for entrepreneurs to help re-build a successful business. The guide was made in a format that allows to be used in parts depending on user's needs. Though that was specifically targeted to unsuccessful entrepreneurs it could be use also to young or experienced entrepreneurs and anyone interested in doing business

Participation in the project and using its free for every company, successful or not successful entrepreneurs which would like to revive their eco-technology.

Conclusions of recommendations

Restate main points of Recommendation package

- Join the 2REVIVE project
- Define your strengths, weakness or lacks in your experience as entrepreneur through using the online self-assessment tool
- Participation in Guide to second-chance entrepreneurs' s success, and find detailed information, instructions and checklist for entrepreneurs to help re-build a successful business.

List of useful links

List of useful links supporting the recommendation.

Online self-assessment tool - http://2revive.eu/

Guide to second-chance entrepreneurs' - http://2revive.eu/

Successful stories of entrepreneurs from their second time - http://2revive.eu/success-storybook/

Date of recommendation package

29.03.2019

Author

Chamber of Commerce and Industry-Vratsa, Bulgaria

12. Guidance for the commercialization of an "innovative energy saving solution" for public lighting and identification of possible opportunities for further development

This recommendation package was elaborated with a focus on achieving greater market outreach of an innovative energy saving solution in the area of efficient management of public lighting systems.

Keywords: Recommendation, pitch, EMIS, energy efficiency, public lighting, operational management, failure log, risk aversion, decision support, asset database, maintenance services

Aims of this recommendation

The recommendations are dedicated to address improved access to final clients and also propose some innovative business models to support market uptake in key interest areas.

Topic and purpose of this document (provide recommendations on something)

The main purpose of this recommendation package is to support the uptake/commercialization of one of the company`s main products (energy monitoring and management system for public lighting) within the countries of the Danube region, Europe and beyond. The topic of the recommendation package is improving energy efficiency in (public) infrastructure and buildings through innovative monitoring and management solutions.

EcoInn Danube project and the role of recommendation packages in the project.

Matchmaking and the transfer of knowledge and/or technology is the core principle on which the project is structured. The recommendation packages are a one of the elements derived from the operation of the virtual lab platform, particularly the matchmaking tool for pairing eco-innovative offers and demands. The recommendation packages are designed to support the uptake of eco-innovations by assisting key stakeholders involved in its development and application with expert guidance and consultation.

Target group of this recommendation

The recommendation package is developed for the specific company in charge of the research, development and commercialization of the proposed eco-innovative solution.

Background to the recommendation package

The company for which the recommendation package is developed participated in the virtual lab with an eco-innovation offer and expressed interest in applying tools and research developed by the project.

Description of the situation that has led to this recommendation report

The company that developed the "innovative energy saving solution" has long-established ties to the national project

partner Energy agency of Savinjska, Šaleška and Koroška (KSSENA) and was established by developing commercial solutions to address limitations in acquiring information about energy performance indicators in public buildings. The first generation of the energy accounting software (energy management programme) applied to monitor EnPI`s in the City municipality of Velenje was developed to address the issue of non-available data on energy consumption in the form of an energy accounting cloud based software. Continuous innovation led to the 3rd generation of the energy monitoring system in use today. The company recently launched a new product for monitoring and management of public lighting systems, that demonstrates high level of innovation and positive environmental impact, therefore it was included to the virtual lab technology matchmaking tool as an eco-innovation offer.

Description of the audiences of this report eg. SME, R&D, Innovation idea, Clean tech or any other area that relates to the EcoINN Danube project.

The main audience of this recommendation packages is 1.) the SME directly addressed and 2.) potential (final) consumers of developed products and associated services, which include municipalities, power distribution companies, utility companies and so forth.

Provide a summary of:

- Party / parties

The main beneficiary of the recommendation package is the developer and owner of the eco- innovation, the company. Other addressed parties are mostly related to final costumers, identified by desk research of information available in the public domain.

- Eco-solutions/knowledge/technology

The eco-innovation was generally developed in order to address inefficient use of electrical energy in public lighting systems. Existing PL systems are frequently not only excessive in terms of high energy consumption (HPS, MV lamps, induction ballast systems, etc.), but also lack the functionality to monitor energy use, to monitor failure rates and plan maintenance intervals, among many other issues. Furthermore, EPC/ESC financing mechanism are reasonably frequent in public lighting infrastructure projects, where it is essential for both parties (the client for e.g. the municipality and the ESCO taking over the entirety or majority of capital expenditures related to the investment) to have a stable system allowing the overview of how the systems operate and determining liability in case of failure or disruption.

- Proposed collaboration / proposed partnership and knowledge transfer

The recommendation package deals with further uptake of the developed eco-innovative solutions in applications around Europe and beyond and is focused on final consumers (beneficiaries) of the technology (municipalities, public organizations, ESCOs, etc.)

Summary description

Demand side energy efficiency measures are the most effective way to achieve ambitious national and EU targets in terms of capping GHG emission and reducing energy dependency on foreign imports. The developing company has been involved in developing novel solutions in the area of demand side monitoring and management for over 10 years. The “solution” for public buildings is the latest development of the company’s efforts to bring innovative solutions to the market. The purpose of the recommendation package is to support the uptake of the product among final consumers (beneficiaries) across the region and help to identify additional application where the product could be potentially used.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

- Description

The “solution” is the 3rd generation of EMIS development by the developing company, designed to facilitate energy accounting in various types of organizations. It features comprehensive functionality for monitoring energy use and costs, GHG emissions, water consumption and more.

The “solution” provides its users with supreme ability to carry out energy analysis by observing various metrics and indicators, recusing cost and simplifying the planning/monitoring processes related to implementation of renovation measures (energy consumption reports, financial plans, energy audits, energy certificates, etc.). The “solution” for public lighting systems expands the functionality of the EMIS system to public lighting infrastructure.

- Product or knowledge description

The “solution” – Public lighting, an expansion to the existing EMIS, is a cloud-based service for management and

monitoring public lighting. The service offers the ability to establish and improve:

- energy accounting (consumption, costs, savings, indicators, etc.),
- communication with citizens and their safety (remedying failures in the public lighting network),
- overview of all public lighting equipment (catalogues of manufacturers, lamps, lamps, poles, cables, etc.),
- overview and updating of official registers,
- monitoring and management of maintenance processes (failures, work orders and reports, changes in equipment, etc.),
- control over maintenance services (pricelists, reports, attachments to the account),
- planning of new lighting systems, reporting and analysing,
- connections between all actors who manage and maintain public lighting.

- Purpose
  - Reduction of energy use in public lighting
  - Operational management in near real-time
  - Failure management
  - Improved planning
  - Improved handling of warranty claims
  - Energy consumption analysis
  - etc.
- Sector
  - Energy management, Energy Management Information Systems, automatization, stationary applications.

- Results aimed to be achieved
  - Better visibility of the company within the Danube region
  - Better access to partner organizations
  - Improved market position

Summary of status of knowledge transfer

- Background to the status of the knowledge transfer or the needs of the innovation.

This recommendation package relates to the involvement of the local company in the EcoInn Danube project, which identified potential benefit to make use of developed solutions and established contacts. The company was willing to provide information about the developed eco-solution to the partnership and engage with their product into the activities related to the Virtual lab. No transfer of knowledge or technology has thus far been realized.

Summary of recommendation(s)

The main recommendations are categorized as follows:

I. Recommendation on the application of tools

II. Recommendations on suitable locations/markets

III. Recommendations on co-financing of product/service application

IV. Recommendation on product/service marketing

V. General recommendations

In-depth details / explanations of recommendations

The description of main recommendations is as follows:

I. Recommendation on the application of tools:

- Apply the developed web-based platform Virtual lab and included tools to look for potential clients and support

II. Recommendations on suitable locations/markets

- Considering that the main market for the company is Slovenia, we suggest expanding the outreach for other markets in the region. Of particular interest are markets, which are still in the phase of developing the market for energy services and are currently carrying out activities related to establishing the framework for facilitating investment in energy demand side (for e.g. municipalities in preparation of SECAPs). Considering the present expertise, the company could also engage in the process of consulting such potential clients in the preparation/transposition of relevant local legislation as part of a comprehensive service.

III. Recommendations on co-financing of product/service application

- In-line with achieving the energy saving targets within the EU, there exist several co- financing sources on the local, regional or national level of countries (for e.g. this may include a publicly operated environmental fund, that

has a mandate to finance measure into public infrastructure), which could provide a share of funds to clients willing to purchase the product/service from the company. It is essential to identify the types and scope of available incentives across the region and include these in the business case for clients within a specific country. The obtained information would improve market development plans and help to identify most promising markets. Transnational funding sources should also be documented.

IV. Recommendation on product/service marketing

- Present the product at international fairs and Expos with the support of the Ministry on foreign affairs

- Work together with the Energy agency of Savinjska, Šaleška and Koroška region to gain access to contact with new markets in the South-eastern part of Europe

- Acquire national co-financing for promotional activities of the company on international fairs. Public tenders issued by for e.g. SPIRIT Slovenia.

V. General recommendations:

- Offer the product as a service (energy performance contracting). This can be achieved by either partnering with an established companies with experience in the field or to create a subsidiary undertaking, that will be registered for the core business of an ESCO. This will allow for the company to offer the service for providing public lighting to a client municipality, whereby the municipality will only be liable to pay for operating fees agreed beforehand. This would simplify the access to such investments by municipalities with high debt and low credit rating. From the perspective of the client, this would minimize risk of investment and would greatly expand the category of potential clients. In the scenario where the company would create a joint undertaking with and established company in the energy sector, this would reduce the risk of the developing company, secure sufficient capital for financing as well as know-how, experience and properly licenced personnel. Creating a new subsidiary from the ground up would require the further specialization of the company that would include comprehensive engineering, procurement of equipment, permitting and licensing as well as installation and maintenance, which bares high risk and capital requirements.

- Alternatively, the product could be sold/leased to an established ESCO that utilizes third party software for monitoring/managing energy consumption.

Conclusions of recommendations

The developing company is an innovative SME, which has several opportunities to achieve substantial growth on the international market in the following years. The main recommendations consider the market uptake of the eco-innovative product by means of marketing, improved access to key clients and alternative means of offering the product to the final clients.

List of useful links

List of documents supporting the recommendation.

Research results on relevant policies and current developments in the area of low- carbon economy (Territories and low-carbon economy - ESPON Locate), 2018; https://www.espon.eu/low-carbon-economy

Guidebook 'How to develop a Sustainable Energy and Climate Action Plan (SECAP)', 2018, Publications Office of the European Union; https://ec.europa.eu/jrc/en/publication/eur- scientific-and-technical-research-reports/guidebook-how-develop-sustainable-energy-and- climate-action-plan-secap

European Energy Innovation events; http://www.europeanenergyinnovation.eu/Events

Expo Dubai 2020, (Participation of Slovenia confirmed by signed LoI) https://www.expo2020dubai.com/

Date of recommendation package

February 20th, 2019.

Author

Energy agency of Savinjska, Šaleška and Koroška region, Slovenia

13. Guidance for a local start-up to partner with identified suppliers of nutrient monitoring systems

The recommendation package is focused on establishing cooperation of two innovative companies based on technology and knowledge transfer in the field of agricultural technology. The companies have been strongly involved in the activities of the project and have declared interest for expanding their businesses by applying tools developed within EcoInn Danube.

Keywords: AgTech, crop production, GHG, pollution reduction, energy intensity, food, Eco X Digital, soil degradation, nutrient pollution, efficient farming, IT, climate change mitigation, water consumption

Aims of this recommendation

The main point of interest is to facilitate the transfer of technology of a nutrient monitoring system to the use case of the hydroponic growth system developed by the company.

Target group of this recommendation package

The main target group of this recommendation package are two innovative companies with products demonstrating complementary features both in terms of system integration, system development and marketing.

Background to the recommendation package

- Topic and purpose of this document (provide recommendations on something)

The aim of this recommendation package is to facilitate cooperation between two companies (SMEs) involved in the activities of the EcoInn Danube project in the context of technology transfer (provision of innovative equipment) and their application in innovative products. The topic of the recommendation package are innovative systems for automatization in agriculture/horticulture, reducing environmental impacts of farming, increase of self-supply with produce, reduction of requirements for chemical fertilizers and climate change mitigation and resilience of crop production.

- EcoInn Danube project and the role of recommendation packages in the project.

Matchmaking and the transfer of knowledge and/or technology is the core principle on which the project is structured. The recommendation packages are a one of the elements derived from the operation of the virtual lab platform, particularly the matchmaking tool for pairing eco-innovative offers and demands. The recommendation packages are designed to support the uptake of eco-innovations by assisting key stakeholders involved in its development and application with expert guidance and consultation.

- Description of the situation that has led to this recommendation report

The company was introduced to the EcoInn Danube project by PP3 – KSSENA in the context of 2 main activities, which we`re firstly the potential engagement of the company on the virtual lab (ecoinnovative.eu) eco-innovation demand and offer matchmaking tool and secondly, the participation of the company on the transnational matchmaking event EcoXdigital, which took place in Budapest, Hungary in November 2018. The latter did not materialize do to external factors that prevented the representative of the company to actively engage in the event, however participation of the company on the virtual lab platform as well as general communication with the partner consortium remained strong throughout the duration of the project. It was indicated within one of the discussions held with the company in 2018, that there exists strong interest in reliable sensor/monitoring systems, that would allow for supervision and control of the nutrient compound in hydroponic water within the Qube grow system.

- Description of the audiences of this report eg. SME, R&D, Innovation idea, Clean tech or any other area that relates to the EcoINN Danube project.

The main audience of this recommendation packages are 1.) the SMEs directly addressed, 2.) start- ups or individuals working in the field of innovative agriculture/horticulture systems interested in cooperating or proposing improvements, 3.) research and development institutions that can apply the innovations in their studies in order to create best practice examples, guidelines by comparing the technology proposed by the innovators to conventional plant growing methods and finally 4.) potential consumers of the developed innovations, including farms, individuals/households, companies, etc.

Provide a summary of:

- Party / parties

Two main partners addressed within this recommendation package are the companies

d.o.o. and Kft. Both are highly innovative SMEs established relatively recently, although is a much larger company, with more experience and international presence. Other

parties involved include a public educational organization active in research and development and a business support organization involved in the establishment of the companies directly addressed.

- Eco-solutions/knowledge/technology

The eco-innovation was developed in order to address sustainability issues that exist today with conventional production of agricultural crops, including energy intensity of production, environmental degradation such as pollution of ground water, emissions of greenhouse gases and toxic compounds (NOx, CO, PM, PN, etc.), soil degradation, long-term instability of global supply chains both in the production and marketing phases and so on. The developed eco-innovations are high value-added products that simultaneously have widespread positive implications for reducing environmental impacts of farming as well as improving farming process, increasing efficiency and reducing labour intensity.

- Proposed collaboration / proposed partnership and knowledge transfer

The recommendation package proposes direct cooperation of addressed organizations, either within the roles of equipment developer/supplier – equipment beneficiary, innovation developer – innovation implementer and official research partners or within a joint venture.

Summary description

Reliable output of agricultural produce will be essential to mitigate the challenges of climate change and induced weather extremes, population rise, potential disruption of inefficient (global) supply chains and so forth. Both companies are working on maximizing the efficiency of agricultural activity. One is focused on closed-loop semi-automatic indoor hydroponic systems while the other is, in the observed case, focused on improving conventional agricultural production by providing reliable measurements of nutrient requirements. It is expected that both technologies will play an important role in next generation agriculture and complement each other in various ways.

The company was introduced to the EcoInn Danube project by PP3 – KSSENA in the context of 2 main activities, which we`re firstly the potential engagement of the company on the virtual lab (ecoinnovative.eu) eco-innovation demand and offer matchmaking tool and secondly, the participation of the company on the transnational matchmaking event Eco X Digital, which took place in Budapest, Hungary in November 2018. The latter did not materialize do to external factors that prevented the representative of the company to actively engage in the event, however participation of the company on the virtual lab platform as well as general communication with the partner consortium remained strong throughout the duration of the project. It was indicated within one of the discussions held with the

company in 2018, that there exists strong interest in reliable sensor/monitoring systems, that would allow for supervision and control of the nutrient compound in hydroponic water within the developed system. This would allow to increase the level of automatization, optimize plant growth with near real time reaction loops and reduce overall water consumption.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

- Description

The are 2 main aspects of innovation (2 different set of products developed by each organization separately) considered within this recommendation package that is structured to identify optimal solutions that would allow for the synergetic development of both company`s products.

The company is a Slovenian based company that works on innovative design and development of optimised solutions for urban gardening, vertical farming and growing microgreens. One of the main products offered by the company is the hydroponics growth system for commercial vegetable growers. The company is an Agriculture technology company, originally established in 2013 in Wageningen, the Netherlands. It was started under the name [redacted] and over the years extended services to more than 20 countries worldwide. Beginning in 2018, the company started to provide precision farming services for analysing feed and leaf nutrient under the name [redacted]

At present it is now one of the most innovative and experienced young companies working in the field of innovative agricultural technology based on digitalization and monitoring solutions.

- Product or knowledge description

[redacted] ™ developed by [redacted] is a fully automated device that features monitoring and remote control capability via smartphone application. Their solution provides the ability to grow produce in completely controlled environments 365 days of the year. Computer system collects data in real time and provide optimum conditions for each plant separately. The achieved growth rate can double that of classical farms, due to both additional crop cycles per annum and more produce per growth cycle. The system is not affected by ever more frequent extreme weather conditions (drought, hail, wind, flooding, etc.) and is a great way to mitigate against negative effects of climate change. The system does not use any herbicides insecticides, nor fungicides (less demand for oil-based pesticides, no additional pollution). The system uses almost 95% less water than classical farming and does not pollute the environment, soil, groundwater etc. The system applies optimized lighting system for supporting plant growth and uses water and air filters so as to assure there are no heavy metals found in soil.

[redacted] produces several innovative products that deal with nutrient monitoring and management in NRT ( ) . The main points of interest of this recommendation package is the underlying technology for nutrient detection and the cloud based service that allows easy access and analysis of data.

- Purpose

- Improved resilience of agricultural crops against extreme weather (climate change)

- Reduced nutrient pollution

- Increased crop production

- Local production of crops reduces length of produce supply chains

- ….

- Sector

AgTech (Agriculture technology), IT, nutrient monitoring, automatization, mobile applications.

- Results aimed to be achieved

- Better access to partner organizations

- Improved market position

- Development of new eco-innovations

- Improved regional/transnational visibility

Summary of status of knowledge transfer

- Background to the status of the knowledge transfer or the needs of the innovation.

This recommendation package relates to the activities of 2 individual companies developing innovative solutions independently. The process was initiated within one of the consultations of the national project partner with the company which declared that the existing generation

of the developed system system developed will be sought to be improved and updated with additional monitoring systems that will allow for NRT monitoring of essential crop nutrients in water within a closed loop hydroponic system. BIG Co. was quickly defined as a potential partner, that has sufficient knowledge and experience to supply such systems (partially or in their entirety). The involved partners also considered a joint venture of the companies that could be further supported by a business support organization within the incubation period. No knowledge transfer has thus far been realized.

Summary of recommendations

The collaboration between addressed companies could offer significant advantages to both, as their core business and long-term mission are complementary. The cooperation can be implemented in several ways. The primarily desired mode of cooperation, with greatest potential for mutual growth, would be the joint development of the sensor system for nutrient analysis in water, that could be implemented, tested and validated in the system. This would create a potential additional stream of revenue for the company producing the monitoring system would improve the functionality and added value within the growth system, while the marketing, promotion and awareness raising activities share several commonalities that could be addressed with the use of the very same platform of stakeholders. An alternative mode of cooperation would suggest the independent development of the sensor system for the specific use case (application) within indoor hydroponic systems, for which the other company would then be the main target group/beneficiary. The exact set roles and responsibilities of each partner should be defined bilaterally. The summary of recommendations are as follows:

I. Recommendation on the application of tools

II. Recommendations on suitable locations/markets

III. Recommendations on co-financing of product/service application

IV. Recommendation on product/service marketing

V. General recommendations

In-depth details / explanations of recommendations

The description of main recommendations is as follows:

I. Recommendation on the application of tools and sources

- Apply this recommendation package as the starting point to define why/how the cooperation between companies is mutually beneficial.
- Consult the contact points in the international stakeholder database of the Virtual lab platform

II. Recommendation on bilateral communication and co-working opportunities

- Acquire external assistance (business support organizations) to facilitate the direct communication between companies
- Bilaterally prepare and sign a letter of intent outlining the main areas of cooperation between organizations, roles of organizations, key personnel involved, comprehensive timeline for project implementation, etc.

III. Recommendations on co-financing of product/service application

- Identify possible sources of co-financing for the development and implementation of the sensor system (national and international funding programmes, entrepreneurial funds, etc.)
- Explore the possibility of designing the development project as a research instead of a deployment project, which would allow additional co-financing focused on validating the feasibility of the case study, promote the extension of knowledge in the chosen field as well as in terms of communication to the main target groups and organizations that could support further uptake (investors, clients – farmers, public institutions that require the supply of produce (for e.g. kindergartens, schools), larger greenhouse (intensive) agriculture producers that could apply the technology, etc.).

VI. Recommendation on product/service marketing

- Jointly participate in regional trading fairs on agriculture and AgTech (AGRA fair -SI, Gülletag fair - HU, AGRITECHNICA – DE, etc.)
- Get involved in regional hackathon events in order to obtain solutions and talented individuals to join the development of the system.
- Establish direct contacts with facilities where fresh produce is required regularly (schools, kindergartens, hospitals, retirement homes, etc.) and develop a specific business case for each type of target group

VII. General recommendations

- Get involved in regional hackathon events in order to obtain solutions and talented individuals to join the development of the system.
- Offer the product as a service, by means of developing a guarantee contract for the provision of fresh produce. This would achieve very affordable financing for final customers (monthly fee – final price of product is embedded in the contract price) and would reduce the implied risk of the client, while gradually creating a reliable cashflow to the company.

Conclusions of recommendations

The aim of this recommendation package is to facilitate cooperation between two companies involved in the activities of the EcoInn Danube project in the context of technology transfer (provision of innovative equipment) and their application in innovative systems for automatization in agriculture/horticulture, reducing environmental impacts of farming, increase of self-supply with produce, reduction of requirements for chemical fertilizers and climate change mitigation and resilience of crop production. The collaboration between addressed companies could offer significant advantages to both, as their core business and long-term mission are complementary.

Recommendations range from straightforward marketing suggestions to the establishment of a business relationship based on technology transfer, testing and validation.

List of useful links

List of documents supporting the recommendation.

Slovenian entrepreneurial fund: (https://podjetniskisklad.si/sl/)

List of relevant (on the topic of AgTech) fairs in the region (https://www.farmtech.eu/sl/novice-mediji/sejmi-prireditve.html)

Template of the Letter of Intent for forming a joint business venture

Date of recommendation package

March 8th 2019

Author

Energy agency of Savinjska, Šaleška and Koroška region, Slovenia

14. Guidance for supporting the clean energy transition with adapted curricula and improved applied research

This recommendation packages addresses the existing potential of the Faculty of energy technology, University of Maribor to strengthen its innovation output, increase access to funding for research and development, improve international visibility within the academic/scientific community and increase interest in the study of energy technology in general.

Keywords: Academia, research and development, energy technology, knowledge transfer, economic growth, human resource development, innovation, energy efficiency, renewables, curricula, students,

Aims of this recommendation

The main goal is to further increase the involvement of the Faculty in the energy transition of the local/regional environment and adapt its activities according to the long-term strategic development outlook of the region by focusing on specific fields of interest where supporting the uptake of eco-innovations through the transfer of knowledge and technology to the local/regional economy is required.

Target group of this recommendation package

The main target group of this recommendation package is a young faculty with potentially high relevance to supporting the energy transition through the development of human resources with relevant expertise, access to international funding and partner organizations (R&D, companies, policy developers, etc.)

Quick read

The purpose of this recommendation packages is to support more active involvement and relevance of the Faculty on energy technology within the energy transition on the national and international level through the application of its existing resources and capacity.

Background to the recommendation package

Topic and purpose of this document (provide recommendations on something)

The main goal of this recommendation package is to further increase the involvement of the Faculty of energy technology, University of Maribor in the energy transition of the local/regional environment. One of the essential aspects to address in this regard is to outline the progression away from lignite, which currently represents about one third of the total electricity generation in Slovenia. The contribution of lignite to the creation of employment and added value in the region is significant. The faculty has established a dislocated branch in the City municipality of Velenje (the other one is in Krško (location of the countries only nuclear power plant), with the purpose of educating students about conventional energy production and supply methods. The Faculty does however already provide an educational model on alternative energy systems. With respect to the gradual reduction of the lignite power plant in Šoštanj and the general development outlook towards introducing a larger share of renewables in the national energy mix, it is essential that the faculty plays an key role in the area of providing studies and onsite learning on renewable energy technology as well as in the context of retraining of workers currently employed in the thermal power plant and the lignite mine.

EcoInn Danube project and the role of recommendation packages in the project.

Matchmaking and the transfer of knowledge and/or technology is the core principle on which the project is structured. The recommendation packages are a one of the elements derived from the operation of the virtual lab platform, particularly the matchmaking tool for pairing eco-innovative offers and demands. The recommendation packages are designed to support the uptake of eco-innovations by assisting key stakeholders involved in its development and application with expert guidance and consultation.

Description of the situation that has led to this recommendation report

The Faculty of Energy Technology has been actively involved in the EcoInn Danube project through the participation in activities of WP3 – Strategy for ecoknowledge. The Faculty is seen as an important pillar of the future sustainable energy development in terms of their expertise, access to relevant stakeholders from private businesses to public research and development organizations.

Description of the audiences of this report eg. SME, R&D, Innovation idea, Clean tech or any other area that relates to the EcoINN Danube project.

The main audience of this recommendation packages is 1.) the Faculty itself and 2.) various types of stakeholder organizations from the local/national community. This includes SMEs (can directly benefit from results of research projects on which novel business opportunities can be structured, may obtain access to larger companies), business support organizations, public institutions and finally, the general public as the final beneficiary of developed solutions.

Provide a summary of:

- Party / parties

The main object of the recommendation package is the Faculty of Energy Technology as the carrier of educational and R&D activities which will play an important role in providing necessary knowledge, skillsets and training to supply the local/national economy with productive human capital in the new energy paradigm. The Faculty of Energy Technology is one of the youngest members of the University of Maribor. University of Maribor is the second largest Slovene university and oversees seventeen faculties. All courses of the Faculty of Energy Technology, University of Maribor are in line with the Bologna Declaration, which allows a high degree of electives. Students can choose a part of coursework in the areas of: Hydropower, Thermal energy, Nuclear energy, Alternative Energy and Universal Energy. The Faculty strives to continually adapt the formal curricula programmes to the present-day/future needs of the economy and involves the private sector in its preparation.

- Eco-solutions/knowledge/technology

Of particular interest would be decisive action in the area of (jointly with other academia and R&D institutions) developing eco-innovations in accordance to the future economic outlook of the country, in accordance to the smart specialization strategy. From local and national perspectives, it would be beneficial if the Faculty would establish research activities in the field of specific use case applications of hydrogen fuel cell technology, for which the City municipality of Velenje is actively pursuing opportunities to

develop a close system of hydrogen supply and use within the local/regional context. Two applications that would complement the medium-term development of the Savinjsko-Šaleška region would be the development of a hydrogen powered (water-going) vessel and small FCE vehicles for use in tourist content.

- Proposed collaboration / proposed partnership and knowledge transfer

The recommendation package proposes stronger direct cooperation between the Faculty and relevant stakeholders, namely companies active in energy innovation, business support organizations from the local environment and public institutions.

- Other details according to recommendation package type featured in recommendation package.

/

Summary description

The energy transition offers ample opportunity to redesign the national economy by comprehensively addressing development from a bottom-up approach, drawing from basic and applied research. The future development and large-scale implementation of novel energy technologies, hydrogen/fuel-cells representing only one such option, open a plethora of market niches which are not available in fully developed markets. In terms of future ambitions of the region to build its energetics sector on the basis of a high share of (intermittent) renewable energy sources with hydrogen accompanying electricity as the key vector for transport and storage of energy, it is essential to focus on activities which will allow research and production of required equipment and infrastructure domestically (as much as possible).

Summary of status of knowledge transfer

- Background to the status of the knowledge transfer or the needs of the innovation.

No knowledge or technology transfer between partner organizations addressed within this recommendation package has thus far been realized.

Summary of recommendation(s)

The application of proposed activities is targeted to strengthen the innovation output of the Faculty, increased access to funding for research and development, improved international visibility within the academic/scientific community and an increased interest in the study of energy technology. The main recommendations proposed within this document are:

I. Recommendation on the application of tools

II. Recommendations on curricula adaptation

III. Recommendations on events and international cooperation project

IV. Recommendation on partnerships

V. General recommendations

In-depth details / explanations of recommendations

The description of main recommendations is as follows:

I. Recommendation on the application of tools:

- Apply the developed web-based platform Virtual lab and included tools to look for potential research partners

II. Recommendations on curricula adaptation

- Enhance emphasis on the alternative and universal energy educational modules. Improve cooperation with cleantech industries in the area of mandatory internships for undergraduate levels

- Continue and expand the practical trainings and seminars on renewable energy sources for the requalification of personnel currently employed in conventional energy industries

- Establish cooperation with the Pattern City™ Velenje in the area of renewable energy technology and sustainable development. Utilize the innovative and interactive character of the Pattern City concept in 1.) promoting the study of energy technology to new students within info days, awareness raising and promotional events and 2.) with existing students of the Faculty to support the formal educational curricula (provide ideas for jointly constructing a thematic session on renewable energy within the scope of extra credits, create competitions and awards, apply the initiative to the transnational environment through program co-financing.

III. Recommendations on events and international cooperation project

- Continue active engagement in carrying out research projects funded through international donor funding programmes.

- Form a project consortium with relevant local partners and apply for ERDF funds on the 2019 autumn call of Horizon 2020 on low-carbon energy technology

IV. Recommendation on partnerships

- Adhere to the strategic development innovation partnership on mobility (SRIP ACS+)

- Join the national development centre for hydrogen technology

V. General recommendations:

 Establish a team of researchers on the topic of the hydrogen powered water-going vessel

Conclusions of recommendations

The recommendation package is aimed at improving the innovation output, access to funding for research and development, international visibility within the academic/scientific community and interest in the study of energy technology in general by focusing on 5 categories of targeted activities. The recommendation package is focused on raising the level of cooperation between the faculty and other relevant stakeholder in the local and national environment in order to design the formal educational process based on specific present day challenges of the wider region.

Annexes

List of documents supporting the recommendation.

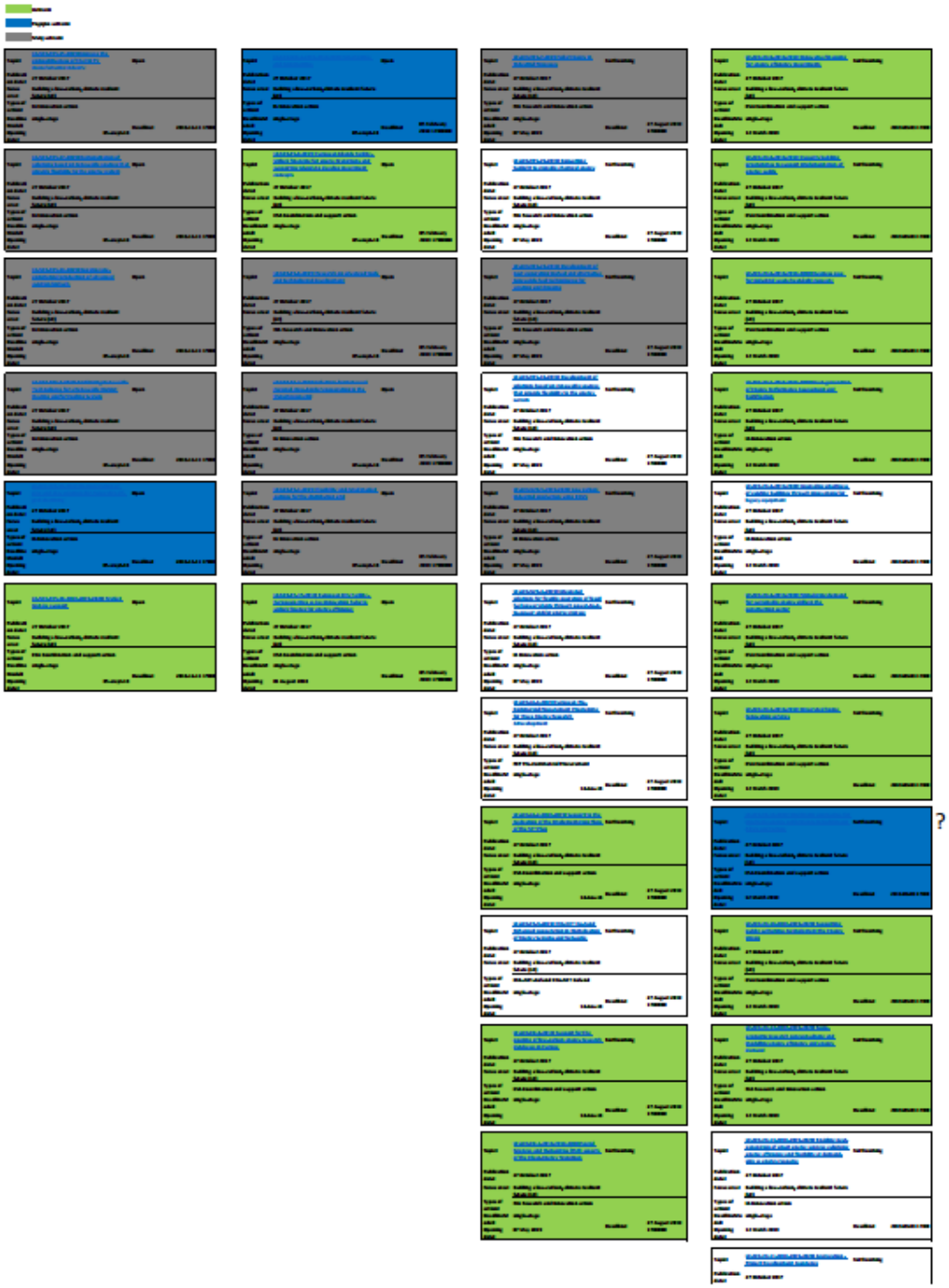
- Virtual lab web platform http://ecoinnovative.eu/
- Pattern City official website https://pattern.city/
- Slovenian entrepreneurial fund (https://podjetniskisklad.si/sl/)
- Datasheet with overview of upcoming tenders of transnational funding programmes (`Pregled razpisov.xlsx")

Date of recommendation package

February 6th 2019

Author

Energy agency of Savinjska, Šaleška and Koroška region, Slovenia



15. Guidance for building the capacity to improve support structures for the innovation environment on the local and regional level through the organization of thematical co-creation events (SAŠA incubator)

The purpose of this recommendation package is to facilitate the organization of events replicating the concepts identified as most effective throughout the implementation of activities of the EcoInn Danube project within the environment of the local/regional business support community.

Keywords: Business development, incubator, mentorship, international cooperation, matchmaking, event organization, pilot actions, green summer schools, promotion, communication, sustainability

Aims of this recommendation

The main objective of this recommendation package is to support profound involvement of the local start up incubator in facilitating development of eco-innovations within the scope of the local/national innovation ecosystem by applying effective methods for organizing co-creation, matchmaking and presentation events, which were identified within the process of implementing activities of WP5 – Transfer of eco knowledge and WP6 – Pilot activities of the EcoInn Danube project.

Target group of this recommendation package

The main target group of this recommendation package is the local start-up incubator and its various beneficiaries and stakeholders (founding partners – municipalities, companies, mentors, students, sponsors, etc.).

Background to the recommendation package

Matchmaking and the transfer of knowledge and/or technology is the core principle on which the project is structured. The recommendation packages are a one of the elements derived from the operation of the virtual lab platform, particularly the matchmaking tool for pairing eco-innovative offers and demands. The recommendation packages are designed to support the uptake of eco-innovations by assisting key stakeholders involved in its development and application with expert guidance and consultation. EcoInn Danube project activities defined within WP5 – Transfer of eco knowledge and WP6 – Pilot activities, more specifically the local and transnational workshops as

well as green summer schools and green innovation forums serve as replicable concepts that could be effectively implemented inside the capacity of the business incubator to support companies working in various fields related to the market uptake of eco-innovations based in the wider region. The primary main audience of this recommendation packages is 1.) the local business incubator (SAŠA incubator), 2.) business incubators associated with the Start:Up Slovenia national initiative and 3.) national funds and development agencies supporting the organization of co-creation and commercialization events through co-financing (public tenders). The recommendation package is in general applicable for 4.) various types of organizations working in the field of supporting innovation and business development through matchmaking, education and promotion.

Summary description

The recommendation package aims to aid with the organizational efforts to establish an annual Green Summer School within the context of entrepreneurial support SAŠA incubator provides to the local, regional and national environment. SAŠA regional business incubator was established in 2007 and has more than 10 years of experience in supporting young entrepreneurs and start-up companies developing ideas and launching commercial products and services. Its major shareholders/beneficiaries are the Municipality of Velenje, Savinjsko-Šaleška Development Agency, School Centre Velenje and TechnoCenter (Technology Transfer Office) of the University of Maribor. SAŠA Incubator is a non-profit organization that offers supporting environment for business development in SAŠA region. Key focus is to foster creative ideas in the fields of manufacturing, technology transfer and commercialization and development of marketable services. It encourages and assists individuals/companies with innovative business ideas from inception, networking and realization. SAŠA Incubator also looks to connect the educational system, young entrepreneurs, public entities and existing business in order to foster business culture and create new start-ups and companies. Main goal of SAŠA Incubator is to become a hub for young talent, young entrepreneurs, business and retired managers that would offer complete support for all segments of development. The business incubator plays a key role as generator of new ideas and business development as well as an entry point for new business and potential investors. Start:up Velenje is part of the national initiative Start:up Slovenia, overseen by the Technological Park Ljubljana and represents a community of innovative and entrepreneurial students, mentors and other interested parties with the main objective of supporting business development in Savinjsko-Šaleška region. It covers 10 municipalities, has incubated over 50 innovative start-up companies and has been involved in supporting the local industry for many years. SAŠA incubator was actively engaged in the implementation of the EcoInn Danube project across several activities, including its involvement in the organization of the international stakeholder meeting in Velenje, Slovenia, as well as in the context of applying and contributing to the tools developed with respect to the Virtual lab platform. It was identified during the implementation of the project that achieved results and gathered knowledge, with respect to activities identified beforehand, is directly applicable to the core activities of the SAŠA incubator and in-line with the organizations mission to facilitate commercialization of novel products and services.

Summary of status of knowledge transfer

- Background to the status of the knowledge transfer or the needs of the innovation.

During the active phase of the EcoInn Danube project, the responsible partner organizations organized various types of thematical conferences and workshops. These events, particularly those with an embedded innovative structure (green summer school, green innovation forum, thematical workshops applying the world café format, etc.) proved highly effective in addressing and engaging key target groups of the project. Organizing innovative thematical events is an effective tool to acquire participation from key target groups. Within the context of thematical events, establishing a recognized brand is essential. Without substantial pre-financing and first basis access to speakers with national/international renown, this process can require significant time in order to distinct the event from countless other similar events organized in the area. Therefore, it is necessary to design the organization of events in a way that allows it to be self-sustainable, most specifically in terms of co-financing but also in the context of environmental impacts of such events.

Summary of recommendation(s)

The main recommendations are grouped into 3 categories as follows:

I. Recommendation on the application of tools

II. Recommendations for main organizers

III. Recommendations on funding and co-organizers

In-depth details / explanations of recommendations

The description of main recommendations is as follows:

I. Recommendation on the application of tools

- Apply the tools developed within the EcoInn Danube project to promote the event and establish connections to innovators, speakers, funding institutions, researchers, academia and other stakeholders. Promote the event through established communication channels of the EcoInn Danube project.

II. Recommendations for main organizers

- The thematic focus of the event should be limited to a specific area of interest so as to acquire the participation of persons with comparable knowledge/skills, interest, development plans, etc.

- The event should in a comprehensive was take into account general sustainability factors in terms of environment and wider benefits, inclusive of efficient mobility (venue is easily reached by means of public transport, the event features capacity for virtual meetings that would reduce the impact of unnecessary travel – international speakers, etc.), efficient use of energy (the time/season of the event should be defined in order to reduce the requirements for heating or cooling of the venue, the event should include an activity to compensate for the negative environmental impacts caused by the event by for e.g. including a traditional tree planting ceremony), efficient use of materials (use recyclable paper, avoid single-use products, minimize the production of event handouts and apply whiteboards or IT solutions to reduce `pen&paper` requirements, etc.), use foodstuffs from local sources for catering, focus on using seasonal produce, etc.

- Promote the event as sustainable very early in the communication process. Provide a whitepaper on general considerations of the sustainable event and develop comprehensive guidelines/code of conduct for participants in order to reduce environmental impact (information about public transport, code of conduct

III. Recommendations on funding and co-organizers

- Apply for co-funding of the event through local and national sources for promoting entrepreneurship.

- Acquire sponsorships from private companies for event co-funding.

- Join smaller local events under a uniform brand to reduce overhead expenditures.

Conclusions of recommendations

The replication of successful methods for co-creation and educational events offers substantial opportunity to increase the connections amongst relevant actors within the innovation ecosystem of the Savinjsko-Šaleška region. The organization of a green summer schools is applicable to the general mission and core activity of the SAŠA business incubator. The event could be organized as an additional/separate event or could be the result of rebranding and joining existing events already organized by the beneficiary (for. e.g. Podjetniški trampolin). The integration of the principles proposed within this recommendation package are applicable to be used in other events as well an also provide a viable way to distinct the event on a regional/national level with unique feature, which are both pragmatic and improve the overall identity/visibility of the event in question.

Annexes

List of documents supporting the recommendation.

- Material on pilot actions carried out within EcoInn Danube: http://www.interreg-danube.eu/approved-projects/ecoinn-danube/section/pilot-actions

- Other relevant materials of EcoInn Danube: http://www.interreg-danube.eu/approved-projects/ecoinn-danube/outputs

Date of recommendation package

February 18th 2019

Author

Energy agency of Savinjska, Šaleška and Koroška region, Slovenia

16. Guidance for the commercialization of the bio-plastic pot on the international market

This recommendation package was developed in with a focus on achieving greater market outreach of an innovative plant bio-degradable plant container for improving the efficiency of horticultural activities within the region. The company for which the recommendation package is developed participated in the virtual lab with an eco-innovation offer and expressed interest in applying tools and research developed by the project.

Keywords: Horticulture, organic farming, innovative casing, bio-degradable, plant nutrients, start-up, gardening, landscaping, marketing, commercialization, development funds, business model

Aims of this recommendation

The recommendations are dedicated to address improved access to final clients and also propose some innovative business models to support market uptake in key interest areas.

Target group of this recommendation package

The main target group of this recommendation package is an innovative start-up company from Slovenia, which has successfully developed and commercialized its product and has been awarded with the title of best innovation from the side of the local business community.

Background to the recommendation package

- Topic and purpose of this document (provide recommendations on something)

The main purpose of this recommendation package is to support the commercialization of the company`s main product (bio-plastic pot) within the countries of the Danube region, Europe and beyond. The topic of the recommendation package is advancement in sustainable horticulture with novel approaches to transplants of pot plants, minimizing the requirements for chemical fertilizers, plastics and reducing labour intensity.

- EcoInn Danube project and the role of recommendation packages in the project.

Quick read

The main purpose of this recommendation package is to support the commercialization of the company`s main product (bio-plastic pot) through improved marketing, matchmaking within the countries of the Danube region, Europe and beyond.

Matchmaking and the transfer of knowledge and/or technology is the core principle on which the project is structured. The recommendation packages are a one of the elements derived from the operation of the virtual lab platform, particularly the matchmaking tool for pairing eco-innovative offers and demands. The recommendation packages are designed to support the uptake of eco-innovations by assisting key stakeholders involved in its development and application with expert guidance and consultation.

- Description of the situation that has led to this recommendation report

The company [redacted] was engaged in the EcoInn Danube project by PP3 – KSSENA within the context of establishing the first set of eco-innovation offers for the matchmaking tool on the virtual lab platform. The bio-plastic pot was identified as one of the best eco-innovations in terms of (LCA) environmental impact, practicability and scalability by its peers and experts involved in the entrepreneurial community on the national level. In the context of the internal voting process carried out by the EcoInn Danube partner consortium with the intent to choose between the most promising eco-innovation uploaded to the virtual lab platform for which comprehensive feasibility studies (D5.2.4) will be developed, the product ranked in the 4th place with respect to obtained votes (from about 70 competing products/services at that time).

- Description of the audiences of this report eg. SME, R&D, Innovation idea, Clean tech or any other area that relates to the EcoINN Danube project.

The main audience of this recommendation packages is 1.) the SME (start-up) directly addressed, 2.) start-ups or individuals working in the field of innovative agriculture/horticulture systems interested in cooperating or proposing improvements and most importantly 3.) potential consumers of the developed innovation, inclusive of but not limited to gardening and horticulture centres, farms, gardening product retailers as well as individuals/households and public institutions for which the product can improve their work processes (agriculture/horticulture educational organizations, agriculture research institutes, utility companies (landscaping, cemetery upkeep, etc.). The main beneficiary of the recommendation package is the developer and owner of the eco- innovation, the company [redacted]. Other addressed parties are mostly related to final costumers, identified by desk research of information in the public domain.

Summary description

Reliable output of horticultural produce will be essential to mitigate the challenges of climate change and induced weather extremes, population rise, potential disruption of inefficient (global) supply chains and so forth. Domestic production of produce may play an important role in the upcoming decades. The eco-innovative product(s) addressed within this document improves several inefficiencies related to plant growth, above which the availability to circumvent the need for artificial plant fertilizer which have a profound impact on the environment.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

The eco-innovation addressed within this recommendation package is a 100% biodegradable plant pot developed by a compound of natural (bio)polymers and rice husk. The plant pot breaks down as an organic fertilizer, abolishing the need for additional chemical fertilizers, replaces the use of plastics and has and a unique pest-control system embedded in the design of the product. The eco- innovation was developed in order to address sustainability issues that exist today with conventional production of horticultural crops, including energy intensity of production, environmental degradation such as pollution of ground water, emissions of greenhouse gases and toxic compounds (NOx, CO, PM, PN, etc.), soil degradation, long-term instability of global supply chains both in the production and marketing phases and so on. The developed eco-innovations are high value-added products that simultaneously have widespread positive implications for reducing environmental impacts of farming as well as improving farming process, increasing efficiency and reducing labour intensity. The eco-innovative products are already cost competitive in the present scale of productions, market penetration and company operations.

Summary of recommendations

The main recommendations are categorized as follows:

I. Recommendation on the application of tools

II. Recommendations on suitable locations/markets

III. Recommendation on product/service marketing

IV. General recommendations

In-depth details / explanations of recommendations

The main recommendations are as follows:

I. Recommendation on the application of tools:

- Apply the developed web-based platform Virtual lab and included tools to look for potential clients and support

II. Recommendations on suitable markets

- Implement active marketing within retail department stores (online shops and `brick and mortar`)

Establishing a business arrangement with any of the major retailers present in the region would make possible a per unit price reduction due to the scale of production which would in term allow for predictable cash flow (liquidity) for the company supporting more robust/faster growth and market access (direct presence/access to the final costumer).

- Approach companies that could apply the innovative plant containers within their core business/final product

Farmers/crop-producers, florists, seedling producers/sellers, landscaping/general upkeep service providers, public utility companies and other related business would benefit greatly in terms of expanding their own core business with an eco-friendly branch of products and services (for example seedlings offered directly in eco-flower pots, eco-pots for graveyard maintenance and funeral services, perennial crops sold in eco-pots, etc.). Marketing to such organizations, that could be become purchasers of larger quantities of addressed products should be a vital aspects of the companies business orientation.

III. Recommendation on product/service marketing

- Introduce variety in terms of available sizes and models of pot plants

Insofar, the sizes of the pot plants made available by the company are limited to only a few models (eco-pots and flower-pots). Providing the products in different sizes would allow for the company to reach a much wider costumer base.

-Institute more options for product packages

At present, the company markets their products in different unit packaging on their online store located on the companies official website (flower pots: Type A – 18 pieces, B – 50 pieces and C – 100 pieces; Eco pots: A – 15 pieces, and the same for packages B and C as for flower pots). The prices are appropriately set for promoting larger quantity purchases with a 0,47 EUR to 0,51 EUR per unit price for packages of 100 and 50 items respectively, however single variable unit purchases are not made possible. Overall a more variable quantity structure (for e.g. a unified measure of 10 units) would allow better options to the consumer purchasing the products online, will still allowing for a adaptable per unit price structure and reduced overhead costs for packaging (pre-packaging of units of 10, adapted to each specific order as required).

- Introduce promotional marketing

For the purpose of marketing, provide the eco-plastic pots with highly sought after plant varieties in their existing offer. Considering their core business, the company could achieve great marketing impact, awareness and presence with practically negligible resources invested by structuring promotional offers within important holidays (for e.g. mothers-day special, all saints day, etc.)

IV. General recommendations:

- Present the product at international fairs and Expos with the support of the Ministry on foreign affairs

- Work together with the Energy agency of Savinjska, Šaleška and Koroška region to gain access to contact with new markets in the South-eastern part of Europe

- Acquire national co-financing for promotional activities of the company on international fairs. Public tenders issued by for e.g. SPIRIT Slovenia.

Conclusions of recommendations

[redacted] is a highly innovative young company that was declared the Startup of the year within the Entrepreneurial Trampoline competition organized by Start:up Velenje. There main products (the bio-degradable plant containers) display very low environmental impacts across their entire life- cycle. The products are cost competitive to conventional plant containers, even at the current scale of production. The opportunities to expand the outreach of the companies are plentiful, whereby the recommendation package is structured around most directly applicable activities with high- probability of positive outcome.

List of useful links

List of documents supporting the recommendation.

Slovenian entrepreneurial fund (https://podjetniskisklad.si/sl/)

List of relevant (on the topic of AgTech) fairs in the region (https://www.farmtech.eu/sl/novice-mediji/sejmi-prireditve.html)

Date of recommendation package

March 21st 2019

Author

Energy agency of Savinjska, Šaleška and Koroška region, Slovenia

17. Recommendation for university departments on how to work effectively and efficiently in an international project consortium

Participating in a large consortium implementing an international research and development project is always a challenge for university departments, especially in the case of newcomers. This recommendation is intended to support Szent István University (SZIU) in Hungary to successful implement the iFishIENCi project.

Keywords: "Events, consultations and interactions", university, R&D institution, department, Szent István University, iFishIENCi project, research projects, consortium, international, soft-skills

Aims of this recommendation

This recommendation package aims to provide support on working in an international project consortium for an inexperienced University.

The aim of this recommendation package is to support Szent István University (SZIU), in fitting into the EU-funded project environment, to aid it in working in a large international consortium and to provide ideas on how to establish lasting and trusting cooperative relationships with other institutions and companies in this specific consortium.

Target group of this recommendation package

- Szent István University (SZIU), a partner of iFishIENCi project
- Universities that need knowledge and experience related to implementing international projects.
- Research and development (R&D) institutions

Background to this recommendation package

International research, development and innovation cooperative projects usually bring together partners from several countries, several fields of industries and different sectors. It is not easy to work effortlessly in such a complex environment; it requires various sets of skills to be applied artfully.

This is the case for Szent István University (SZIU). It has very few projects running, and this is only the second H2020 project of the Department of Aquaculture, which is the Department involved in the implementation of this specific project. Therefore, it is important to be aware of potential issues that can prevent the successful implementation of the project and affect the blooming business relationships with the project partners.

More and more calls for proposals are aiming at solving global challenges either at local, regional or at EU level. These challenges mainly include social security, or coping

with, stopping, reversing, preventing or at least mitigating the consequences of climate change and migration.

All of these calls for proposals require a consortium to apply. Therefore, in these areas of research, most of the projects are a multi-cultural, multi-sectoral and multi-background projects, where the different partners all work together. Now, unlike in the previous years, all calls for proposals have horizontal issues that must be dealt with like gender-balance, effects of climate change, responsible research and innovation (RRI), therefore at least one partner must have this knowledge for even a successful project application.

Starting mainly from last year but becoming very prominent from the calls of this year, the EU puts a great emphasis on supporting projects, which can build and test a new product, technology or solution and lead towards their commercialization as soon as possible. Among these products and solutions priority is given to the ones that have an ecological dimension during development and in the final result.

iFishENCi project

The iFishENCi project aims to make improvements to fish farming with an international impact by finding sustainable farming practices, effective fish monitoring and feeding solutions and reducing pressure upon fish-feeding agricultural crops by implementing IoT and AI based innovations. Engineers, fish biologists and different industry members, such as fish farms and feed producers are working together to find sustainable breeding solutions with fish quality in their primary focus. iFishENCi is a Horizon2020 project started in November 2018. The project is coordinated by AquaBioTech Ltd, an SME operating in Malta, and the consortium consists of 16 partners from several countries, such as Spain, Norway, Denmark, Spain, Greece, Hungary, and France.

The iFishIENCi EU funded project is bringing together trans-disciplinary partners towards making significant improvements to sustainable fish farming worldwide, since fish aquaculture is essential for providing healthy food to a growing world population, but its success depends upon finding more sustainable farming practices. This means more effective ways of monitoring fish-health and welfare, and more efficient ways of feeding fish that reduces pressure on the source of fish-feed ingredients. The ambition of iFishIENCi project is developing and demonstrating disruptive IoT/AI based innovations, considering the feeding value chain as a whole, and addressing four commercially-important species, with fish quality as focus.

The project aims to improve smart feeding and monitoring systems that are more elaborate and precise, and partners will identify new value chains for the valorisation of specific waste (dirty water, sludge) from different production systems, leading to zero-waste target and value creation. In addition to the above, strain selection and and smart breeding can support optimizing the feeding efficiency for alternative feeds in African catfish where cheap and sustainable feed ingredients would be essential to ensure the growth of EU production.

iFishENCi project consortium

The consortium consists of 16 partners, and there are both research institutions (including universities) and private entities (such as companies). In general, there are two options for the leadership of such consortium. One is a private entity and the other one is a public entity. Both have similar characteristics, but they differ in some aspects. The iFishIENCi project has a private entity as Coordinator, therefore this recommendation package puts a special focus on issues regarding this type of coordinator.

In general, three aspects must be examined at first: countries, sectors and fields of science/industry in a consortium. Different countries have different cultures, the public and private sectors work completely differently, and the different industrial or scientific fields also have their own characteristics. All of these must be taken into consideration when planning how to work together with the other partners. In addition to this, the project leader has a significant effect on the implementation of the project, and them being either a public or private entity will determine different ways of work in some aspects during implementation. To summarise in short, enterprise project leaders expect more self-sufficiency and aim to reach to marketable solutions as soon as possible, university project leaders are more into interesting and exciting research results, even if they do not lead straight to marketable products, services or solutions. Therefore, their motivation and attitude towards the project itself and their partners in research is naturally different.

Summary of recommendation(s)

These recommendations aim to immediately support the targeted University in a better working relationship with all project partners in iFishIENCi project:

1. Learn about the business/work culture of the other partners
2. Maintain active, timely and clear communication

3. Be aware of your (organisation's) limitations and inform partners about it
4. Be proactive both in action and in communication
5. Get used to acting and reacting fast
6. Be self-sufficient in terms of project implementation

In-depth details / explanations of recommendations with links

1. Learn about the business/work culture of the other partners

This recommendation is important in general but becomes extremely important if you would like to work in a large international consortium like in iFishENCi. Even in Europe, different (working and business) cultures can be observed.

The Mediterranean countries have a completely different attitude towards life and work than Germans, British or Finnish people. Therefore, if you are working with people from other nations, be extra careful with communication and with keeping deadlines. It is also always useful to learn a little about the culture of the involved project partners, it makes starting and maintaining professional communication a lot easier, and eventually it somehow always gets to a point when both parties can say what is on their mind, discuss and make a decision.

We recommend:

Researching the French, German, Norwegian, Danish, Spanish and Greek culture both via desk research and via reading the relevant parts of the book "When cultures collide" from Richard D Lewis. It is also very beneficial to read the Hungarian section to learn on how Americans look at Hungarian business partners in general - it gives interesting insights on how our own acts are perceived and what looks completely natural, might even be something unpolite for another nation's representative.

2. Maintain active, timely and clear communication

Communication, and especially active, proactive communication can prevent disagreements within the consortium. When many different people must work together, disagreements are a natural part of the discussions. The key is to communicate clearly, assertively, and in a timely manner. As soon as a problem arises, communicate it to the partners affected by the problem (i.e. partners who should use the results of an activity that will be delayed for carrying out their own activities). Assertivity is also very important, when a task or work package leader must give negative feedback to one or some of the partners. In this case, a rule of thumb is to criticise the activity – that was not carried out properly – instead of the person that carried out the activity.

Please find here two examples, one good and one bad for reference: one of the partners did not deliver a research report on time.

Good reaction: Dear Mr Smith, you have not submitted the research report on time. Please let me know, what were the reasons, and how you are planning to prevent the reoccurrence of delay.

Bad reaction: Dear Mr Smith, you are so bad for not delivering the research report on time. Why can't you just do it on time? You are unreliable.

In this example, telling someone that they are unreliable is qualifying them as bad people. If a delay happens the first time, this is certainly not a good way of communication. If the same happens from time to time than it is worth talking to that person in more detail. Many times, it is the quality of the feedback that defines, how that specific working relationship will develop in the future.

3. Be aware of your (organisation's) limitations and inform partners about it

Every organisation has its limits, boundaries, which it cannot overcome. It is strongly advisable to communicate these at the very beginning of the project to make all situations as clear as possible. As an example, the University has a quite long public procurement process which has to be applied to travel arrangements as well. The teams must submit all paperwork at least 2 months before the planned travels in order to allow enough time for the procurement to happen. However, since they did not communicate this barrier at the beginning, already at the kick-off meeting, they missed the first personal meeting, because they only got the information 3 weeks before the meeting taking place. This was impossible for them to organise the travels during this little time.

4. Be proactive both in action and in communication

Entrepreneurs are operating in a dynamically changing environment, where they need to make quick decisions and act fast. Partners in iFishENCi project, such as Vitafort, Covartec and Sustainable Innovations Europe and especially the Coordinator, AquaBioTech Ltd do not have the time to always ask every partner, whether they are all progressing well in the project implementation. Especially, AquaBioTech, as Coordinator of this project and partner in several others,

has a lot on its plate already, they simply do not have the time to babysit other partners, such as SZIU, therefore proactivity is a must when working with them, but the least that must be done is informing them regularly. Acting and communicating proactively helps on one hand a better project implementation, and on the other hand helps building the good impression of the organisation, which can lead to new project development invitation from the Coordinator or from other partners as well. SZIU needs to maintain its project flow and a good chance to improve its scientific capacities is to be invited to projects by others, and doing their best in the implementation.

5. Get used to acting and reacting fast

This is very closely connected to the previous one. The life of entrepreneurs is much faster than the life at a university. Therefore, the University needs to speed up and keep up with this rapidly changing environment. This can be a challenge, however clear communication helps both ways: if the colleagues of SZIU, who are involved in the project communicate within the University, especially with units responsible for project administration and support (i.e. Project Office, Finance and Procurement Offices) that a certain project requires more immediate reactions, the colleagues can prepare for this situation. The sooner this is doe the better. In addition, informing – and constantly reminding – the coordinator company that the processes and reaction time of the University is slower, a good compromise can be developed, where both parties can adjust for reaching the best outcomes. In any case, the University should prepare itself for a speed well out of their comfort zone. Partners who can keep up, will likely be more successful in reapplying in other consortia.

6. Be self-sufficient in terms of project implementation

Entrepreneurs are not baby-sitters, they will not tell you, how to do your job. Since every partner brings its own expertise, and their tasks are distributed according to their expertise, they are expected to act accordingly, with professional attitude and develop high quality deliverables and outputs. This does not mean that no help is offered, but partners need to be able to organise themselves, their work, keep the deadlines, maintain records and submit reports fully and on time. In addition to the Coordinator, every research programme has some kind of support available, mostly by dedicating National Contact Points (NCP-s) for each participating country. These contact points have the most relevant information on keeping records, eligibility criteria of different cost items, and other matters that may arise during proposal writing or project implementation.

Conclusions of recommendations

Working in an international consortium is exciting on so many levels. It requires language skills, professional knowledge and experience, a big dose of motivation, extensive flexibility, an ability for compromise and an open mind. It is unfortunately very easy to make mistakes, however with a little guidance, most of these typical mistakes can be avoided. That is why this recommendation package was developed: to provide some guidance.

In short, the followings are key to successful partnerships:

- Open mind
- Honest communication
- (Showing) respect towards others
- Keeping up speed
- Proper attitude

If an organisation pays attention to the details mentioned above, the likelihood of failure in business relationships becomes marginal.

Common goal setting and agreement in the terms of references early on helps the parties manage the collaboration and create a win-win working environment where strategic-level partnerships can be born and thrive.

Further reading

Please visit the European Union Funding and Tenders portal for H2020 Calls for Proposals: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home

Date of recommendation package

07. 05. 2019

18. Recommendation to universities and entrepreneurs on IPR aspects of University-Industry joint research cooperation

This recommendation package is an introductory guide for universities and entrepreneurs on how and when to consider Intellectual Property Rights (IPR) issues at the development stage and the implementation of an innovative project.

Keywords: "Events, consultations and interactions", SME, university, knowledge transfer, commercialization, intellectual property, IP, intellectual property rights, IPR, intellectual property management, case study

Aims of this recommendation

The aim of this recommendation package is to highlight the most important steps that must be followed during project planning and implementation from an Intellectual Property Rights (IPR) perspective.

We aim to give recommendations to Sentimento Ltd in order to successfully protect their IPR throughout the cooperation with the University in this specific project.

Target group of this recommendation package

Entrepreneurs and Small and medium sized enterprises (SMEs) in general that wish to implement innovative joint research projects with universities and Research and development (R&D) institutions.

Specifically: Sentimento Ltd (an SME in Hungary working with Szent István University)

Background to this recommendation package

Calls for proposals that are targeted at entrepreneurs focus more and more on marketable products, technologies and solutions both on national and at European Union level.

Some calls encourage, some directly favour outputs that can be protected by some form of patenting or other IP protection methods. However, most universities and entrepreneurs do not know about IP protection, their rights, their obligations, the processes, the novelty breaking actions, therefore they are not able to plan these activities accordingly. The calls force them to deal with IPRs but they often need external help in the form of a patent attorney office to support their IP management.

Protecting new intellectual property is very important for future exploitation and improper management of the IPs of the project may result in serious business-scientific conflicts, if not handled with care.

Research, Development and Innovation (R&D&I) calls for proposals have a common goal in Hungary, that the end result must be marketable in some ways. The decision-makers considered the logic of Operative Programmes, FP7 and Horizon2020 framework programmes and designed the indicators of the national R&D&I calls accordingly. Within the requirements of the calls, project results with a possibility of having a return on the fund received are highly expected. One of the main indicators are related to patenting, for which there is a differentiation: submitted and approved. Further indicators are "know-hows", but the commercialisation is less likely in this case.

Since most of the projects funded from national sources are implemented either in a consortium or with involving universities as subcontractors, the IP results of the projects must be managed.

The following recommendation package is based on a currently running project of Szent István University and Sentimento Ltd, with the title of "Development of a flow-through system analysing chemical and biological substances that reforms hydrotoxicology tests".

Introduction of the call for proposals:

The National Research, Development and Innovation Office published a call for proposals for profit-oriented companies in order to support their research and development activities. Consortia with a maximum of 3 members could apply, universities could be subcontractors in this call. According to the requirements of the call, the main output of the project should be a possibly patentable result. The maximum project length is 24 months, the funding rate is 45-70 % depending on the size of the company. Applicants who undertakes to submit a patent application is entitled to higher scores at the evaluation.

The publisher of the call has published the evaluation criteria as well in order to be transparent. Naturally in a commercial-focused call, therefore publications only mean fractions of points, while a patented result is several points in a 100-points system. This scoring preference can be a deal-breaker in this call.

Introduction of the applicant company:

The company has its headquarters in Central Hungary and has another site in another region. The company has 18 employees, most of them have had tertiary education. The leader of the company is an electric engineer and is fluent in English. The company has been founded 10 years ago, and its core activity was trading special industrial equipment. This activity is running at present too, however the company has restructured its operation to respond to the changing market needs, and now produced special, unique production tools and equipment in the last few years.

The company has participated as subcontractor in several R&D&I projects in the past few years, as in the recent years it has received many orders where other companies had used its capacities for R&D&I projects. This made the management of the company interested in applying individually for the R&D&I calls.

Introduction of the professional content of the proposal:

The company applied individually for the call and asked the University to become its subcontractor. The aim of the project was the development of a device examining the effect of different environmental and pharmaceutical compounds. Compounds already used (such as fertilizers, pesticides, medicines etc.) must be tested with different analyses (in dry and water environment) from time to time, and new compounds must be tested before commercialization too in order to analyse their human and environmental safety. The results of these analyses determine whether the given compound can be kept on the market or whether it can be introduced to the market.

Results of the project:

As a result of the project, the prototype of the hydrotocixological device was developed. The work has been done over hundreds of hours of iteration, meetings, and joint construction work of the university researchers and the employees of the company. The device is going through the testing process currently. The structural plan has been prepared, the different units are parametrized (size, material, production technology etc.), the 3D design and the 3D-prints of its parts have been prepared, and this was used as a base for the description of its principles of operation.

Summary of recommendation(s)

In order to move forward with the IPR management, we recommend that Sentimento Ltd. take the following steps:

1. Involve a patent attorney office
2. Decide on what type of IP protection is the most suitable
3. Discuss IPR strategy
4. Plan the communication and dissemination activities considering their possible novelty breaking effect

In-depth details / explanations of recommendations

Intellectual Property management

The university and the company must decide on the method of protecting the IP result of the project before mass production. Patenting and utility model protection are the ones that could be suitable for this device.

Steps to be taken at this point of the project:

1. Involve a patent attorney office

Deciding whether to involve a patent attorney office to get help in the application for patent or utility model protection. Since the company does not have a patent expert and neither does the university, it is strongly recommended to involve a patent attorney office. They can help with deciding the most suitable protection form and in the application process as well.

2. Decide on what type of IP protection is the most suitable

Decision on the type of IP protection: patent or utility model. The utility model is a faster process, it takes approximately 12 months to complete but the protection length is shorter. The patenting process can take up to three years, but the protection time is longer. It is possible to start any of the above two as they can be originated from one another. At this point it would be more useful to start with the utility model first as it is a faster process, and it can still be transformed into a patent if the product is novel enough. However, it is recommended to consult with the attorney office.

3. Discuss IPR strategy

It is best if the list of inventors and their ratio of inventing is determined by the start of the IP application process, however the ratio can later be modified on court, therefore it is not recommended to keep this question flexible. Note: if the successor does not determine otherwise, the Patent Office will assume balanced invention, the same ratio for each inventor of the invention. In the case of this project, the list of inventors is not yet fixed, but it needs to be done soon in order to start the application process. The share of the University and the share of the Company in exploitation must be decided and declared. In this case, the University aims to receive royalty from the company, but the sole producer and distributor would be the company. Exploitation of all IP that is realised but was not part of the project is subject to discussion on an individual basis, so far it has not occurred in this project.

4. Plan the communication and the dissemination activities considering their possible novelty breaking effect

It is very important to make sure that all stakeholders are aware of the basic rules of IP protection, what counts as an invention, and the basic steps of the protection process. The timing of communication and dissemination activities must not have a novelty breaking effect on the planned IPs. Even the smallest conference or a non-protected final thesis of a student can break the novelty. It is recommended to train the staff on basic IPR information, the process of patenting and what is considered as a novelty-breaker event or publication. We recommend organising an information day where all stakeholders of the university and the company are present together with the chosen patent attorney.

Conclusions of recommendations

IP protection is an essential part of this R&D&I project therefore it is strongly advisable to get the necessary knowledge by involving a patent attorney office in order to ensure proper management of IPRs. It is strongly recommended to have some written draft agreement on the distribution of IP rights before the submission of the proposal in order to avoid conflicts later in the project implementation, with a special focus on the list of inventors, the method of determining the ratio of inventing, and whether the list of inventors can be amended during the project implementation.

Further reading

Website of the Hungarian Intellectual Property Office: http://www.sztnh.gov.hu/en

Website of the European Patent Office: https://www.epo.org/index.html

Annexes

1. Basic differences between a patent and a utility model
2. Intellectual Property protection in Hungary

Date of recommendation package

09.05.2019

Annex 1: Basic differences between a patent and a utility model

Patent	Utility model
A new invention that is: ▪ New ▪ Based on inventive activity ▪ Industrially applicable	▪ A new mechanical design/solution ▪ The design, structures, layout of an object that ▪ does not reach the level of an invention ▪ but is based on inventive step(s) ▪ and is industrially applicable
Inventor: the person(s) who invented the invention	Inventor: the person(s) who created the new utility model
The patent holder: the person or entity exploiting the invention (can be a person, a company or a university – the issue of employee or service invention	The utility model holder: the person or entity exploiting the utility model (can be a person, a company or a university – the issue of employee or service invention
Creation of the patent: through granting	Creation of the utility model: through granting
Duration of protection: 20 years, after that, anyone can exploit it	Duration of protection: 10 years, after that, anyone can exploit it

Annex 2: Intellectual property protection in Hungary

Intellectual property rights are governed by individual state acts. In questions not specified by these acts, the Hungarian Civil Code (Act 5 of 2013 of the Hungarian Civil Code) is applicable.

Since Hungary is a member of the European Union, each intellectual property act shall be in line with the respective EU directives and regulations. In addition, certain EU regulations apply directly[1] .

Hungary is a member of many international treaties related to intellectual property; consequently the law for the protection of intellectual property is in accordance with the European regulations.

Links to the Legal Sources of Intellectual Property in Hungary can be found on the Hungarian Intellectual Property Office website[2].

Patents

An invention is patentable if it is capable of industrial application, is new and involves an inventive step. An invention is new if it does not pertain to the state of technical knowledge. An inventive step shall mean an activity that is nonobvious to an expert in the view of the state of technical knowledge. An invention is deemed susceptible of industrial application if it can be produced or used in any branch of industry or agriculture.

Registration Registration is required.

[1] DLA Piper Guide to Going Global, Last modified 1 Jan 2019. Available at: www.dlapiperintelligence.com/goingglobal/

[2] Hungarian Intellectual Property Office. Legal Sources of Intellectual Property [online]. Budapest, Hungarian Intellectual Property Office 2019. Last modified [cit. 30.01.2019]. Available at: http://www.sztnh.gov.hu/en/legal-sources-of-intellectual-property

	Hungarian patent may be obtained by national or European application or by an application submitted in the framework of the Patent Cooperation Treaty (PCT) provided that the application and the invention comply with requirements set out in laws and regulations. In foreign countries patent may be obtained by application filed with the national offices or, beyond that, by an European application for the Member States of the European Patent Convention (EPC). The application may be filed directly or in the framework of Patent Cooperation Treaty.
Ownership	The right to a patent belongs to the inventor or his/her legal successor. If two or more persons have jointly created an invention, the respective share of authorship of the inventors shall be deemed equal, failing any indication originally filed in the patent application to the contrary. The patent holder has the exclusive right to exploit the invention. In the frame of this, the patent holder may prohibit, among others: To manufacture, use, distribute, offer to distribute, store, or import the patented product, to use the patented method, or to offer it for use and to manufacture, use, distribute, offer to distribute, store, import, the product created with the patented method. In relation to the moral rights, the inventor has the exclusive right to publish its invention before the filing of the patent application.
Legal framework	Act 33 of 1995 on the Patent Protection of Inventions. The relevant EU directives have been duly implemented.
Duration	The term of the definitive patent protection shall be 20 years from the date of application. A yearly renewal fee shall be paid.
Remedies for infringement	Article 35 of the Patent Act contains special remedies, eg, the following can be requested from the court: establishing the infringement, claim for cease and desist, amendment declaration by the infringer, providing information on the infringement, among others confiscating or destroying the products affected by the infringement and also the tools and materials used for the infringement. In regards to financial remedies, compensation for damages according to the civil law and restitution of the economic gains achieved through the infringement can be requested. According to the court practice the amount of such economic gain can be equal to the unpaid license fee, or with the net income (after the deduction of the costs) achieved through the infringement. In each case, the proportion of the patented part within the infringing product shall be taken into account. Injunctive relief is also a possible remedy even before initiating a lawsuit. Ex parte injunctive relief can be requested as well.

Source: DLA Piper Guide to Going Global, Last modified 1 Jan 2019.

Utility model protection

The utility model protection is a legal protection for the new technical solutions not reaching the level of a patentable invention.

Registration	Registration is required. The utility model protection can be obtained through the granting procedures set out in law before the Hungarian Intellectual Property Office. The utility model protection can be obtained through the granting procedures set out in law before the Hungarian Intellectual Property Office. In Hungary it is also possible to obtain a valid utility model protection through an international application within the frame of Patent Cooperation Treaty (PCT). A utility model application filed in Hungary can be transformed into a European patent application within the union priority range of 12 months, if the utility model application meets the requirements of European patent applications.
Ownership	By virtue of utility model protection, the owner of the said protection has, as provided for by legislation, the exclusive right to exploit the utility model or to license another person to exploit it.
Duration	Patent protection commences upon publication of the application, with retroactive effect to the date of application. The protection has a term of 10 years, then the utility model becomes part of the public domain.

Trade secrets

Trade secrets include any confidential fact, information and other data, or a compilation thereof, connected to economic activities, which are not publicly known in whole or in the complexity of its elements, or which are not easily accessible to other operators pursuing the same economic activities, where the proprietor of the secret has taken reasonable efforts that may be expected in the given circumstances to keep such information confidential.

Registration	
Ownership	No special provisions applicable. Joint ownership is possible.
Legal framework	As a general rule, Act LIV of 2018 on the Protection of Trade Secrets provides protection for the trade secret that is being exchanged during the execution of an agreement, in case the parties fail to agree on such a provision of confidentiality themselves. Act LIV of 2018 on the Protection of Trade Secrets. Act 100 of 2012 on the Criminal Code.
Duration	Duration of right is potentially perpetual, as long as it does not become part of the public domain.
Remedies for infringement	According to Hungarian law it is a criminal offense if a person illegally acquires, uses, or discloses a business secret for financial gain or advantage, or makes it available to others or publishes such information, causing pecuniary injury to others. Act LIV of 2018 on the Protection of Trade Secrets also contains special remedies, eg, a person whose trade secrets have been violated, among others, shall have the right to demand: • A court ruling establishing that there has been an infringement of rights • The cessation of or the prohibition of the use or disclosure of the trade secret • Destruction of the infringing goods or their withdrawal from the market • The termination of the injurious situation and the restoration of the previous state

- Restitution of the economic gains achieved through infringement

In the event of infringement of the right to trade secrecy, the proprietor of the trade secret may also demand compensation in accordance with the provisions of civil liability.

It is also common in Hungary to include a chapter into the contracts stipulating a confidentiality agreement, which would set out the amount of compensation (penalty) the breaching party has to pay in case of violation.

Source: DLA Piper Guide to Going Global, Last modified 1 Jan 2019.

19. Recommendation for companies who wish to engage universities to develop innovative solutions

Companies often wish to take more significant steps towards the sustainability of their operations or have an ecological problem that they wish to solve. Sometimes research knowledge other resources of a university may provide an easy solution, but these opportunities have to be tackled.

Keywords: "Events, consultations and interactions", companies, SMEs, innovation, research, development, knowledge transfer, university, technology, engagement

Aims of this recommendation

The aim of this Recommendation Package is to support companies with specific eco or other problems they wish to solve through the development of innovative solutions.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs) that wish to optimise their operations, reduce their environmental footsteps or switch to environmental technologies
- Large companies that wish to harness the research and development capabilities of universities and research institutes

Background to this recommendation package

Companies often have "real world" challenges that are related to environmental issues and sustainability. These often can be tackled via cooperation with universities who have a vast stock of human resources and research capabilities in order to overcome such issues.

Companies may benefit from the labour source and/or high level of knowledge nurtured in the university. Universities may benefit from a higher level of education by providing practical tasks and experience to their students and co-workers and

Summary description

We give the following recommendations to companies in order to become partner to a university which will help them manage their wastewater. These recommendations are only valid in case the required solution has a significant scientific value, otherwise a simple contracting party (specialised technology contractor) can solve the problem.

Summary of recommendation(s)

1. Specify your needs precisely
2. Find a relevant university partner
3. Contact the technology transfer office of the university
4. Reach the department of the university which is responsible for the scientific area
5. Negotiate the outlines of the job
6. Organise a contest for students
7. Engage students to prepare their PhD thesis with you
8. Decide on the next steps and the ownership of any IP rights generated in the project

In-depth details / explanations of recommendations

1. Specify your needs precisely

Specify the problem that you want to solve precisely. A few important questions need to be answered in order to find the right partner. These are organisational and technical

details which can constitute a secretive document that you will only share after a signed non-disclosure agreement with your partner.

If you have not yet specified the proble, organise meetings within your company and collect information from different colleagues. We recommend searching online for frameworks and using these to compile a spefic list of technical, business and organisational “needs”.

A few questions to ask are as follows:

- How is the issue addresses today?
- What is the best practise for addressing the problem in other companies, countries etc?

2. Find a relevant university or research institution partner

Try to find a relevant partner in your proximity first. This will keep travel and communication costs down.

A list of universities can be found in the internet in all countries. Typing in keywords related to your problem or issue will help. There may be hits on your own language too.

For example, in Hungary the Budapest University of Technology and Economics is often engaged by companies to carry out research can development to manage a number of eco and environmental issues. BAY Zoltán Nonprofit Ltd. for Applied Research also provides applied research and development services and solutions for eco-aware organisations in various areas.

Remember, any contacted party can redirect you to the right one in case it is needed. The precise specification will help finding the right talent.

3. Contact the technology transfer office of the university / research institution

After you have found a few partners who could be interesting, then contact their technology transfer offices (TTO) first, if they have such an office. The TTO is responsible for the industry relations inside or by the side of the university. They make sure to have the right contract schemes in place; they are in contact with all departments of the university and can make sure to redirect you to the right place inside the university. They also make sure to let you know about the detailed regulations which are binding in your specific situation when you cooperate with the university in terms of the intellectual property rights which have been created or any other legal requirements regarding the interaction with the university staff.

In this case at the Budapest University of Technology and Economics, a possible point of contact can be DEMOLA, which organises student challenges for companies at the university. They are in contact with all departments of the university. Another way is to contact the relevant department directly which researches the given topic.

4. Reach out to the department of the university which is responsible for the scientific area

After the consultation with the technology transfer office, you will probably be redirected to the relevant department of the university. In some cases, you need to contact these administrative bodies directly, without the help of the technology transfer office. In any case, the department will have the best overview on the resources, capacity and know-how of the relevant staff which needs to be delegated to solve this issue. All departments have connections to other departments if interdisciplinary approach is needed in this specific case. The Department has many years of experience and several industry references as well as good contacts with other universities researching the similar topics.

5. Negotiate the outlines of the job

When you have found the partner that can help you achieve your specified goals (or who can help in further specifying these goals), then you can agree in the details of the cooperation. The university often provides such services for the industry as a paid for service. For companies based in Hungary, there are specific rules regarding these kinds of services, and it is possible to get tax reductions in case a cooperation like this is established. This is true when you wish to get the problem solved in the most efficient and fast way.

6. Option: Organise a contest for students

It is also possible to establish a student challenge where you offer a fixed prize to a group of students who will tackle your challenge. In this case, it is extremely important to be as specific as possible and to provide a wide-spread description on the problem for the students. Demola or the given Department of the university will take care of the internal marketing of the project in order to get as many solutions as possible. A student challenge by Demola is shown in the Annex as an example. In case you work with Demola, they offer a service where they organize students around the given problem, and they manage the whole project for you. You may find more on how they work under the link in Annex.

Another way to go is to set up the challenge yourself and define the prize that you wish to offer for the creator of the best solution. It is important to note that you should set up a disclaimer, where you describe that all IP rights will belong to your company in case someone is taking part of the challenge. This will allow any further disputes.

In case you define a student contest/challenge, think about the following:

- appoint a jury who can take care of the tenders of the students.
- set up objective checklists which can be used by the jury to judge the tenders. This checklist should be created by a specialist in wastewater treatment in your organisation or the Department that you are cooperating with
- calculate how much it would worth for you to have this solution - how much money would it save for you? What would be the marketing value of it? Then allocate enough resources to have a tempting prize for the best solution. You may also think about hiring the winner if the solution will be in such a high level.
- set up minimum requirements, in order to avoid low quality applicants. Make sure to have the chance not to give out any prizes in case all applications are of a lower level.

7. Option: Engage students to prepare their PhD thesis with you

A student may also look for PhD or thesis work themes and such an industry cooperation would be an excellent way to find a future employee and an enthusiastic researcher who can help solve the given problem. In order to do this, the following steps should be followed:

- Advertise the possibility in the premises of the relevant faculty and/or department of the university
- Get direct contacts from the students.
- Select the best applicants and agree on the exact area where they can conduct their research. Also make sure to give the tools necessary by allowing access to your premises and factory.
- Delegate a mentor in your organisation who can give a professional opinion about the work made by the student.

8. Decide on the next steps and the ownership of any IP rights generated in the project

When you cooperate with the department directly, it is clear that the generated IP rights will belong to the company - but it is advisable to agree in this before any work is being done and have a clear statement from the university about it in a written format. If an invention is being created, then the inventor will always be the researcher himself or herself, but the owner of the right is negotiable between you and the university. Agree in advance what should happen in such a situation.

We advise to keep a working relation with the university in case a scaled-up solution needs specific scientific advisory in the future. You may turn to the same researchers at the university at a later time if needed.

Conclusions of recommendations

Working with universities as a company can be very beneficial for both parties. For companies, it is recommendable to seek for the university either directly or via technology transfer institutions, such as Demola. Negotiating the deal with the university depends on the practices of the department of the university, and companies should ask for an offer after having specified their need regarding their problems. Student competitions and challenges would be an excellent way to address this problem too in case the technical solution is in question. A PhD or thesis work may also solve the specific needs of companies with the potential long-term benefits of an engaged young researcher in the company's team.

List of useful links

Contact details of the Budapest University of Technology and Economics, Department of Biotechnology and Food Technology:

https://www.ch.bme.hu/magunkrol/tanszekek/133/alkalmazott_biotechnologia_es_elelmiszertudomanyi_tanszek.html

Demola student challenge example on sustainable forestry:

https://applications.demola.net/cases/445?_ga=2.71895450.800897475.1558434091-240939879.1558434091

How Demola works:

https://www.demola.net/companies?_ga=2.117958656.800897475.1558434091-240939879.1558434091

Date of recommendation package

21.05.2019

20. Recommendation for research institutes and university spin-offs on how to create a marketing plan

Starting a new company to commercialise a technology is challenging and there are many aspects of marketing and branding that have to be addressed. This study aims to help entrepreneurs find a way to express themselves and figure out their unique tone of voice for their company through a brand and marketing strategy.

Keywords: "Events, consultations and interactions", spin-off, university, research institute, technology, innovation, knowledge transfer, commercialization, marketing, brand, strategy, case study

Aims of this recommendation

Research institutes and universities provide fertile soil for innovations that can bring excessive values for the society. These innovations need to find their users, their stories have to reach their audience. Therefore, marketing and communication becomes crucial in the early stage of business development even when a new company has been established and long-term business goals are being formulated.

The aim of this recommendation package is to create awareness of the potential marketing, branding and trademark-related pitfalls, challenges and opportunities in "spin-offs"- companies established to commercialise a give technology portfolio or knowledge base.

This recommendation package aims to give a summary on how to approach marketing in a spin-off company where communication and the "facade" of the company might be considered as the "least of the problems".

Creating the outlines of a marketing plan, finding the right target market and defining the unique selling point are the most important first steps. The spin-off company should also put a great emphasis on the Goals-Actions-Resources trio which have to be defined in the right order for the sake of marketing success.

Two extreme cases are addressed in "Marketing tactics and strategies" to highlight the potential ways of communicating in the beginning of a company's life, then we will elaborate on the importance of a good story, which underlines your brand.

Target group of this recommendation package

- "Spin-off" companies - companies established to commercialise a give technology portfolio or knowledge base.
- Representatives of research and development (R&D) institutions

Background to this recommendation package

There is often little or too theoretic knowledge is provided to fresh (young or forever young) entrepreneurs in terms of marketing, branding, trademarks and design rights and the topic looks somewhat mystical at a first glance.

When a fantastic idea is born in a research institute or a university, it is easy to believe that it has economical value in itself and therefore no effort is really needed in order to commercialize it. It often happens that the researcher finds himself or herself in a situation where a research grant has been won, a functioning device/platform/other solution has been created and the solution gains some international acknowledgement through professional channels. There is a dedicated team behind the solution who all have contributed their fair share in developing it. But the break-through doesn't seem to happen in the upcoming months.

A new kind of challenge starts for this team is when the solution actually has to be sold - and it turns out that it doesn't sell itself after all. Writing a business plan sounds really easy and eventually, all we need to figure out is how to generate profit. Or in other words: to figure out who will pay for it, how and how much they are willing to pay and what can trigger this buying behaviour.

We are addressing this problem in this recommendation package, hoping to give hands-on advice for university or research institute spin-offs and startups.

Many people associate marketing with promotion, even though it is just one part of the marketing mix. This study clears up the theoretical differences and the things to do in order to get the marketing and branding efforts right.

Summary description

Choosing the right marketing strategy is a form of art that can only be mastered in practice with an agile (try-fail-pivot-try again in small scale) approach. This recommendation package gives an overall summary of a few potential scenarios to highlight the practical know-how that should be elaborated more when a specific spin-off is doing their market research and starts commercializing their product or service.

Summary of recommendation(s)

Introduction: Creating a marketing plan

The marketing plan outlines the marketing and advertising efforts for typically a year ahead. It is a part of the business plan and created hand in hand with the strategic goals of the company. In order to write it, a few questions need to be answered.

Steps to create a marketing plan

1. Define the “customer pain”
2. Define your “value proposition” and the “unique selling point”
3. Apply strategic thinking with the Goals-Actions-Resources process (+ set Key Performance Indicators for follow up, choose the right marketing mix and start small)
4. Define marketing tactics and strategies
5. Write your story
6. Find a catchy name
7. Protect the brand

In-depth details / explanations of recommendations

1. Define the “customer pain”

It is hard to offer something in today's saturated markets which actually raises interest among customers. First of all, the question is what the product is: what does the customer pay for? (Read further in Annex No. 1, Case study No. 1).

2. Define your value proposition and the unique selling point

It may be even better to ask which customer pain is addressed by the solution? What is it that they actually need? Does the usage of the solution save their time or reduces stress, feed them, saves their money from further spending on something else? To figure this out, the team has to have a **value proposition**. There has to be something that differentiates the solution from others in the market. Some markets are more competitive than others, but if there is a valid need, then there are solutions that (try to) address it - in case there is commercial value in it for the provider. The question is: why should the users choose your solution instead of all those others? If a small niche market is addressed by a radical innovation, then it is easy to believe that there is no competition. Unfortunately, as soon as you expect money from people, you have to consider that they could spend it on something else. It is up to their personal priorities what exactly they will choose to spend it on. Find the unique selling point of your solution which is the answer to the question: Why should buyers pay for just your solution?

3. Apply strategic thinking with the Goals-Actions-Resources process

Creating the marketing plan shall be a three-steps-process: first the **goals** need to be set, then **actions** have to be defined which describe the main steps and milestones towards these goals and finally the **resources** have to be allocated to these actions. A major problem can arise when

the resources determine the actions and even the goals eventually because we will only have the chance to concentrate on things which have been set out for us by the research institute or the university. By defining the goals and then actions first, the question on resources can be addressed later. There are plenty of ways to finance a project from available grants to private investments or licensing deals. Even crowd funding can play a role in gathering the necessary funding and it might be that the early adapters pay for the solution from the very beginning so that organic growth can be achieved.

3/a. Goals

The important is to set the goals first. The easiest way to do it is to sit down with your team, take a blank paper and write down what you would like to achieve with your solution. These goals might stem from your personal goals (be a millionaire and live happily ever after or gain international acknowledgement or a Nobel prize for the solution, get high academic records or finish your PhD, etc.), but eventually you should turn your attention to your solution and think as if it was a person. What would his/her ambitions be? Where does he/she want to be in 5 or 10 years? At this stage you have to think more or less realistically (don't expect a million-euros business from a rather simple solution offered for a very limited niche market), but don't limit yourself by researching too much what your competitors do (not yet at least). To move forward with your goal setting, you should consider the following question, too.

3/a/i. Define Key Performance Indicators

What do you consider as marketing success? You have to define Key Performance Indicators (KPIs) that can be measured in an objective way and that show whether your efforts were worth doing so. It is really hard to find the best metrics for a business as brand awareness is a hard notion to grasp, but you can simply define your KPIs as sales in units sold or in turnover generated in the first stage of your commercialization journey. Later you can improve these metrics and figure out more sophisticated ways of measuring success.

3/b. Actions

To define **actions**, start thinking about the way a user/customer will meet the solution. In which situations will they use it and how? It seems obvious to advertise toothcare items at the dentist's waiting room because, what can create more credibility for such a business than a dentist who believes in the product and stands behind it? To the same analogy, you have to start reaching out to thought leaders, who have a network which is relevant from your user base's perspective, who have a high level of credibility and who can validate the solution and maybe even give testimonials about it.

3/b.i Marketing mix

The actions in this case contain the marketing mix as well, which is a toolbox of the marketer that may be used in an optimal way. We are living in a fast changing and agile world: nobody really knows for sure how the targeted market will react to your efforts. The only way to figure out whether your customers accept to be approached on Facebook by your club or will click on your advertisement on LinkedIn - is to try it. A good advice to everyone is to deploy marketing mix on a very small scale first and run A/B testing. It is a method with which you can start small campaigns and compare different approaches in your communication. To give an example: when you have a graphical profile you might want to compare several ideas on your target market. Simply try to commercialize your product in one geographical segment with one message/color scheme/idea and one with the other concept. Think about having big enough sample markets to make valid conclusions, have similar sizes in both groups that you compare and always be aware what was different in one or the other. Measure the results by the number of clicks to your website or the number of comments. (Read further in Annex. No. 1, Case study No. 2)

As part of the actions you should take, you shall definitely take a look at your competition, perhaps even marketing fails in your area to see how it goes in the market. It is always better to learn from others' success and failures before any bigger investments have been done. If you find a competing solution that looks surprisingly similar to yours, then think about examining the freedom to operate of your solution in your selected markets. Talk with a patent attorney before launching a product that looks too similar to yours. It may be that they are infringing your patented rights in which case you should take action to avoid it.

Taking a closer look at your competitors can help you define how you are different from them and what is unique in your offer.

A step by step guide was provided by Forbes magazine on how to write a marketing plan. Link to be found in the Annexes section.

4. Define marketing tactics and strategies

Sometimes we believe that people would buy our solution in case they only knew about it. It might be the case

sometimes, but in the beginning, an extensive campaign where all potential buyers are approached, can be too costly.

If your solution has many competitors who fulfill the same customer need in some other ways, then it might be that you want to keep a low profile in the beginning. That way you avoid the attention of your competitors and perhaps you can establish a strong enough user base only by performing direct sales. This particularly applies when you are selling to businesses. This tactic can also save you a lot of time, effort and money. It is easy to believe that extensive communication and creating a buzz around a brand is always necessary. It might be the case sometimes, but in most of the cases, the first steps should actually be done in silence.

If your solution is easy to be copied or reverse engineered, then rather think about igniting a marketing bomb in the beginning. In that case, the value of your product is probably not fully incorporated into the product, but rather into the concept that you can create around it - or in other words, the brand. In this case, put a lot of effort into establishing this brand, protect your trademark, write articles about it, find relevant events and give them out for free for relevant users, etc. It also helps if you manage to associate your brand with a well-known partnering brand or validator. If you plan to do that so, then always aim for the marketing department of the brand you wish to cooperate with. Create a big buzz that will probably settle down quite quickly. In the long run, you can still build on the brand you have created. (Read further on a university spin-off gaining traction in Annex No. 1. Case Study No. 3.)

5. Write your story

Who are you? Why did you wake up today? Why do you care about this solution? What makes it so lovable for you? Why are you passionate about it? If your answer is: money, then look further. Just like you should not aim only for financial gains, the Unique Selling Point of your solution should not only consist of a lower price than the competitors either. It is true that a lot of things can be sold on prices lower than those of the other solutions. In the other hand, if you only beat your competitors by offering a lower price, then you are bound to go bankrupt really soon. Long term businesses can only be built on values which far exceed material benefits. Put these values on paper and figure out what they mean for you and your team. (Read futher in Annex No. 1 Case studies No. 4-5 on examples of messages that affect the story on a brand.)

People love good stories. When an invention is born, it is always interesting to read/see how the idea was developed into something valuable. In Attachment No. 2, there is a list of questions that may be considered when a new brand is created. Think about the journey of your customer. How do they meet the brand and why do they start and keep on using it?

You don't have to be a design professional in order to define the theoretical outlines of a brand, but it is advisable to work with someone with the right skill- and toolset to prepare the actual graphical elements. These elements can have a specific touch, a genuine look-and-feel which eventually define the brand. Everything then can be branded from e-mail signatures to newsletters and letters, people can wear the same t-shirt or other clothing, stickers can show the brand on laptops, the product can carry elements, etc. The goal eventually is that whenever somebody looks at something that comes from your company then it shall be associated with you and your brand. (Read further on a genuine look and feel in Annex No. 1, Case study No. 6)

Good stories are also shared. Never underestimate the power of social media, but also be aware of its destructive power. If you don't currently have resources to make sure that you can censor the content that appears on your pages, then postpone your appearance on social media instead all-together.

There is no better story than that of a social enterprise. This notion covers companies that "applies commercial strategies to maximize improvements in financial, social and environmental well-being" (Wikipedia). There is nothing more calming than the belief that if I spend my money on something, it will reduce an environmental impact, or it will help in the remediation of polluted areas or have other environmental benefits. Referring back to the value proposition, the spin-off should have a goal which is set to reach a greater good than just the profit. (Read further on a German social enterprise in Annex No. 1, Case study No. 7).

6. Find a catchy name

How would you call your solution? Perhaps the most crucial element of a brand is the actual name which has to create a connection between itself and the solution that it marks which creates that association mentioned earlier. When you choose the name of your solution, make sure not to only describe the solution with it. (Read further on the thoughts behind a catchy name in Annex No. 1, Case study No. 8)

A good name will be the basis of your communication. The more time you use the name the harder it will get to change it, so select carefully and preferably consider all questions related to branding. Test your ideas on (honest!) friends,

colleagues, perhaps even try to send out a questionnaire to e-mail lists to figure out if it works or not. When you have already established this name on the market and even invested money into protecting it, then it will get extremely hard to re-brand it.

7. **Protect the brand**

There are several ways in which a brand can be protected. The most important is the trademark protection. If you have the right to a trademark, it means that you can prevent others from using it, or in other words, you can get exclusive rights to that certain name in relation to those goods and/or services that you provide.

Search for trademark online – to find more information about trademarks.

Conclusions of recommendations

Probably the most important takeaway is to always try thinking with the head of your targeted audience. A high level of empathy is needed. But never get disappointed by the lack of it - just ask your potential customers and dare accepting their answers. Always build on your company values and never forget why you woke up today.

List of annexes

Annex No. 1. - Case studies

- Case study No. 1, definition of the customer pain and setting up the strategy
- Case study No. 2, Scaling up and agile marketing (or the lack thereof)
- Case study No. 3, beginning of a Hungarian spin-off's success
- Case study No. 4, what a difference a word makes in the story
- Case study No. 5, how to build up the story of a brand in a good and a bad way
- Case study No. 6, on a genuine look and feel
- Case study No. 7, a German social enterprise
- Case study No. 8, thoughts behind a catchy name

Annex No. 2 - Questionnaire to define your brand

List of useful links

How to write a marketing plan:

https://www.forbes.com/sites/davelavinsky/2013/09/30/marketing-plan-template-exactly-what-to-include/#61a1873f3503

Search online: marketing failures, marketing plan, market research strategies, social enterprise, A/B testing

Date of recommendation package

20.04.2019

Annex No. 1. - Case studies

Case study No. 1, definition of the customer pain and setting up the strategy

A fetal monitor was developed by a small company, consisting of four researchers. First, they were targeting end users and wanted to sell the whole device to these users. It was a quite expensive one (even though it was cheaper than the ultrasound devices used in hospitals, of course) and they were only used during those 9 months by the mother. The way to generate profit was to commercialize the device to hospitals and private clinics which were renting them to mothers. The mothers didn't want to own such a device. They were only looking for safety for their fetuses and they were buying into this ease of mind. In the other hand, the buyers, thus the institutions could generate profits for themselves. With that said, these institutes became the targeted market, they had to be approached by all sales efforts and messages and their needs had to be fulfilled - with their targeted market in sight - the mothers. The marketing strategy here moved from B2C (Business to Customers) to B2B (Business to Business) which is a radically different approach.

Case study No. 2, Scaling up and agile marketing (or the lack thereof)

Andrew (András), the ambitious businessman from Hungary decided to invest all his time and money into a new venture called iLandGuide after some fruitful years spent in media and advertisement business. It was a travel application which was supposed to be a one-stop-shop for the traveler and with which you could find everything you needed when travelling to exotic islands. It was supposed to work offline and was free of charge for the end user. The income for Andrew and his angel investor was generated by selling the license to local representatives in a franchise structure. Andrew travelled around in the Bahamas to find

these partners and has set up several business relations - without a fully developed product. Needless to say, that the project failed. Perhaps the most important takeaway is that the concept was never tested in a small scale. Instead of going all into the product development of a fully featured product and with an extensive network of partners, they could have started with a reduced number of features, based on the most important actual needs of the travelers, concentrating on one geographic area where the idea could have been validated. Their story is definitely worth knowing about as it describes many problems and challenges that can and eventually will arise when a new venture starts up. But what else can eventually generate profit? Their documentary film, Angel Business (Angyali üzlet) was shot during the past 7 years and was premiered in February 2019. The film was partially financed by crowd-funders on Indiegogo and it also describes how much the Story can worth behind the solution you offer.

Angel Business Indiegogo campaign: https://www.indiegogo.com/projects/angel-business-angyali-uzlet#/

Case study No. 3, beginning of a Hungarian spin-off's success

A good example on how the name of a big brand can be used in communication is of Gravity R&D Ltd. (currently called Yusp) from Hungary. They started as a spin-off from the Budapest University of Technology and Economics with a team of 4 developers who developed a collaborative filtering algorithm. They participated in the Netflix Prize and have achieved 10% increase over Netflix's own algorithm. This was their ticket to engage a professional team of people working for them, investors and eventually, customers.

Case study No. 4, what a difference a word makes in the story

A software can be "easy to use" which is of course great, but it is nothing special for a user (it is rather a hygiene factor). If a software is **inclusive**, because anyone can use it with ease (even - let's say - an elderly user group or one without any knowledge on computers), then it offers a value on which the communication can be built.

Case study No. 5, how to build up the story of a brand in a good and a bad way

Unilever's brand, Dove gives a good example of both marketing and communication excellence and failure. Their Campaign for Real Beauty managed to collect a "social media army" around their brand. They created content which was addressing women's self-image which created a spill-over effect. In the meantime, some pieces of this campaign went haywire, like the poster displaying a black woman taking her brown shirt off and becoming a white woman in a shower gel ad. The intentions may have been good, but the message became quite racist. Takeaway: always try to think with the head of those who see and read what you communicate. A high level of empathy will help in creating the appropriate message.

The questionable Dove advertisement: https://www.nytimes.com/2017/10/08/business/dove-ad-racist.html

Case study No. 6, on a genuine look and feel

A fantastic example for genuine look-and-feel is the case of the Swedish company, Klarna. They offer a fintech solution, where payments can be managed very quickly and hassle-free. Their slogan is: **Smooth payments!** Everything supports this tagline and the brand is very pink... and smooth. Even the paying terminals display the word "Smooooth" when someone pays with a Klarna credit card and their letters have a plush inlay. Advertisements show things that go smoothly, for example a cheese cutter cuts into hard cheese really fast and smoothly or a fish is sliding down a chute.

Klarna: https://www.klarna.com/uk/

Case study No. 7, a German social enterprise

To give just one example of the many, the German Polarstern provides exclusively green energy to customers in Germany and, together with them, enables households in Cambodia to build their own biogas digesters that generate biogas from livestock and human waste.

Polarstern (in German): https://www.polarstern-energie.de

Case study No. 8, thoughts behind a catchy name

In the case of Klarna, the name means: clarification, that suggests the easiness of use, but it also refers to the financial term, clearing. It utilizes the company value, but in the same time, doesn't describe the actual offer. Think about calling the same solution "Easy Payment" or alike. How boring would that be?

Klarna: https://www.klarna.com/uk/

Annex No. 2. - Questionnaire to define your brand

1. What is the solution that was developed? If a company has been created already: what does it do, what does it get its income from?
2. What was the history of the company and the reason why it was established?
3. Who are the people behind the solution? What are their strongest points?
4. Who want to pay for the solution? What do they look like, how old are they? How do they think? What are their pains (which might be related or even unrelated to the solution.) What is their profession and lifestyle? Where do they live and what do they consume? Can you create 4-5 typical buyer personas?
5. Who are the competitors of the solution? It is important to differentiate the brand from those of the competitors.
6. What is the aim that is expected from the new brand?
7. What are the values, feelings, messages that the brand should carry?
8. Which platforms will be the brand elements used for?
9. Will the brand target special user groups, such as children, artists, hipsters, factory workers, high-tech researchers, musicians, etc.?
10. Should the brand rather be modern or classical? Are there any preferences regarding the colors used in the branding elements?

21. Recommendation for research institutes, universities and collaborating companies on the differences between the motivation of industry and academia

Long-term relationships between academia and industry make it possible for radical innovations to be created. These kinds of partnerships often face major problems due to internal, organisational, cultural differences between the parties. This recommendation package aims to find out what motivations are behind these behavioural differences and gives suggestions on how to bring these actors closer to each-other.

Keywords: "Events, consultations and interactions", knowledge transfer, commercialization

Aims of this recommendation

Tackling the differences in motivations between academia and the industry may lead to more valuable products and research results, thus a higher level of return-on-investment for the society as a whole. The aim of this recommendation package is to highlight the main differences between these actors in order to help them bring their mutual relations into the next level.

Target group of this recommendation package

- Research institutions and university technology transfer offices
- Companies who wish to engage in relations with such institutions

Background to this recommendation package

There have been plenty of research trying to define whether universities and research institutes should engage in economic activities and interactions or should they concentrate on education and/or basic research only. Today's paradigm shift towards more and more applied research and growing number and volume of industry-academia co-operations show that there is a constant need to keep these connections alive and to make sure they happen - in order to enhance a higher level of innovation capacity in the society and economy and to tackle local and global challenges.

The Quadruple Helix model was described by Elias G. Carayannis and David F.J. Campbell, in 2009. It is a model to describe the interdependence and the complex relations between academia, the industry, the government and the societal and natural environment. These actors/spheres must engage in long-term common goals in order to get to a higher level of the whole ecosystem which has several prerequisites, such as common goals and reciprocity between the actors in the spheres. In order to reach the common goals, the motivation of the co-operating partners need to be addressed by the other parties as well.

This recommendation package aims to give recommendations on how industry-academia relationships can be enhanced via tackling the differences in motivations

between these parties. By understanding and acting on the differences in their motivations will lead eventually to a higher level of co-operation which in its turn leads to move valuable research results and more successful and useful products.

Summary description

Being proactive and compassionate with others is a winning strategy at all times. It is not always easy to accomplish these goals though, especially in the shadow of deadlines, increasing market demand, pressing competition from the company's side and the academic obligations of teaching and publishing from the academia's side. The following steps may help to decrease the gap between the two worlds.

Summary of recommendation(s)

Recommendations, step-by-step:

1. Understand the other party and try to "put yourself into their shoes"
2. Find a party that can help to moderate
3. Use the five Whys
4. Speak about it
5. Create a win-win working environment
6. Agree in the terms in advance - Put a royalty sharing strategy in place

In-depth details / explanations of recommendations

Today, industry and academia relations are more wide-spread than ever before as new technological advancements open up new markets which were not possible before. Biotechnology, IT, nanotechnology are a few areas which have been developed via such relations. It is getting more and more easy to communicate for researchers and industry representatives with significant geographical distances and the increasing competition forces both parties to intensive co-operations. Universities are often thriving in highly subsidized areas where the state takes a significant role in financing their research endeavors. Nevertheless, these institutes also have to face the fact that the state will not always be by their side and further sources of income have to be established. The most obvious way to do this is to set up industry relationships which are not always easy to manage. Here are the recommendations that may help to do so.

1. **Understand the other party and try to "put yourself into their shoes"**

The private sphere aims to reach high profits, reach out to new markets, strengthen its position on the market, increase efficiency, broaden the product selection, reach a certain level of producing capacity whereas academia aims to provide knowledge (thus to serve the society), manage research, increase research financing, combine existing knowledge sources and serve the needs of the government. The growing, accelerated need of the society makes well-functioning academia-industry co-operations crucial.

The Key Performance Indicators of these two actors are drastically different, or in other words, a private partner's and academia's success are measured in different terms.

The private actors can benefit from the relation with the academia if/because they:

- expect short-term increase in profit
- may increase their competitiveness in medium and long term
- can keep up and strengthen their position on the market
- can discover new market segments and niche markets
- can save on R&D costs and risks by getting access to academia's research facilities and resources without major investment.
- can't set up their own R&D department
- have an excessive need to combine their knowledge with third parties in order to keep up with their market
- can become a part of an international research network
- might benefit from the partnership by obtaining human resources from the university

Academia can benefit of the following:

- receive supplementary income to help them achieve their goals
- can increase the reputation of their institution
- can add up to the long-term stability of their institution
- can increase the competitiveness of their institution by setting up long-term partnerships
- can build in new impulses into their educational program, showing a more hands-on approach to their students and research fellows.

There are also plenty of obstacles from both sides.

The companies may find it hard to

- commercialize the results created in the partnership due to a high price or not (fully) market-oriented research and development activities
- open up for external parties due to fears of non-disclosure
- align their short-term goals with the longer-term common goals of the partnership
- dedicate their human resources to manage the partnership
- use external resources where different rules apply than of their internal ones
- fit the research result into the market where unseen obstacles can hinder the commercialization of such results
- trust a partner who wants to invest in basic research and wants to publish any and all research results in order to reach higher academic levels
- wait for the slow bureaucratic decision paths of a university when deadlines are pressing.

Academia - in the other hand - may feel that

- the industry has too much pressure and influence on the education and they lose the freedom of research
- it creates a lot of pressure to fulfill the needs stemming from the partnership while making sure that the department is properly functioning
- it is hard to be employed by the state and work in/for the industry at the same time both administratively and practically
- there is too much risk associated with the commercialization of research results and it is stressful to fulfill deadlines
- it is unclear what will happen with the research results and who owns what at the end of the cooperation.

2. Find a party that can help to moderate

It is often an organizational question whether the university or the research institute has a technology transfer (TT) office or not. These offices can help both parties by setting up the rules of such co-operations and by making sure that the rules are respected by both parties. A typical TT office is not only a matchmaker, but they are able to understand both sides and can translate between the language of business and academia.

3. Use the five Whys as the best way to handle personal conflicts

This method was developed at Toyota by Sakichi Toyoda in order to explore cause-and-effect relationships which are underlying a particular problem. It is always important to ask why certain things happen the way they do. Simon Sinek sums the importance of "Why" in his book "Start with why" by saying that people will not buy into ideas or products as long as they don't understand why they should do so. In complex business and research relationships, finding a root cause can clear the path for a harmonious relation.

The concept of five Whys is based on five iterations in order to find the root cause of a problem in order to be able to resolve it. When applied, the five Whys often lead to a problem in a process. Asking Why 5 times can lead for example the following conclusion:

Problem: The project coordinator is having difficulties with one of the researcher teams

- Why No. 1: Because the team doesn't deliver in time and they hinder the whole collaboration
- Why don't they deliver in time? (No. 2) Because they were lacking a key component to one of their devices
- Why were they lacking a key component? (No. 3) Because it was not delivered in time by another consortium member
- Why didn't they deliver in time? (No. 4) Because they didn't receive their down payment from a third consortium partner
- Why didn't they pay? (No. 5) Because they had liquidity problems. More and more Whys can be asked as long as the root cause has not been discovered. That problem needs to be solved then in order to make the whole process work.

4. Speak about it

Most of the conflicts between academia and industry stem from basic misunderstandings that eventually lead to personal arguments which prevents a deal from happening or an existing relationship to thrive. A simple and rather effective way to address this problem is to meet more often in order to speak about the whys. Regular meetings should address how the cooperation is working, what are the challenges to tackle and how and who can address current problems. Annex No. 1 describes a detailed workshop outline in order to find what the problems are and to figure out the root causes of these problems.

Personal connections between the parties are the building blocks of the partnerships therefore it is crucial whether trust can be established between them.

The research of the Belgian Science and Business Innovation Board (AISBL) points out that a joint steering group has to be created which have the capacity to make strategic decisions in order to make things happen in the partnership. Even from the beginning, both parties have to be very clear on their expectations in the common project and make sure that all expectations have clear action points that all partners respect and act on.

5. **Create a win-win working environment**

As partnerships can be anything from casual to strategic nature, it is important that both parties feel that they are in a win-win situation and that all decisions are made together. This can only be reached if both parties act proactively and try to think with the other party's head to ensure benefits for the other party, too.

6. **Agree in the terms in advance - Put a royalty sharing strategy in place**

According to the research made by the OECD (see Annex No. 2), there are major differences between the different countries in how the income after a commonly created intellectual property is shared. The parties must have a written agreement that states what will happen with the research results born during the cooperation and how the ownership will be defined in a fair way.

Sometimes it can be that the IP which is created will not be incorporated into a patent and the main learnings become parts of the tacit knowledge of those who have been working on it or the department or even other parts of the academic institute and the company. Sometimes co-operative projects end up in patent applications to solutions which have marginal inventive steps and that will not represent significant value for the partners in the long run, but the deliverable has to be created nevertheless. In this case, aim to maximize the value of the IP, but also bear in mind that the know-how that was created together with the patentable device itself.

Conclusions of recommendations

The most challenging aspect of academia-industry partnerships is of course the human factor: it is important to understand any differences between the motivations of these actors and to act on them proactively and with compassion. It makes sense to ask for the help of the technology transfer offices in harder instances and also to set up moderated meetings in order to overcome any personal or team-level differences. Creating a positive win-win environment where everyone is striving for the other party's benefit can create a spill-over effect and engaged participants will be happy to create longer term partnerships after the work has been done. Proactive agreement on sensitive topics can also help eliminating potential issues.

List of useful links

A study by the OECD - Benchmarking Industry-Science Relationships

https://read.oecd-ilibrary.org/industry-and-services/benchmarking-industry-science-relationships_9789264175105-en#page1

Simon Sinek: Start with why

Making Industry-University Partnerships Work - Lessons from successful collaborations by the Science and Business Innovation Board, AISBL, 2012.

http://www.sciencebusiness.net/sites/default/files/archive/Assets/94fe6d15-5432-4cf9-a656-633248e63541.pdf

List of annexes

Annex No. 1 - Workshop outlines

Annex No. 2 - Differences between royalty strategies per country

Date of recommendation package

20.04.2019

Annexes

Annex No. 1. - Workshop outlines

The following facet can be used in order to facilitate between all participating partners:

I. Assemble the team

II. Appoint a facilitator who will make sure to keep a reasonable timeline and who can repeat and sum up the findings of the meeting.

III. All participants write down the good aspects of working together. Write these on post-its that can be put to the wall. Also write those areas that need to be better.

IV. The participants should present their post-its to the others

V. The areas that need to be addressed should be categorized and the participants should prioritize them by voting on the three most important problems that we the group needs to address.

VI. The problem which has received the most votes will be further analyzed in a root-cause analysis (the five Whys). It has to be asked 5 times, why a problem has occurred and what made the cause of the problem occur, etc.

VII. The root cause then has to be addressed by a brainstorming session of the participants and people have to be appointed who will have to fulfill the actions defined during this part.

VIII. At the end of the meeting, it has to be defined how the tackling of the root cause will be successful. How can you measure that the problem was addressed?

Annex No. 2 - Differences between royalty strategies per country

Table 8. **Guidelines for sharing royalties from IPRs**

		Share of royalties			
	Apply to	Inventor	Laboratory/ department	Institution	No sharing
Australia	Universities	33%	33%	33%	
Austria	General practice				100% to owner
Belgium	Flemish universities	10 to 30%	50%	20 to 30%	
Canada	Federal research	35% by law	variable	variable	
France	Public labs	25%	25%	50%	
Germany	Max Planck and HGF centres	33%	33%	33%	
Hungary		0%	undetermined	up to 100%	
Israel	Hebrew University	33%	33%	33%	
	Weizmann Institute	40%	0%	60%	
Japan	Universities				100% to owner
Korea	KIST institute	up to 60%	0%	40%	
Mexico	Public labs				100% to owner
Netherlands	Public labs				100% to owner
Poland			no general rule		
United Kingdom	BBRCs	sharing encouraged in institute guidelines			
United States	Universities	sharing required by law			
	Stanford	33%	33%	33%	

Source: OECD.

22. Recommendation on how to choose names for projects, companies, products or services by searching for trademarks in official databases

Project teams and companies established to commercialise technology need to choose project, company, product and service names wisely. Freely accessible online trademark databases can be a useful tool to choose new names. They provide up-to date information about names that are already registered, and therefore unavailable.

Keywords: **"Events, consultations and interactions",** project team, company, commercialisation, project, product, service, knowledge transfer, intellectual property, IPRs, search, trademarks, protecting brands, database

Aims of this recommendation

The aim of this recommendation package is

- to create understanding of how to choose names in your project by eliminating similar or identical names already registered as trademarks.
- to create understanding of how to find details of trademarks to check if a similar trademark already exists and find out who owns a trade mark.

Desired outcome/s:

- to introduce online trademark databases.
- understanding of basic word trademark searching techniques
- Understanding of how to search for trademarks in trademark databases.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions
- Project teams
- Entrepreneurs

Background to this recommendation package

Trademarks are an intellectual property right (IPR) used to protect names and symbols. The owner of the trademark has exclusive right to use a given name or symbol to distinguish products and services for a given set of product and/or services, countries and for a given time.

Search online for information about trademarks and how they are used to protect names and symbols.

Trademark databases contain up-to date information about names that are already registered, and therefore unavailable. When selecting a new name for a project, company, product or service it is highly recommended that the names chosen do not resemble existing trademarks. If names chosen are too similar there is a risk of infringement, leading to monetary loses.

Summary of recommendation(s)

After possible names for an innovative project, company product or services have been selected it is recommended that they are checked in trademark databases, one-by-one. If identical or similar names exist it is recommended that another name is chosen to prevent infringement of Trademarks and therefore potentially costly conflicts with trademark owners.

In-depth details / explanations of recommendations

Steps:

1. Create or brainstorm a list of potential name(s) you wish to use for your project / product / service.
2. Read the relevant online materials to learn about how trademarks can be registered.
3. Read relevant online materials to learn about how to search for trademarks in a trademark databases.
4. Find the "TMVIEW" trademark database through the European Intellectual Property Office (EUIPO) website by searching in a browser or directly at: https://euipo.europa.eu/ohimportal/en/databases
5. Read the documentation of the database regarding "NICE" classifications and decide which NICE classification(s) your project/brand/product name falls under.
6. Consider which countries you wish to use the project/brand/product name.
7. Using the "advanced search option" search for the potential names on your list one at a time in the search box of the database.

   Narrow your search by
   a. entering the NICE classification in the specific search box.
   b. entering the relevant countries in the specific search box.
8. Play around with the different potential names you have chosen and see which ones that do not have similar or identical trademarks already registered.
9. Select a potential name with no clashing trademarks.
10. You can export list of potential clashing trademarks.
    Conclusions of recommendations

List of useful links

European IPR Helpdesk (2018). Fact Sheet: How to search for trademarks.

https://www.iprhelpdesk.eu/sites/default/files/newsdocuments/Fact-Sheet-How-to-Search-for-Trade-Marks.pdf

European Union Intellectual Property Organization (EUIPO). TMView. Search "TMView" in your browser.

European Union Intellectual Property Organization (EUIPO). eSearch plus. Search "esearch" in your browser.

World Intellectual Property Organization (WIPO). Global Brand Database. Search "Global Brand Database" in your browser.

Date of recommendation package

2018

Author

Digitális Jólét Nkft., Hungary.

23. Recommendation on how to design an ecoproduct

The following recommendation package includes recommendations on how to design eco-product emerged during the presentation of one of the speakers of the Green Summer School in Germany in 2017. The following recommendation package includes valuable information that can be used for every enterprise that desires to design a more sustainable product.

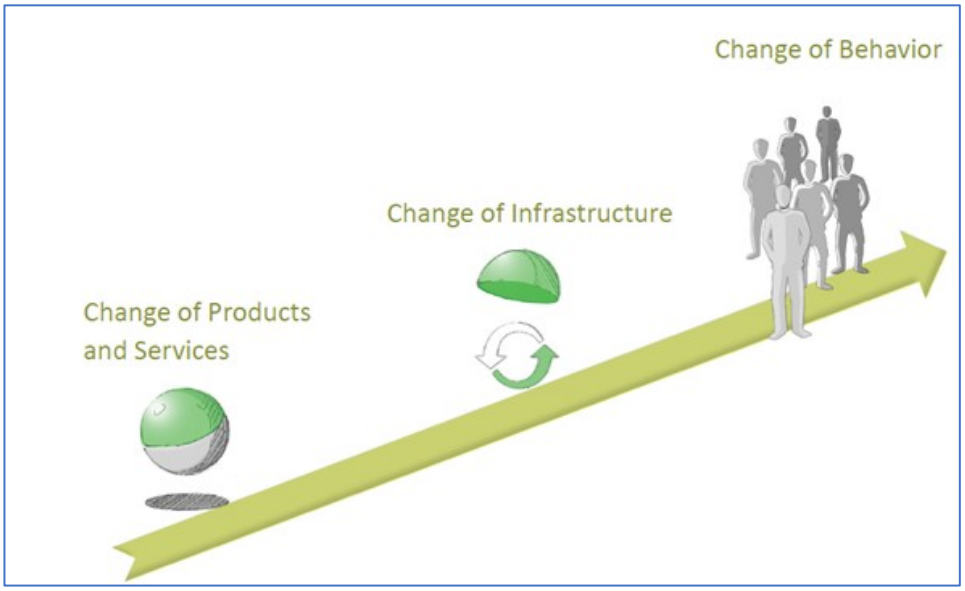
Keywords: Design of eco-product; life-cycle assessment; circular economy; manufacturing; packaging; disposal; energy use.

Aims of this recommendation

The aim of this recommendation is to show different process that support the design of an eco-product from scratch.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Corporates, startups



Background to this recommendation package

The recommendation package provides a step by step summary of how to design an eco-product.

It is based on the concept of “Design for the Environment”, an online guide on how to design an eco-product and a presentation of Susanne Volz that was held during the Green Summer School. The Green Summer School was organized by bwcon and took place in September 2017 in Constance, Germany. The speaker Susanne Volz works as an environmental scientist, eco-design-coach and consultant to product developers and companies for sustainable product development. Her lecture about how to design eco-products formed an important part for understanding yet another way to access the Circular Economy Concept.

The recommendation is directed at SMEs and everyone that would like to obtain ideas about how to evaluate or design their product in an innovative and sustainable way. This will be reached through an evaluation of the whole design process of the new product. The positive aspect of designing a new product is that there are no established or even bogged down policies. On the contrary, the whole process

can be shaped in order to fit sustainability standards from the beginning on.

Summary description

This summary concentrates on teaching how to design an eco-product from scratch. We will offer different methods on how to approach such a design process. Main topics will be the key strategies on how to improve processing & manufacturing, packaging, disposal or reuse and energy use.

Summary of eco-solution featured in recommendation package

If the population keeps growing rapidly like it does right now, experts expect that there will be living 10 billion people on planet earth by 2100 . Even with a population of 7.5 billion people right now, we would need about 2.5 planets to fulfil our needs and provide the resources middle and upper class are demanding1. The immense challenge we confront here (to provide enough resources and a good life for all human beings) requires innovative and sustainable solutions for future production. This is why the design of eco-products will play a major role in the future of economy.

Eco-products represent part of the Circular Economy as a sustainable alternative for linear economy.

Summary of status of knowledge transfer

The overall idea of strategic eco-design is that the shift towards a more sustainable world begins with the change of products and services. On a large scale this will lead to a change of infrastructure and ultimately to a change of individual behaviour.

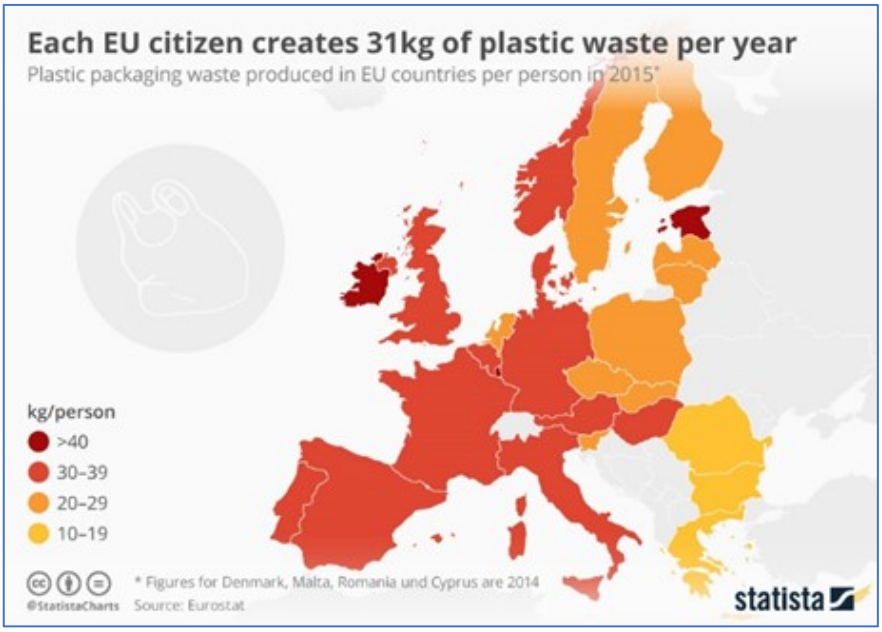
Source: „Strategic Ecodesign – What you have to consider when you create sustainable products“ Susanne Volz, Green Summer School 13th September 2017.

Summary of recommendations

Circular Economy urges companies to avoid harming the environment and instead continue the value chain of materials and resources.

To disrupt the product-design-process is an important step towards sustainability as 80% of a product's environmental impact occur in this process. 1

Companies have the responsibility to secure sustainable and circular value retention.



How?

> To ensure a successful implementation of designing an eco-product, there are very small steps demanded. All steps of the design process need to find new, innovative solutions to take a step towards a sustainable future.
>
> Urban mining and Circular Economy ensure long-term availability of resources and minimize geological and political dependencies and the destruction of the environment.

In-depth details

Following the Circular Economy concept, it is important to concentrate on all different product life cycle stages when designing an eco-product. Subsequently we will describe four stages in depth with recommendations about how to lead such a process.

Processing and manufacturing:

An important consideration should be the analysis of how raw materials are extracted, processed and manufactured. Make sure you conduct research on the origins of the raw materials you use. It may be harder to find sustainable alternatives but it is worth the effort. "Whether and how they are mined, drilled, or grown and harvested will constitute a large part of the final product's environmental footprint." FairTrade labels can ensure fair processing conditions and fair wages for the workers that extract the raw material you need. This choice especially impacts the end-of-life stage. Certain products can either be "recyclable,

biodegradable, toxic, or otherwise dangerous to the environment. A major goal of this design principle is to minimize the amount of waste, pollution, and energy expenditure that goes into creating the product."

Source: https://www.cadcrowd.com/blog/how-to-design-environmentally-friendly-products/

Packaging:

The amount of garbage produced only by packaging is alarmingly high. The average plastic packaging waste produced in the EU countries per person was 31kg per year. This is a huge amount of waste that is only used to wrap our food and other consumer products in. This is why packaging is a very important factor for the process of designing an eco-product. But not only the amount of packaging, but also their origin and environmental friendliness is important. Recommendations: "Using reusable or recyclable shipping and packaging products, eliminating any unnecessary paper and plastic packaging material, and making efficient use of space are the key strategies for creating environmentally friendly packaging."

Source: https://www.statista.com/chart/12425/eu-plastic-waste/

Disposal or reuse:

Many times forgotten when producing and selling a product is the end of its life. It is surely easier to forget or repress this stage of the product life cycle. But because it is the moral responsibility of the producer to think about the disposal or reuse of their product, it is essential to search for an environmentally friendly solution. "This is the stage in which products often become garbage and end up in landfills, where some products wind up emitting harmful chemicals into the environment. The ecologically conscious designer avoids this sad outcome by planning for the reuse, recycling, or reclamation of the materials and by avoiding the use of toxic materials. It's important to consider not just how the product will be used by consumers, but how it will be disposed of once it's no longer useful. Consider the environmental impacts of the constituent materials and how they might be disassembled and reused."

Energy efficiency:

This concept applies both to the production process in any industry and to the energy efficiency of electronic devices that are sold. The overall goal is to reduce the energy consumption.

Conclusions of recommendations

An analysis like the one stated before can potentially be very helpful for the process of designing an eco-product. It is recommended to make considerations in the areas of processing & manufacturing, packaging, disposal or reuse and energy efficiency.

List of useful links

http://ecoinnovative.eu/1579-2/ (Homepage of the Green Summer School)

http://www.ecocircle-concept.de/home.html (Homepage of Susanne Volz)

https://www.cadcrowd.com/blog/how-to-design-environmentally-friendly-products/

Date of recommendation package

18th March 2019

Author

bwcon GmbH, Germany

24. Recommendations on how to design a green and sustainable business model for companies, startups and public institutions

This document provides information on how to design a business model for a product or service that respects criteria of environmental and social sustainability. The recommendations summarized below target especially green entrepreneurs but also established companies as well as governmental institutions.

Keywords: Business model canvas; Triple layered business model canvas; Flourishing business model canvas; environmental impact; life cycle approach.

Partnership guidance, Events, consultations and interactions

Aims of this recommendation

This documents aims to provide guidance to all entrepreneurs and existing companies who want to (re-) design their business model including elements of environmental and social responsibility.

Target group of this recommendation package

Target groups of these recommendations are companies that aim to transform into sustainable businesses, beyond corporate social responsibility or simple product diversification. Possible target groups and use cases for the application of such recommendations are:

- Start-ups that want to build a new business order
- Corporative businesses and other new economy approaches
- Governments that want to assess, benchmark and standardize the sustainability performance of companies.

Background to this recommendation package

This document arises from one of the activity performed in the EcoInn Project, namely the Green Summer School. The Green Summer School is a one-week intensive program for young talents and future green entrepreneurs, focused on raising awareness on eco-innovation and on circular economy. Additionally, the programme aims to train future entrepreneurs in understanding eco-technologies and identifies opportunity of commercialisation for them, furthermore helping the participants in developing their green business ideas, particularly for what concerns identification of sustainable business model. In this framework, one of the lecture and interactive workshop offered to participants was focused on how to design a sustainable and green business model.

Summary description

Green Entrepreneurship is the activity of consciously addressing an environmental/social problem/need through the realization of entrepreneurial ideas with a high level of risk, which has a net positive effect on the natural

environment and at the same time it is financially sustainable. A green entrepreneur is therefore someone who starts and runs an entrepreneurial venture that is designed to be green in its products and processes from the very beginning. For this reason, the green entrepreneur embeds environmental and social goals into its core business. These goals are the reason their business exists, not just a side effect and environmental values are part of the company values. In this framework, financial profit helps sustain the business so that it can go on fulfilling its environmental goals and bringing benefits to the environment.

Nowadays not just green entrepreneurs might want to integrate environmental and social aspects into their value proposition. Many established companies as well as new start-ups might aims to design their business models so that it minimize its impact on the environment or it even crate some positive side effects.

This document wants to provide a guidance to all entrepreneurs and existing companies who want to (re-) design their business model including elements of environmental and social responsibility. The suggestions are derived from the "Triple layered business model canvas" which is an evolution of the more famous Business Model Canvas from Alexander Osterwalder and from the “Flourishing Business Model Canvas”.

The goal of such model is to support organizations whom wish to innovate upon their current business model and create concepts of more sustainable business models. The triple layered business model takes into consideration nine environmental elements that follow a lifecycle approach and in addition, it considers a third layer with nine social elements that follow a stakeholder approach.

Summary of status of knowledge transfer

These recommendations were already tested by the participants of the Green Summer School in Germany in 2017. Participants of the school tested some of these methodologies on their own business cases and tried to develop a green business model for their business idea. In particular, all participating entrepreneurs had to fill out a “Green business model canvas” based on the guidelines provided in a previous lecture.

Summary of recommendation(s)

These recommendations are useful for all organisation who wish to integrate elements of environmental and social sustainability into their business model. Nowadays, a common tool used to develop a business model is the “Business model canvas” from Alexander Osterwalder. Anyway, some critics (Upward 2013) underline that this tool is built on a profit first philosophy and does not take into account environmental and social costs of a product or service. The idea behind the approach presented here is instead to include sustainability into the business model of an organisation. In order to achieve that, organisation should:

1) Adopt an environmental approach to create more sustainable business model

Green business model are the one that “support the development of products and services with environmental benefits reduce resource use/waste compared to a traditional model and which are economically viable. These business models have a lower environmental impact than traditional business models.” (FORA, 2010)

2) Adopt an environmental life cycle approach to product and service development

The life cycle approach evaluates all phase of development of a product or services, in order to reduce its environmental impact and to make sure that the environmental burden generate by step of the process is not simply transferred somewhere else in the life cycle.

3) Keeping track of social and environmental benefits and impacts that a product or service generate

In-depth details / explanations of recommendations with links

Breaking down the recommendations provided above into the nine building blocks of the business model canvas, the methodologies analysed in this document (see annex “The triple layered business model canvas”) suggests that an organisation willing to introduce elements of environmental and social responsibility into their business model, should take into consideration the following environmental aspects:

a) Consider the materials used for your product or service

Of course, the materials used varies enormously among different business propositions. A physical product will require material that needs in turn to be purchased or elaborated and modified. Along this value chain, it is important to respect criteria of environmental sustainability, purchasing material with a low environmental impact and whose transformation into further resources does not cause harm to the environment. Service providers do not sell

physical products but consume anyway material in different form for their daily work (pc, vehicles etc..). Here is also important to choose material who have a low environmental impact.

b) Reduce the environmental impact of the production process of a product or service

In the business model canvas of Alexander Osterwalder, there is a block dedicated to the "Key activities" of a companies. The "Triple layered business model" canvas as well as the "Flourishing business model canvas", considers the production a key activity needed to create value. In the production process of physical products, it is important to consider several elements that might reduce the environmental impact of the final product. These aspects can be taken in consideration already while designing the value proposition or the business model of a product or service. While services do not have a real production process, they anyway implies several actions – as for instance, running an IT infrastructure – that might also have consequences for the environment.

c) Include elements of environmental sustainability also within supplies and outsourcing

While designing a green and sustainable business model for a product or service, all aspects of the value proposition that require external supplies or the outsourcing of some activities should also be taken into consideration. Even here in fact, it should be considered whether the external suppliers or the institutions outsourced take into consideration criteria of environmental sustainability.

d) Make the distribution of products or services sustainable

The distribution of a product usually requires means of transportation and in many cases also a packaging. Both have a weight in terms of environmental impact that can be minimized by choosing for instance more ecological means of transportation, or by even shortening the distance travelled for the transport. The packaging of a product can also be reduced to the minimum required and it can be designed to be ecological and sustainable.

e) Add in the design of your value proposition thoughts about the "End-Of-Life" of your products and services

Already while designing the business model of a product or services and even before starting with the real production, a company should make some thoughts on how a product or part of its resources could be reused at the end of its life. Physical products can be in fact remanufactured or recycled or even disassembled. Considering these aspects at the beginning of the process helps in avoid that every product will simply turn in a non-reusable waste at the end of its life. In many countries, there are already rules in place that makes organisation more responsible for the end-of-life of their products. For instance, manufactures can be encouraged to create "take back" program for their products, so to recollect their own products when the customer wants no longer use them.

f) Environmental impacts as well as environmental benefits have to be clearly integrated into a value proposition

There are many indicators that can be used to measure the environmental impact according to the specific characteristics of a product or service. At the same time, it is also possible to identify some benefits in terms of savings or reduction that a certain product might bring. All these considerations can be include already in the design of a business model.

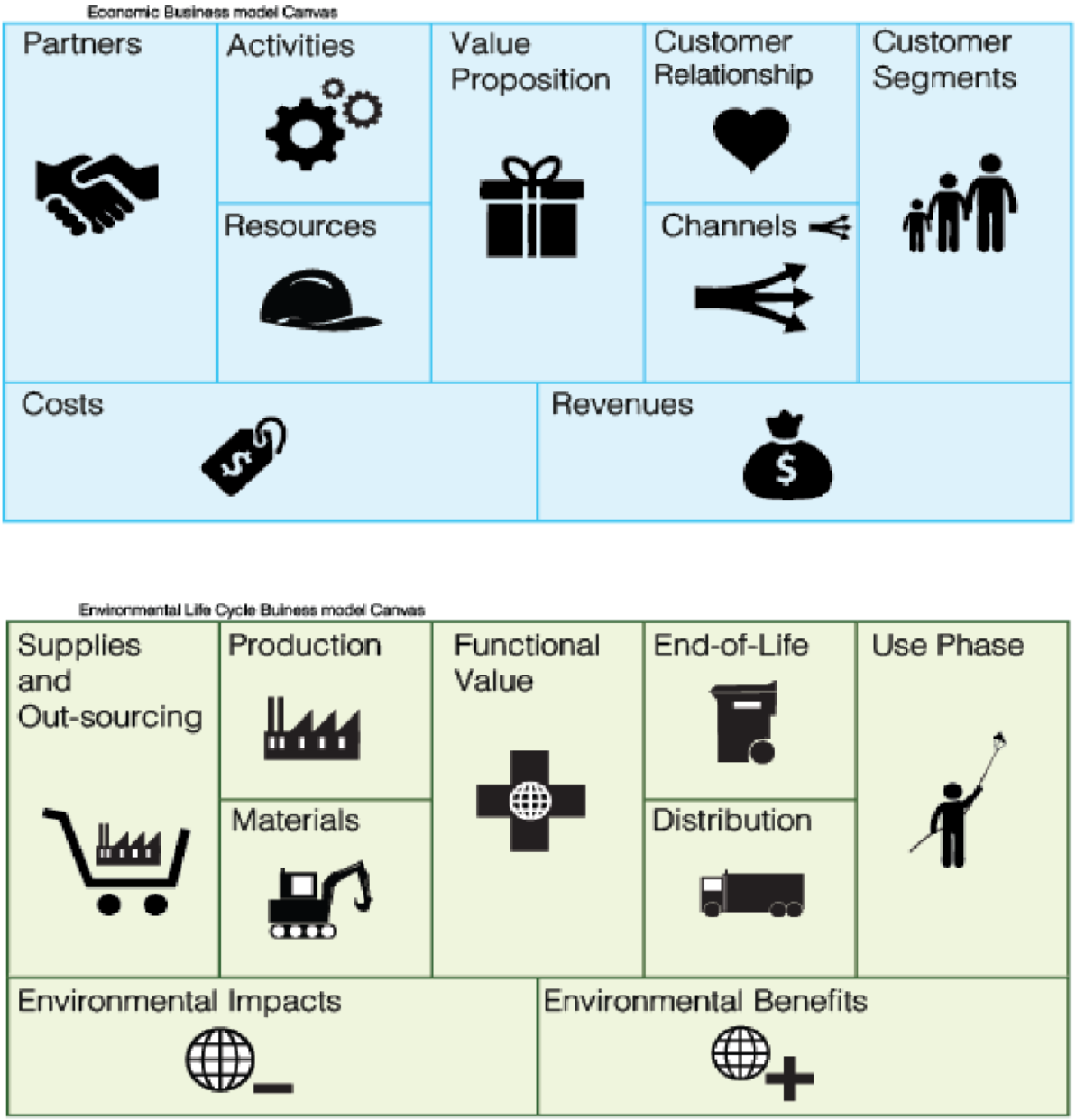


Figure 1 The nine environmental elements to be added to the business model canvas - Source: "The triple Layered Business Model Canvas" Annexes

Conclusions of recommendations

Entrepreneurs, startups, companies as well as organisations should integrate elements of environmental and social responsibility already in the design of their business model. By considering this aspects way before bringing a product or service to the market, it is possible to address on time and thus to reduce considerably the environmental impact of a business proposition.

List of useful links

http://www.flourishingbusiness.org/

https://blog.ssbmg.com/2015/04/17/the-triple-layered-business-model-canvas-a-tool-to-design-more-sustainable-business-models/

Annexes

"Triple Layered Business Model Canvas - A tool to design more sustainable business models", Alexandre Joyce, Raymond Paquin, Yves Pigneur

Date of recommendation package

18 February 2019

Author

bwcon GmbH, Germany

25. Recommendations for impact investing

Here below are presented useful recommendations to turn investment of organisations and individuals into tools that can have an impact on society and environment. The branch of investment that deals with these issues is commonly known as impact investing.

Keywords: Impact investing; fossil-free investment; investors; investment policies

Aims of this recommendation

This document show the criteria to be followed to make investments that might have a positive return on the environment.

Target group of this recommendation package

Target groups of this recommendations packages are:

- Organisations looking for differentiating their investments portfolio taking into consideration investment, that provide not just a financial returns but also a environmental or social impact
- Individuals who want to invest their own money in fossil free funds or companies

Background to this recommendation package

This document wants to provide a short guidance for organisations and individuals interested in considering impact investing as an option. The recommendations summarized here below arise from one of the topic handled during the Green Innovation and Investment Forum in Stuttgart organized as pilot action of the EcoInn Project.

In the Green Innovation and Investment Forum startups coming from the green technology fields had the opportunity to pitch their business idea in front of investors and interested parties. The Forum served also as a platform to raise awareness on EcoInnovation and on many of the activities and topics connected to this. In this regard, one of the keynote was dedicated to the topic of impact investing.

Summary description

In the literature, it is considered impact investment an investment made into companies, organisation and funds that, beside the financial returns, aims to generate measurable social or environmental impact. Impact investors are therefore driven by the motivation to generate a positive impact: such investment can be made in different fields ranging from renewable energy, education, environment, healthcare etc.. Both institutions and private investors might follow criteria of impact investing while making their investment decision, the most used means are anyway private equity and venture capital. At the same time, also corporate that wish to be recognized for their social responsibility might turn into powerful impact investors, by applying some of the criteria of impact investing along their value chain.

For the sake of this recommendations package, we particularly focus on the impact investment, which is done taking into consideration environmental issues as for instance climate change. This document is inspired by some of the guidelines provided by DivestInvest (source: www.divestinvest.org), a global investors movement that aims to accelerate the sustainable energy transition.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Fossil-fuel investment has been for a long period of time highly represented in the investment portfolio of many institutions. The data collected in a report of DivestInvest (source: "How To Divest Invest- A guide for institutional investors" - DivestInvest) anyway show that investing in fossil fuels is becoming increasingly risky. In this new scenario, investing in the energy transition might become a big investment opportunity.

Investors that identifies in the values and guidelines of DivestInvest show a commitment to sell investment in fossil-fuel companies and invest rather in those companies providing the solutions to climate change, such as sustainable energy, reforestation, zero carbon transport, the built environment and water management.

Summary of status of knowledge transfer

Some of these recommendations were presented during a keynote on impact investing held during the Green Innovation and Investment Forum in Stuttgart. As pilot action of the EcoInn project, the Forum saw the participation of many green entrepreneurs, experts of the ecoinnovation field as well as investors interested in green technologies.

Summary of recommendation(s)

The recommendations are two folds:

- On one side they provide orientation and guidance for institutional investors and venture capitalists on how to challenge their investment beliefs, reviewing their internal investment policies and finally investing into fossil fuels free funds
- On the other side, they provide tips for individual who wish to make an impact investing their saving

In-depth details / explanations of recommendations with links

To embrace impact investing in the environmental fields, institutional, corporate and venture capital investors should follow these recommendations:

1) Challenge traditional investment beliefs

Institution, venture capitals and corporate investors need to review and challenge their investment beliefs. When considering investing in fossil fuel free funds, it is necessary to assess and understand the risks and opportunities associated with climate change and energy transition.

2) Define inclusion and exclusion criteria to select companies to invest in

Investors have different ways to assess institutions, companies and funds they want to invest in. An impact investing approach suggests for instance to exclude the largest fossil-fuel companies by reserves. To be considered for investment are instead climate solutions that address mitigation and adaptation to climate change. These could include projects focussing on resource efficiency, sustainable energy generation, low carbon transport and building, sustainable agriculture and forestry.

3) Insert the exclusion and inclusion criteria into their investment policy

Once that exclusions and inclusion criteria have been identified, this should be integrated into investors' investment policy. Bigger Investment funds or family offices should also consequently make sure that their asset managers know the policies and follow them in their investments. DivestInvest suggests many questions to ask in order to challenge and assess a new investment policy. A critical question to ask is what combination of methodologies an investor will use :

“Option to consider include:

a Exclusions

b Investment in climate solutions

c Reducing the carbon footprint across the whole portfolio

d Specific sector or company weightings

e Using carbon indices

f Engaging investee companies about their transition to a net zerocarbon economy”

4) Update your risk register considering the risks associated with several climate scenarios

There are many risks that might be associated with an investment in more environmental sustainable organisations. According to the investment type, investors should define and assess the risks that might be connected

to the specific investment. Some general risks might be for instance the one that could arise from climate and weather-related events (e.g. flood, hurricane) or the risks that could arise from adjusting to a lower-carbon economy.

Individuals who wish to make small investment which might have a social and environmental impact should follow these recommendations:

1) Switch your bank account to a provider which doesn't invest in fossil fuels

2) Make an informed choice on the pension funds in which to invest

3) Decide a strategy for your personal investment selecting inclusion and exclusion criteria

Conclusions of recommendations

Nowadays it is possible to make an impact on the environment also by deciding more consciously where to invest money. Institutions, companies and single individuals can decide to engage in impact investing to generate positive returns on the society and environment, while still gaining a financial return.

List of useful links

Provide a list of documents supporting the recommendation.

- https://www.divestinvest.org/
- https://fossilfreefunds.org/
- https://www.toniic.com/
- http://reports.weforum.org/impact-investment/1-introduction-to-the-mainstreaming-impact-investing-initiative/1-1-executive-summary/?doing_wp_cron=1554302492.3016450405120849609375
- "How To Divest Invest- A guide for institutional investors"

Date of recommendation package

21th March 2019

Author

bwcon GmbH, Germany

26. Recommendation on how to perform a life cycle assessment of products

The following summary offers ways to analyse the product life cycle of a product or a service based on environmental aspects.

Keywords: Life cycle phases; product system analysis; eco-design;

Aims of this recommendation

The aim of this recommendation is to show how to perform a life Cycle Assessment of products and services.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions
- Startups

Background to this recommendation package

The following process proposition arose from an event of the Green Summer School in Germany. Representatives of the University of Pforzheim held a workshop on “how to Green Check” the business ideas of all participants.

In order to implement a successful innovation, the prerequisites are an attractive innovation idea and an attainable way to put it into action. This recommendation package offers solutions on how this innovative idea can be evaluated and optimised and is based on the methodology of Life Cycle Assessment.

Life Cycle Assessment is a process that analyses the impact of products and services on the environment throughout their whole life cycle. From cradle to grave. According to University of Pforzheim “a life cycle represents the different stages of a product system from acquiring the raw materials over production, transport, product use to final disposal. In order to conduct a thorough assessment, all the required processes have to be determined with their inputs and outputs quantified. They are then compiled in the so called “inventory”. This is the basis for the impact assessment, where different environmental impacts such as global warming, acidification or others are determined.”

The following recommendation can be used to develop new products as well as for advancing existing products and services.

Summary description

These recommendations are useful for every company that offers a product or a service and wants to perform its life cycle in a more sustainable way. It gives you an overview on how to create sketch of your green innovation idea and help you develop first ideas to improve it. The “Green Check Your Idea” tool offers two modules. Those can be used either independently from the other or complementary.

Module 1: Product system analysis

Module 2: Eco-design principles

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

The recommendations presented below are useful to make a first analysis of environmental aspects and impacts of a certain product.

In-depth details

Module 1:

1) Determination of process modules

Identify the steps occurring throughout the product's life cycle phase. This step is useful to discover which different stages a product runs during its life cycle. It serves to get an overview of potential risk factors for the environment.

"To facilitate the determination of the process it can be helpful to draw a flow chart which states the actual steps. Common steps would be

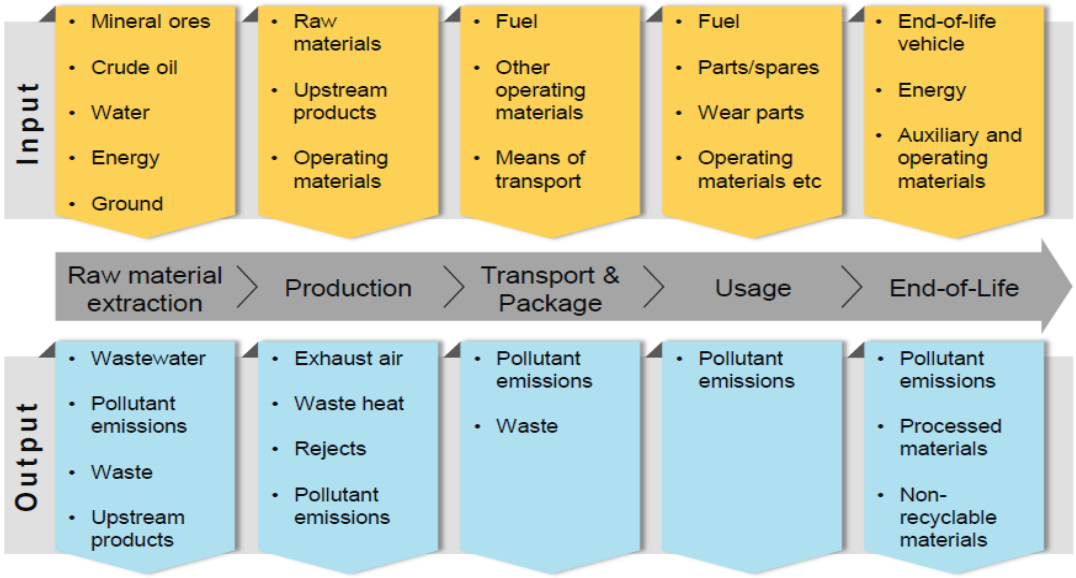
Raw material extraction -> Production -> Transport & Package -> Usage -> End-of-Life"2

2) Determination of input & output

This Substep uses the results of the previous step and analyses them further. Here we consider the inputs that are utilized in each process. With inputs we mean for example the resources used in the referring stage such as natural resources, raw materials, time, intermediate products, use of land etc.

The next question is what happens with these inputs after using them to facilitate the production process? This stage is called outputs. One possible output could be waste out of used resources.

More examples for possible inputs and outputs in different life cycle stages can be found in the following picture.



(Example of Module 1 step 2)

Source: Uni Pforzheim, Coaching Guide and Auxiliary Material, September 2017, Prof. Dr. Claus Lang-Koetz, Annika Reischl

3) Evaluation of the results

In this third steps, it is recommended to conduct research about environmental aspects of the determined inputs and outputs of each of the processes within the life cycle. This helps you identify problem areas and relevant areas of activity.

"Materials and their production, processing and disposal can cause several different impacts on the environment for example global warming, terrestrial acidification, freshwater eutrophication or the demand for energy. To get holistic and accurate results of a product's total environmental impacts, all of these impacts would have to be considered. (…) For example, the processing of aluminium causes greenhouse gas emissions and aluminium thus has a backpack of CO2-equivalents that is assigned to the product that uses aluminium."3

As a tool we recommend analysing the Global Warming Potential (GWP) of the process measured in CO2.

For example with the help of the website http://www.probas.umweltbundesamt.de/php/index.php.

There you can find information about inputs and outputs of the products you use.

After finding out the impacts of inputs and outputs it's very important to draw conclusions for the future of the life cycle process. Guiding questions according to Pforzheim University could be:

- Which material has a relatively high GWP?
- What amount is needed of this material?
- Are there alternative materials that could be used instead? What amount would be needed of this material in order to achieve the same function?

4) Comparison with a reference product (optional)

In order to find new insights and ideas it is recommended to conduct the Substeps 1 to 3 for a reference product.

Module 2:

The second module of the process is about idea generation. The principles of the module are based on the phases of the product's life cycle. It serves to find alternative ideas for the identified weak points.

The University of Pforzheim worked out a list of ecological design principles which include for example:

- Minimise the amount of materials being used
- Use renewable resources and raw materials
- Avoid the use of toxic and hazardous substances
- Minimise the number of production and manufacturing steps
- Reduce energy demand and emissions
- Avoid packaging
- Increase the technical and aesthetic lifetime of a product

Source: Uni Pforzheim, Coaching Guide and Auxiliary Material, September 2017, Prof. Dr. Claus Lang-Koetz, Annika Reischl

Summary of recommendation(s)

- This approach tries to analyse the process of a product life cycle as a whole and find out the critical points of its impacts on the environment
- The "Green Check Your Idea" approach consists of two modules
- Module 1 tries to find out the impact of different product life cycle stages on the environment with the help of different methods and websites
- Module 2 consists of finding alternatives to the current way of doing things with the help of the eco-design principles
- Both Modules can be used both individually and together as a process

Conclusions of recommendations

Evaluating current practices and finding more sustainable solutions will be more and more important for the future of companies and economy. Both because of ecological and economic reasons. The present recommendation can be a powerful tool to create a more sustainable product life cycle for any service or product.

List of useful links

http://www.probas.umweltbundesamt.de/php/index.php.

https://www.hs-pforzheim.de/forschung/institute/inec/ueber_uns/team/prof_dr_claus_lang_koetz/

http://www.ecocircle-concept.de/blog-reader/gruene-innovationen.html

Date of recommendation package

21th March 2018

Author

bwcon GmbH, Germany

27. Recommendations on the sustainable organization of events: 'Green Events'

This document provides information on how organise green and sustainable events reducing the impact on the environment.

Keywords: Green event; green procurement; water management; waste management;

Aims of this recommendation

This documents aims to highlight all aspects that need to be taken into account for the organisation of event with a low impact on the environment.

Target group of this recommendation package

- Public and private organisations
- Events' attendees

Background to this recommendation package

Within the framework of the EcoInn project, the consortium had the chance to organize several events were organised. While the project aims to raise awareness on ecoinnovation, we also realized that the organisation of events itself can become a powerful tool to spread a more sustainable and responsible way of dealing with the environment.

Target groups of these recommendations are organisers and planners of events which aim to keep the impact of their events on the environment within justifiable limits as well as take social aspects into proper account. The document also targets the participants of an event as they can take part themselves in the implementation of some of the recommendations (e.g. within the area of action 'Mobility' or 'Water Management').

Summary description

Sustainability is becoming an increasingly important quality feature and criteria when it comes to the organisation of events. It is only possible to keep the impact of events on the environment within justifiable limits and take social aspects such as the inclusion of handicapped people into proper account, if attention is paid to environmental criteria when they are being planned and implemented.

This document aims to assist the organisation and planners of events (conferences, meetings, summits etc.) in recognizing the necessary demands for a 'Green Event'. A Green Event bears the environmental and socials aspects made by sustainability in mind.

The document therefore provides guidelines in order to ensure that no major criteria regarding the sustainable organisation of events are ignored. The following areas for action are regarded as relevant for the environmentally sound and socially compatible organisation of 'Green Events':

1. Mobility
2. Event venue and accommodation for participants
3. Energy and climate
4. Procurement of products and services
5. Catering/Meals
6. Waste management
7. Water management
8. Gifts for guests
9. Communication
10. Social aspects.

The proposed measures within these areas for actions may be generally used for a wide variety of events such as cultural or sporting events. The extent to which the

recommendations on the individual areas for action can be implemented and put into practice varies, though. The character of the event, the condition at the venue (e.g. the demand of power and heat in the building of the venue) or the available budget may pose certain factors which are only possible to influence within very narrow limits.

Summary of status of knowledge transfer

The recommendations for the organisation of a so-called 'Green Event' were already tested at the 'Naturathon' in Germany in 2018. The 'Naturathon' is a one-day hackathon organised on behalf of bwcon GmbH and the Ministry of the Environment, Climate Protection and the Energy Sector of Baden-Wurttemberg. Participants of the event developed innovative ideas in the field of digital environmental education. While setting up the event, the organisers took care in following several of the recommendations mentioned in this document. Regarding gifts for guests, for example, environmental and social criteria were taken into consideration. Therefore, the T-shirts which were given to the participants during the event met environmental criteria (certified with the Global Organic Textile Standard [GOTS] label) as well as social criteria (certified with the Fear Wear Foundation [FWF] label). Another area of action which was considered is Mobility/Event venue. Staging the event in a place which can be reached conveniently using public transport was given a priority. Furthermore, information on the use of environmentally sound transport and travel directions were explicitly referenced in the invitations.

Summary of recommendation(s)

These recommendations are useful for all organisation and individuals who wish their events to be organised in a sustainable way. It also provides aid to the participants of an event through stating the environmental and social implications which arise with the attendance of events and providing measures on how to keep those implications and impacts within justifiable limits.

In order to organise a 'Green Event', the following recommendations should be pursued, regarding the respective areas of actions mentioned above:

1. Mobility:
   - Reduce transport-induced environmental impacts

2. Event venue and accommodation for participants
   - Inform participants about regional specialities and avoiding environmental impacts wherever possible

3. Energy and climate
   - Compensate greenhouse gas emissions associated with the event
   - Take measures to reduce energy consumption

4. Procurement of products and services
   - Pay attention to environmental concerns in all procurement procedures

5. Catering/Meals
   - Provide significant proportion of organically sourced products
   - Promote seasonal and fair trade products

6. Waste management
   - Avoid waste and reduce of waste volumes
   - Use ecologically advantageous packaging, (e.g. reusables)
   - Reduce the amounts of paper that are typically used at conferences

7. Water management
   - Careful use of water as a resource

8. Gifts for guests
   - Consider manufacture and delivery
   - When possible: Dispense with gifts for guests altogether

9. Communication
   - Inform about the sustainable organisation concept of a 'Green Event' at an early stage and introduce these guidelines as maxims for action

10. Social aspects

- Considerate the needs of disabled people (e.g. barrier-free access)
- Considerate the principles of gender mainstreaming

In-depth details / explanations of recommendations with links

Breaking down the recommendations provided in the 10 areas of actions mentioned above, the following measures can be suggested for the organisation of a 'Green Event':

1. Mobility

Transport-induced environmental impacts can be avoided by choosing virtual meetings (e.g. video conferences) as an alternative to face-to-face meetings. Event venues which can be reached conveniently using public transport are beneficial, too. Information on available public transport and travel directions should also be communicated to the participants of the event.

2. Event venue and accommodation for participants

A key measure is to inform participants about regional specialities such as public transport, the loan of bicycles, shuttle buses or even a car-sharing scheme set up exclusively for the event. The implementation of side events should be as sustainable as possible and adapted to the event venue (in terms of environmental aspects).

3. Energy and climate

Greenhouse gas emissions associated with the event can be compensated by investing the calculated amount in climate projects. Furthermore, energy consumption can be reduced by using energy-efficient appliances wherever possible, by considering the energy supply of buildings and by moderate heating and cooling inside rooms.

4. Procurement of products and services

Key measures when it comes to the environmental concerns in the procurement of products and services include the reducing of amounts of paper e.g. by printing on both sides of the paper, minimising the number of handouts distributed or using recycled paper.

5. Catering/Meals

Organically sourced and fair trade products (e.g. tea, juices) as well as seasonal and regional food should be preferred.

6. Waste management

To avoid waste and reduce its volumes, a sufficient amount of waste collection points (for different waste fractions) should be installed as well as reusable cutlery, glasses etc. used.

7. Water management

The careful use of water as a resource can be achieved by avoiding its pollution, e.g. with the use of biodegradable cleaning products.

8. Gifts for guests

Manufacture and delivery of gifts should cause little environmental damage and be socially sound. To prevent of gifts being thrown away soon after the event, it is advised to dispense with them altogether.

9. Communication

In order to introduce these guidelines as maxims for action, a person should be specified that can give colleagues specialist support on sustainability issues. Also, information on the sustainable aspects of a 'Green Event' should be sent to all participants with their invitations.

10. Social aspects

Barrier-free access to the event as well as wheelchair-accessible toilets will contribute to the needs of disabled people. Written and oral formulations should be gender-neutral.

Conclusions of recommendations

Not only organisers and planners of large events with several hundreds or thousands of visitors should bear ecological and social aspects in mind. The necessary demands of sustainability also affect small and local events – even the weekly conference of a startup. By considering the stated recommendations and the possible measures

connected to them, this document both serves as a guideline for implementing a 'Green Event' and fosters an understanding for the environmental and social issues which arise during the organisation and execution of events.

List of useful links

https://www.umweltbundesamt.de/sites/default/files/medien/376/publikationen/guidelines_for_the_sustainable_organisation_of_events_bf.pdf

https://um.baden-wuerttemberg.de/de/umwelt-natur/nachhaltigkeit/nachhaltige-digitalisierung/naturathon-2018/

Date of recommendation package

27th March 2019

Author

bwcon GmbH, Germany

28. Guidance for collaboration between company focused on household water purification technology and company specialized in wastewater treatment plants

Recommendation to create a clear and easy-to-understand guide for start-up companies on how to gain a strong well-established business partner that can help with opening new markets in both EU and the third countries.

Keywords: water purification, wastewater treatment plant, start-up, eco-technology, eco-solution

Aims of this recommendation

The aim of this package is to create a clear and easy-to-understand guide for start-up companies on how to gain a strong well-established business partner that can help with opening new markets in both EU and the third countries.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions
- Start-ups

Background to this recommendation package

General objective of the EcoInn Danube project is to enhance cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of ecotechnologies in the Danube Region. The project will focus mainly on field of renewable energy and energy savings (efficiency).

A recommendation is “a suggestion or proposal as to the best course of action, especially one put forward by an authoritative body”.

Recommendations in the context of the EcoInn Danube project are useful suggestions and proposals on how to bring an eco-solution into commercial value, particularly through forms of knowledge transfer. Each recommendation relates to one or more of the following: a) specific eco-solutions, b) specific problems or issues, c) specific areas within technology transfer, d) specific target groups.

A recommendation package is a set of detailed proposals and suggestions to the target audience. The packages include the recommendation document itself, detailing the scenario and the actual recommendations that are given. The packages will also include templates, documents, books and topics that will be necessary to its realization and help the parties during their cooperation with other stakeholders in the eco-innovation environment.

The recommendation packages will be aimed at reinforcement of R&I results generation and their transfer into economy in a transnational context. The documented project result for the EcoInn Danube project will therefore be the improved conditions for cooperation among eco-innovation actors (SME, R&D institutions, universities, large technology companies). Thus, the recommendation packages will support formation and development of ecotechnologies based on environmental needs.

In total, the 65 recommendation packages developed in the EcoInn Danube project (5 recommendation packages per partner) will help to develop new connections and strengthen the existing interaction networks among representatives of the eco-innovation environment. More specifically, the recommendation package will promote the transfer of knowledge between actors by providing information and frameworks.

Summary description

Czech start-up AquaQube develops and manufactures innovative home water purification equipment. It creates naturally clean drinking water and enables its customers to take control of the quality of drinking water in their home. It is a unique eco-technology that greatly improves the health of its users while being environmentally friendly.

AquaQube is looking for a way how to get a strong business partner which should be a medium or large company operating in a similar market segment which thanks to future bilateral cooperation will open new markets in EU states and as well as third countries.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Purpose

Czech start-up AquaQube develops and manufactures innovative home water purification equipment. It creates naturally clean drinking water and enables its customers to take control of the quality of drinking water in their home. It is a unique eco-technology that greatly improves the health of its users while being environmentally friendly. AquaQube is the most efficient water treatment on the market. No installation is required. By purifying your own water, you are cleaning the environment around you and on the planet. Additional lower consumption of bottled water is also helping to reduce the overall environmental impact, while its recognized design qualities will elevate any interior.

Product description

AquaQube technology is currently patent pending. Generally, the aim of AquaQube is to give people the opportunity to have life with as little chemical influence as possible. Due to our modern lifestyle, the amount of chemicals used in everyday life is already high with little opportunities to change it. AquaQube is an innovative device that increases the quality of life of its users via 2 modes – Drinking water and Active water. In the Drinking water mode, the water is purified by Advanced Oxidation Process (AOP) where the bacteria, viruses, parasites, chlorine or other chemicals are eliminated. In the Active water mode, water with dissolved active oxygen is created. This active oxygen works as an ecological disinfectant as it reacts with any impurities it encounters. Active water has a high variety of applications, but few are worth to be highlighted: prolonging freshness of fruit, vegetables or meat by up to 300%, removing chemicals or pesticides from the surface of fruits/vegetables, ecological disinfection of surfaces at home – replacing the chemicals, using Active water instead of a mouthwash. To sum up the advantages AquaQube - offers extremely high purification efficiency, very economical solution, decreases water waste, ActiveWater mode can replace many chemicals at home, no installation is required – just needs to be plugged into a socket, low energy consumption, intuitive and user-friendly with attractive design. Product is suitable for both households and offices.

Sector

water purification device (for households)

Achieved results

AquaQube is an innovative water purification device for homes. It creates naturally pure drinking water and allows people to eventually take control over the quality of their drinking water. AquaQube is the most efficient water treatment on the market. No installation is required.

Summary of status of knowledge transfer or the needs

During the project event ECOInnovative Forum Krtiny that took place at the end of 2017 in Czech Republic the Czech start-up AquaQube recognized its needs for a strong business partner for the future growth.

Options and scenarios

a) National cooperation

First way how to gain new strong business partner that can open for AquaQube new markets and help with new potential business contracts is national cooperation. In this case the best way is to become a member of Czech Chamber of Commerce. Large chamber´s company database and services offered by chamber´s specialists is right combination to what can lead to a quick start of long-term partnership with strong Czech company from similar

segment. The Chamber has more than 15,000 members organized in 62 regional chambers and 110 branch associations. The Czech Chamber of Commerce is organized based on the regional and professional segments of the Chamber. Chamber prepares business meetings, thematic networking events, innovative conferences, B2B matchmaking events – a large number of opportunities tailored made to find a new business partner.

b) International cooperation

Second way how to gain strong partner is to cooperate with Enterprise Europe Network and use their services. It brings together thousands of business, technology and research cooperation requests and offers from companies and research and development institutions. You can subscribe to receive alerts on new requests and offers. They will: a) get in touch with the right experts in more than 60 countries, b) exploit the Network's online database of business opportunities. The Network sets up fast and effective business matchmaking events at international conferences and trade fairs. It also organises international trade missions which lead to many successful partnerships thanks to thorough preparation and local knowledge.

c) Searching business partner by market survey

Third way how to gain new strong business partner is by market survey. For this is necessary to set business criteria. For start-up AquaQube are suitable the following filters: a) company size, b) company focus, c) company history, d) company orders, e) company turnover.

Summary of recommendation(s)

For gaining new strong business partner that can open new markets for a start-up company there are 3 viable options:

- National cooperation: with Czech Chamber of Commerce
- International cooperation: with Enterprise Europe Network
- Searching business partner by market survey: by using business criteria

In-depth details / explanations of recommendations with links

Example of suitable potential partner by market survey

We realized a market survey according to criteria mentioned above. We evaluated Czech company ASIO, spol. s r.o. as a suitable potential partner. This company is focused on: a) Wastewater Treatment Plants for Family Houses - Small-scale wastewater treatment unit for households are intended for mechanical-biological treatment of municipal wastewater. The biological treatment unit can replace a septic tank or cesspool and therefore it is used for treatment of soil water from family houses, lodging-houses or cottages. AS-VARIOcomp K household treatment unit is the most suitable unit for family houses, because of the quick return on the invested funds and low operating costs are their major advantages; b) Wastewater Treatment Plants for Cities and Towns - Apart from small-scale wastewater treatment unit for households, we can also offer municipal wastewater treatment plants suitable for municipalities, city districts and small towns. Wastewater treatment plants are used for treatment of soil water from municipalities and towns in the range from 30 to 5,000 PE (population equivalent). Large wastewater treatment plants are typical for their stable and high-efficient cleaning processes with minimum operating costs. AS-VARIOcomp D (400 - 5000 EO) is recommended for municipalities and towns over 400 PE; c) Wastewater Treatment Plants for industry - At present, cleaning of industrial wastewater is an absolute necessity. Wastewater outgoing from industrial facilities can influence a great deal the quality of underground water and water streams. Therefore, an increasing number of institutions and industrial companies with responsible attitudes to the environment pay proper attention to this problem. In our offer you can find specialised wastewater treatment plants intended for thorough cleaning of industrial wastewater or prevention wastewater contamination. This kind of technology is specialized for Automotive Industry, Woodworking Industry, Furniture Industry, Paper-making Industry, Food-processing Industry, Construction Industry, Engineering Industry, Printing Industry and Textile Industry.

We recommend AquaQube to contact ASIO spol. s r.o. and try to negotiate long-term cooperation that will open new markets from EU as well as other countries.

Conclusions of recommendations

If the start-up AquaQube needs to find new strong business partner as fast as possible we can recommend contact directly company ASIO spol. s r.o. If the start-up has more requirements to potential partner that we know it is better to go by way a) or b) or make own market survey.

Useful links

- https://www.komora.cz/en/
- https://een.ec.europa.eu/
- https://www.czechinvest.org/en

- https://www.czechtrade.cz/
- https://aquaqube.com/en/
- https://www.asio.cz/en/

Date of recommendation package

20th February 2019

Author

BIC Brno, Czech Republic

29. Recommendation for cooperation between companies acting on market of smart energy

Recommendation to introduce the possible ways to find cooperation between a smart energy start-up and a company established on smart energy market.

Keywords: "Pitch", Commercialization, smart energy, smart window, start-up, energy sustainability

Aims of this recommendation

The aim of this package is to introduce the possible ways to find cooperation between a smart energy start-up and a company established on smart energy market.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Start-ups

Background to this recommendation package

General objective of the EcoInn Danube project is to enhance cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of ecotechnologies in the Danube Region. The project will focus mainly on field of renewable energy and energy saving (efficiency).

A recommendation is "a suggestion or proposal as to the best course of action, especially one put forward by an authoritative body".

Recommendations in the context of the EcoInn Danube project are useful suggestions and proposals on how to bring an eco-solution into commercial value, particularly through forms of knowledge transfer. Each recommendation relates to one or more of the following: a) specific eco-solutions, b) specific problems or issues, c) in specific areas within technology transfer, d) specific target groups.

A recommendation package is a set of detailed proposals and suggestions to the target audience. The packages include the recommendation document itself, detailing the scenario and the actual recommendations that are given. The packages will also include templates, documents, books and topics that will be necessary to its realization and help the parties during their cooperation with other stakeholders in the eco-innovation environment.

The recommendation packages will be aimed at reinforcement of R&I results generation and their transfer into economy in a transnational context. The documented project result for the EcoInn Danube project will therefore be improved conditions for cooperation among eco-innovation actors (SME, R&D institutions, universities, large technology companies). Thus, the recommendation packages will support generation and development of ecotechnologies based on environmental needs.

In total, the 65 recommendation packages developed in the EcoInn Danube project (5 recommendation packages per partner) will help to develop new connections and strengthen the existing interaction networks among representatives of the eco-innovation environment. More specifically, the recommendation package will promote the transfer of knowledge between actors by providing information and frameworks.

Summary description

Start-up company Physee produces future-proof glass facade for next generation sustainable buildings. SmartSkin can autonomously power, sense and regulate building's climate. It intelligently creates a comfortable and sustainable environment tailored to company needs.

Start-up company Physee has asked BIC Brno to conduct a market research and try to find suitable potential partner from the Czech Republic, whose product is battery for energy storage.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Purpose

Start-up company Physee is changing the perspective of building façade - from conducting solar analysis to harnessing the power of the sun and gathering data from special sensors. Physee is transforming buildings into smart, powerful and sustainable eco-systems. The connected façade is called SmartSkin. Experience step-by-step how SmartSkin can create a smart, sustainable and comfortable building without impacting the architectural design. SmartSkin technology has been developed to tackle various challenges at the same time. We lower energy consumption whilst simultaneously generating electricity. Increasing comfort and productivity as we go. Learn more about our POWER technology below.

Product description

Physee has a patented technology that integrates solar cells into your glass and harnesses electricity from the sun. These PowerWindows are the first building blocks of your SmartSkin. Sensors upgrade PowerWindows to SmartWindows, which combine sensor data, weather conditions and user settings to reduce your building's energy consumption up to 20%. Everything is connected to EESY (Energy Efficient SYstem) which stores and distributes power, communicates data and calculates ideal room settings to increase your comfort levels. Together with 3rd party facade applications, company optimises your room settings and reduce energy consumption, turning your facade into the SKIN of a building. All our SmartSkin components is offered in the flavour you want. Together with their business partners, Physee can even make your building 100% energy neutral by installing additional solar panels and geothermal storage solutions.

Sector

Smart windows producing electricity

Achieved results

Physee has a patented technology that integrates solar cells into your glass and harnesses electricity from the sun.

Summary of status of knowledge transfer or the needs

After the project event ECOInnovative Forum Krtiny that took place at the end of 2017 in Czech Republic the start-up Physee asked BIC Brno to conduct a market research and try to find a suitable potential partner from the Czech Republic, whose product is battery for energy storage.

Options and scenarios

a) Primary market research

First, we had to do a primary market research. We have performed the exploratory and specific research with the aim to collect as much of targeted and useful data as possible. Exploratory research helps to define a specific problem. It is all about unstructured interviews where a small group of respondents answers to open-ended questions. Specific research helps to define and narrow down an explicit problem. The method of unstructured interviews serves to gather both of the two types of information when conducting a primary market research – the exploratory and specific.

b) Secondary market research

Consequently, we continued with secondary market research. It uses outside information assembled by government agencies, industry and trade associations, labour unions, media sources, chambers of commerce, and the like. It is usually published in newsletters, trade publications, magazines, and newspapers. Secondary sources are the following: a) public - usually free, often offer a lot of valid information and include government departments, business departments of public libraries; b) commercial - valuable but usually involve cost factors such as subscription and association fees; c) educational institutions - frequently overlooked as valuable information sources even though more research is conducted in colleges, universities and technical institutes than in any other sector of the business community.

c) Results evaluation

After deep and thorough execution of primary and secondary market research we have prepared the results evaluation. Specific company recommendation as a potential and suitable business partner is a direct output of this evaluation.

Summary of recommendation(s)

For quality market research the three following steps are advisable:

- primary market research
- secondary market research
- results evaluation

In-depth details / explanations of recommendations with links

Example of potentially suitable partner

We have conducted the market research as described by the steps mentioned above. We have evaluated a Czech company FitCraft Energy s.r.o. as a potentially suitable partner. This company is specialised into following battery energy storage technology:

a) Savebox Home - An all-in-one energy storage and power management device. It is a single phase energy storage and power management device consisting of a powerful LiFePO4 battery pack, control system, safety and communication electronics, DC/AC inverter/charger and PV charger. The device is primarily designed for domestic use.

b) Savebox Industry – it is an independent source of electric power for craftsmen and craftswomen, workers, construction sites etc. This is a device used for storing electric power, and at the same time is a mobile accumulator – savebox. It can be charged up and then used to power electrical appliances in the same way as from the mains supply. The device has inputs for charging directly from the mains or from an electric generator.

c) Savebox city - the world we live in is getting smaller, and the unachievable is now within arm´s reach. That's what we are doing with energy storage for you. Not only do we now have smart houses, but also interconnected smart houses supported by our Savebox solution. So that now whole 'smart' towns have become a reality. That's our view of the efficient use of electricity throughout the world. The Savebox solution is our most important contribution to the rapidly developing energy storage and saving industry. Smart homes are designed to provide users with the most convenient and sustainable means of energy consumption. Technical solutions in this respect are effectively controlling electrical appliances not only remotely and according to time of heating or cooling, but through the optimal run time; e.g. vacuum cleaning or ventilation as well. All this saves energy and the life of the appliances, because the whole house operates under precise electronic control.

We recommend FitCraft Energy s.r.o. because this company offers products that fit the requirements of our start-up company Physee and mainly because this company also has large research experience in area of electricity storage.

Conclusions of recommendations

The start-up company Physee is looking for Czech company that has its own products for electricity storage. A strong research experience in the field of work would be a great advantage as well. After the described thorough market research, we would like to recommend FitCraft Energy s.r.o. company as suitable partner.

List of useful links

Useful links

- https://www.physee.eu/
- https://fitcraftenergy.cz/en/

Date of recommendation package

20th February 2019

Author

BIC Brno, Czech Republic

30. Guidance for start-ups how to find an investor for a pre-seed phase

Recommendation for start-ups how to find an investor for the pre-seed phase of a start-up company.

Keywords: commercialization, start-up, investor, pre-seed phase, early bird

Aims of this recommendation

The aim of this package is to introduce the possible ways how to find an investor for the pre-seed phase for a start-up company.

Target group of this recommendation package

- Start-ups

Background to this recommendation package

General objective of the EcoInn Danube project is to enhance cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of ecotechnologies in the Danube Region. The project will focus mainly on field of renewable energy and energy saving (efficiency).

A recommendation is “a suggestion or proposal as to the best course of action, especially one put forward by an authoritative body”.

Recommendations in the context of the EcoInn Danube project are useful suggestions and proposals on how to bring an eco-solution into commercial value, particularly through forms of knowledge transfer. Each recommendation relates to one or more of the following: a) specific eco-solutions, b) specific problems or issues, c) in specific areas within technology transfer, d) specific target groups.

A recommendation package is a set of detailed proposals and suggestions to the target audience. The packages include the recommendation document itself, detailing the scenario and the actual recommendations that are given. The packages will also include templates, documents, books and topics that will be necessary to its realization and help the parties during their cooperation with other stakeholders in the eco-innovation environment.

The recommendation packages will be aimed at reinforcement of R&I results generation and their transfer into economy in a transnational context. The documented project result for the EcoInn Danube project will therefore be improved conditions for cooperation among eco-innovation actors (SME, R&D institutions, universities, large technology companies). Thus, the recommendation packages will support generation and development of ecotechnologies based on environmental needs.

In total, the 65 recommendation packages developed in the EcoInn Danube project (5 recommendation packages per partner) will help to develop new connections and strengthen the existing interaction networks among representatives of the eco-innovation environment. More specifically, the recommendation package will promote the transfer of knowledge between actors by providing information and frameworks.

Summary description

Czech start-up Aibrace developed a lifesaving bracelet that provides life protection in various situations. Mission of Aibrace is to help people with increased level of health risks in their lives to enjoy their life to the fullest, without the constant worrying that something might go wrong. The lifesaving bracelet device has a potential to save many lives of children, elderly people and people with various health risks or conditions.

Aibrace is looking for a way how to get a start-up investor for its pre-seed phase. Therefore, it needs an investor who is ready to invest money to project a with validated product but with no paid offer yet.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Purpose

Aibrace device is designed for monitoring the vital life functions of the wearer for the purpose of detecting life threatening situations, eliminating them and calling the first aid without needing a mobile phone. It has large global benefits for people.

Product description

Life Saving Bracelet from Aibrace is primarily designed for children, risk workers, and the elderly. Aibrace has developed a baby monitor for children – it is a bracelet that sends a notification to your mobile phone through a wireless connection, alerting the receiver that the child is having a health issue. Another version is dedicated to eldery people. This version can help people with Alzheimer, Epilepsy, Parkinson and Anaphylaxis disease. The device has multiple features: a) Pulse sensing and hear rate analysis - heart arrest, sudden child death syndrome, detection of irregularities; b) Sensing and analysis of breathing frequency - respiratory arrest, breathing problems, suffocation, apnoea; c) Temperature analysis - fever, hypothermia; d) Motion detection and analysis - steps, fall detection, tremor, seizure detection; e) GPS localization; f) SOS button - phone call to selected contact person (family, carer).

The Aibrace bracelet has a very high battery life, precise position detection, continuous monitoring, remote access, automatic fall detection and made to be easy to use

Sector

Lifesaving bracelet

Achieved results

Czech start-up Aibrace has developed a lifesaving bracelet that provides life protection in a variety of situations. It can be very useful for children, workers with elevated heath risk conditions and seniors. The Aibrace technology is unique because of its technological complexity for people that need protection while dealing with health issues.

Summary of status of knowledge transfer or the needs

One segment of BIC Brno focus is connecting the universities / research institutions and private companies. BIC Brno organises events for specifically these targets groups. Mr. Svätopluk Blazej, founder of start-up company Aibrace, has attended one of these events in order to seek help in search for a start-up investor for his technology solution.

Options and scenarios

a) Science technology parks

The term "science and technology park" encompasses any kind of high-tech cluster such as: Technopolis, science park, science city, cyber park, hi tech (industrial) park, innovation centre, R&D park, university research park, research and technology park, science and technology park, science city, science town, technology park, technology incubator, technology park, technopark, technopole and technology business incubator. However, it is worth noting that there are slight differences between some of these terms. For example, experience suggests that there is difference between a technology business incubator, science park or research park, science city, Technopolis and regional innovation system. In Czech Republic there are 49 science technology parks, making the innovative infrastructure in our country really up to a high standard. A high number of start-up investors are already cooperating with these science technology parks. They are therefore an ideal place to get in touch with potential start-up investors.

b) Start-up programs

A start-up program is a program or application that runs automatically after the system has booted up. Start-up programs are usually services that run in the background. Services in Windows are analogous to the daemons in Unix and Unix-like operating systems. Support for start-up and accelerating start-up programs are one of the largest innovative areas with systematic support in Czech Republic. Each accelerating start-up program includes investors between its lectors / mentors or associates. Many of such start-up programs have been established in the Czech Republic. We can recommend start-up programs that are based mainly in Brno or in Prague.

c) Online investor´s community

If the particular start-up has its own good background and wants to cooperate with investor on long distance via internet, there are many great possibilities to be in close

touch with online investor community. The largest community is probably around Angellist. If a start-up company decides to engage in such communication, it is recommended to verify the investor carefully at Crunchbase first.

Summary of recommendation(s)

For gaining start-up investor for pre-seed phase, BIC Brno recommended following 3 ways:

- Science technology parks
- Start-up programs
- Online investor´s community

In-depth details / explanations of recommendations with links

Example of suitable model

Our recommendation for Aibrace is to use well-made innovation infrastructure in South Moravian Region in Czech Republic. According to its actual needs and preferences it is possible to apply in the acceleration start-up programs, sign up for the science technology parks and be in close cooperation with start-up investors. South Moravian Region has the most progressive innovation strategy from all Czech regions. Moreover, this strategy has real connections to the end market.

For example, the start-up company Aibrace can register in Science Technology Park TITC. It offers all the modern services needed for its fast development. A known organization that supplies great acceleration programs for start-up companies resides in the same area. In the nearest surroundings there are large and well-known technology companies, Brno University of Technology and many research institutions. This makes it an ideal environment for fast start-up development.

Conclusions of recommendations

South Moravian Region has the most progressive innovation strategy from all the regions in Czech Republic. Moreover, this strategy has real connection to market. To the start-up company Aibrace we recommend becoming a member of this innovative environment.

Useful links

www.aibrace.com

https://www.entrepreneur.com/article/52802

http://www.svtp.cz/katalog/

http://www.czechstartups.org

https://www.techopedia.com/definition/9538/startup-program

https://www.crunchbase.com/

https://angel.co/

http://www.titc-vtp.cz/cz/

http://www.czechstartups.org/en/

Date of recommendation package

20th February 2019

Author

BIC Brno, Czech Republic

31. Guidance for start-ups on how to find business partners between smart cities

Recommendation for start-ups how to create a partnership with municipalities (cities and regions) that are looking for smart solutions useful for citizens, public organisations and regional authorities.

Keywords: Start-up, smart city, partnership, municipalities, public organisations, regional authorities

Aims of this recommendation

The aim of this package is to create a guidance for start-ups that are looking for smart cities as business partners.

Target group of this recommendation package

- Start-ups
- Municipalities
- Public organisations
- Regional authorities

Background to this recommendation package

Nowadays more and more cities are using smart technologies in their municipalities. That creates an interesting and potentially large market for the companies developing various applications that can be in future used for modern cities.

The aim of this package is to create a guidance for start-ups that are looking for smart cities as business partners.

General objective of the EcoInn Danube project is to enhance cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of ecotechnologies in the Danube Region. The project will focus mainly on field of renewable energy and energy saving (efficiency).

A recommendation is “a suggestion or proposal as to the best course of action, especially one put forward by an authoritative body”.

Recommendations in the context of the EcoInn Danube project are useful suggestions and proposals on how to bring an eco-solution into commercial value, particularly through forms of knowledge transfer. Each recommendation relates to one or more of the following: a) specific eco-solutions, b) specific problems or issues, c) in specific areas within technology transfer, d) specific target groups.

A recommendation package is a set of detailed proposals and suggestions to the target audience. The packages include the recommendation document itself, detailing the scenario and the actual recommendations that are given. The packages will also include templates, documents, books and topics that will be necessary to realise the recommendations and help the parties during their cooperation with other stakeholders in the eco-innovation environment.

The recommendation packages will be aimed at reinforcement of R&I results generation and their transfer into economy in a transnational context. The documented project result for the EcoInn Danube project will therefore be improved conditions for cooperation among eco-innovation actors (SME, R&D institutions, universities, large technology companies). Thus, the recommendation packages will support generation and development of ecotechnologies based on environmental needs.

In total, the 65 recommendation packages developed in the EcoInn Danube project (5 recommendation packages per partner) will help to develop new and strengthen the

existing interaction networks among representatives of the eco-innovation environment. More specifically, the recommendation package will aid the transfer of knowledge between actors by providing information and frameworks.

Summary description

Czech start-up company “World from space” offers comprehensible information from satellite data for smart cities and smart agriculture. World from Space is a start-up company from Brno, Czech Republic, incubated by the ESA BIC Brno. Their key areas of interests are drought and vegetation monitoring. They provide initial analysis, propose mitigation and adaptation measures and monitor their results. Their cooperation with 3 major cities in the Czech Republic gives us opportunity to grow. This start-up is really good in analysing reality, not only in analysing statistics.

Smart cities are being developed around the world, but what exactly makes a city smart? Smart city has become more than just a buzzword in recent years. In fact, with the increase in Internet of Things (IoT) and connected devices, more cities around the world are becoming smarter than ever before. However, it's important to note that a smart city can be defined in different ways depending on the level of development, resources and aspirations of its residents. This means that a smart city in Europe may have different connotations.

By 2050, 66% of the global population will live in cities, according to data from the United Nations. Connectivity is also growing. By 2020, there will be a quarter billion connected vehicles on the road, according to Gartner. By 2019, 2.6 billion people will use smartphones worldwide, according to Statista. And between 20 and 30 billion things will be connected by 2020, according to McKinsey.

Cities are digitally transforming to improve environmental, financial, and social aspects of urban life. The IDC defines smart city development as the use of smart initiatives combined to leverage technology investments across an entire city, with common platforms increasing efficiency, data being shared across systems, and IT investments tied to smart missions.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Purpose

Czech start-up “World from space” offers comprehensible information from satellite data for smart cities and smart agriculture.

Product description

The dominant product line of World from space is focused on smart cites. This start-up offers services in following area: a) Urban Greenery – system is monitoring volume and current state of urban vegetation; b) Urban heat island – its system analyses which places in the city are regularly warmer than others and identify heat hotspots and cooling centres; c) Wetness index – it can analyse which parts of your city are wetter than others and which places are dry throughout the year. The wetness index is more experimental and does not give you straightforward information. However, it can provide an interesting insight when combined with the land use and land cover data; d) Web applications – start-up provides interactive visualization platforms and web applications presenting the results of satellite monitoring to public. Including public into your smart city agenda is essential for the long-term success of your strategies. It is available on zelen.worldfromspace.cz

Sector

Applications and services for smart cities

Achieved results

Czech start-up World from space has developed their own high-tec system for analysing real satellite data for smart cities.

Summary of status of knowledge transfer or the needs

Czech start-up company World from space that offers clever solutions for smart cities is looking for ways to attract Czech cities as potential business partners for long-term cooperation. This guidance shows the tested ways how to succeed.

Options and scenarios

a) International smart city fairs

First recommendation for the World from space is to take part in the international smart city fairs. Good example of this kind of fair is happening regularly in Brno. Urbis smart city fair delivers a smart combination of the trade fair with an exclusive conference program featuring Smart city leaders. Within two days, dozens of representatives of Central European towns and cities and innovation leaders

are meeting with the sole aim of passing on experience, ideas and examples of concrete solutions to how to properly develop Smart city concepts in cities. So that their citizens can live better in their hometowns. It is focused on a) leaders in innovation, b) city solution suppliers, c) start-ups, d) regions, e) towns, f) municipalities, g) micro-regions, h) European associations and i) active citizens. If you want to visit the fair stands of many cities in one place and discuss their needs, wishes and ways on how your solution can be useful for them, use this recommendation and be active during your visit of smart city fair.

b) Czech smart city cluster

The mission of the Czech Smart City Cluster is to develop a unique partnership between companies, government, regional authorities, knowledge institutions and citizens. Cluster is a pioneer of smart city in the Czech Republic. Cluster is trying to build smart cities where social and technological infrastructure and solutions make life easier for people and promote sustainable economic growth. These trends improve the quality of life in cities for all their inhabitants and thanks to that, cities become a pleasant environment for life and work. If you what to help a city and you need to know their needs prior to the first contact or a meeting, be in regular contact with representatives of Czech smart city cluster.

c) Union of cities and villages

The Union of cities and villages of the Czech Republic is a national, voluntary, non-political and non-governmental organization. Its members are cities and villages. This union is a partner for governmental and parliamentary political representation. It participates in the preparation and drafting of smart city legislative and non-legislative measures. The activity of the Association is primarily based on the activity of mayors, members of local and municipal councils who deal with general problems of self-government. The union is credited educational institution for training of government staff and local authority staff. If you know a particular city with a specific issue that you can solve, contact this union and use its network for fast and effective communication.

Summary of recommendation(s)

To attract a start-up investor for pre-seed phase, BIC Brno has recommended three following ways:

- International smart city fairs
- Czech smart city cluster
- Union of cities and villages

In-depth details / explanations of recommendations with links

Example of suitable potential partner by market survey

Brno, second largest city in Czech Republic, has its own smart city strategy. One part of this strategy is focused on smart car parking called “Zaparkuj to”. It is a smart application that solves the problem of car drivers with parking by: a) monitoring of free parking spaces, b) enabling easy parking, c) offering online payment. In future, the team of Zaparkuj will create a prototype of the application focused on creating more parking opportunities and on reducing the parking costs.

Conclusions of recommendations

Smart technologies for modern cities are now extremely trendy. When looking for real cooperation with the municipalities on their specific issues, we recommend 3 ways of contact: a) active visit of international smart city fair b) cooperation with Czech smart city cluster c) cooperation with the Union of cities and villages.

List of useful links

Useful links

http://worldfrom.space/en/home/

https://www.bvv.cz/urbis/

http://czechsmartcitycluster.com/

http://www.smocr.cz/

https://internetofthingsagenda.techtarget.com/blog/IoT-Agenda/The-smart-way-to-build-smart-cities

https://www.techrepublic.com/article/smart-cities-the-smart-persons-guide/

Date of recommendation package

20th February 2019

Author

BIC Brno, Czech Republic

32. Funding and realization of eco-innovative projects in practice

Recommendation to show the benefits of the cooperation with experts on a specific and real case where the organization or a company has an innovative idea, incentive or a project lacking in resources (financial or other) needed for its realization.

Keywords: Events, consultations and interactions
funding, eco-innovative projects, eco-innovation, circular economy, project management

Aims of this recommendation

The aim of this recommendation package is to show the benefits of the cooperation with experts on a specific and real case where the organization or a company has an innovative idea, incentive or a project lacking in resources (financial or other) needed for its realization.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- R&D organisations

Background to this recommendation package

The aim of this package is to offer a short and clear guidance for the subjects, which have the innovative projects and their realization as the primary focus of their work. It offers a description of how they can or should proceed in case they are missing financial or other resources for putting the projects in practice.

General objective of the EcoInn Danube project is to enhance cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of ecotechnologies in the Danube Region. The project will focus mainly on field of renewable energy and energy saving (efficiency).

Given the thematic framework of the EcoInn Danube project, our focus will be on the subjects working in the area of ecoinnovations, energy savings, circular economy and other connected eco topics.

Key Players Introduction:

BIC Brno is business and innovation centre, founded in 1991 as a part of European network of business and innovation centres EBN (European Business and Innovation Centre Network). Its goal is to enable and support the innovations and their transfer to practice.

In the course of their action, BIC Brno has established a cooperation with hundreds of innovative companies and

Quick read

Recommendation to show the benefits of the cooperation with experts on a specific and real case where the organization or a company has an innovative idea, incentive or a project lacking in resources (financial or other) needed for its realization.

several organizations, research centres and institutions both in Czech Republic and abroad. With its activities in the field of technology transfer, BIC Brno is closing the gap between research institutions and industry companies, supporting the transfer of innovations to the real use. BIC Brno is also continuously working on the process improvement for the transfer of research and development activities results into the industry practice as a part of its effort to increase the competitiveness of Czech businesses.

Additional activity of BIC Brno is also engaged support of companies and other organizations focused on research, development and innovations. For them BIC Brno provides counseling services in area of funding of their innovation activities, specialized education or help in the search for partners for the realization of their innovative projects. In the course of their action, BIC Brno has carried out hundreds of projects of various scope, field and size.

Institute for Circular Economy (INCIEN) is a non-profit, non-governmental organization focusing on innovative environmental management. Together with its partners it works on projects that allow the transition from a linear towards a circular system. INCIEN's mission is to inform, educate and interpret best practices and co-create pilot projects that strive for a transition from a linear to a circular economy. In collaboration with companies, municipalities, the governmental sector, NGOs and other stakeholders, INCIEN participates in many different projects every year.

Alliance for Energy Sufficiency (ALIES) has been creating opportunities for the development of a modern economy in the Czech Republic since 2012. ALIES is an independent communication platform for representatives of renewable resources, electromobility and smart solutions for both home and business. The goal of ALIES is to provide the right conditions for the further development of progressive modern technologies and services. We therefore cooperate with leading companies and professionals from the renewable energy sector and energy-efficient solutions.

Summary description

Non-Profit Organizations The Institute for Circular Economy (INCIEN) and the Alliance for Energy Sufficiency (ALIES) are young, progressive subjects that try to create and implement interesting and innovative projects within their area of expertise. Until now, however, some of those projects have been struggling with a lack of funding for their implementation and, in some cases, with the lack of human resources.

On recommendation, these organizations contacted experts from the Business and Innovation CentreBIC Brno whose main aim and subject of activity is the support of promising innovative projects.

At the opening joint meeting, specific intentions of these two organizations were discussed and a question was raised as to the possibility of financing their projects and activities from external grant sources. Part of the requested solution was also assistance in staffing these projects.

Summary of status of knowledge transfer

Based on the given information and specified parameters, BIC Brno, in a matter of weeks, worked out an analysis of grant opportunities that would be appropriate to finance these innovative projects and topics. Several important factors have been taken into account during this research. In particular it was the maximum funding rate for the project, way of financing (ex-post, ex-ante), time factor (the date of the call for proposals, length of the approval process) or the administrative burden of the given grant program.

Based on these criteria, the following grant programs were finally selected:

For the organization INCIEN, the ÉTA program, which is managed by the Technology Agency of the Czech Republic, was chosen as the most appropriate.

Characteristics of the ÉTA program:

(Engaging social sciences and humanities in technical and non-technical research, development and innovation projects)

The ÉTA program is aimed at supporting and involving social sciences and humanities in applied research, experimental development and innovation projects that are beneficial to maintaining and improving the quality of human life in response to dynamic social, economic, globalization related, cultural or technological transformations.

The aim of the program is to reinforce the dimension of social sciences and humanities in the activities of applied research, experimental development and innovation and to apply the outputs of these activities in the form of new or substantially improved products, processes, processes or services.

The most important benefits of this program are the high rate of funding, which is set at 90% for this program, and this support is also provided ex-ante. In addition, the programs of Technology Agency of Czech Republic are characterized by lower administrative burdens, mainly

because these programs are financed from the government budget of the Czech Republic and not from the EU funds.

For the ALIES organization, the THÉTA program, which is also managed by the Technology Agency of the Czech Republic, was chosen as the most appropriate.

Characteristics of the THÉTA program:

(Support for R & D in the field of energy with the aim of ensuring state supervision in the field of nuclear safety and long-term technical perspectives of energy)

The THÉTA program is aimed at supporting projects whose results have a high potential for application in a number of areas of the public life of the Czech Republic. The lessons learned will contribute to defining the factors and processes that determine and influence the functioning and development of Czech society in the context of ongoing European integration and world-wide globalization in the field of energy.

The objective of the program is to contribute, in the mid and long term, through the outputs, results and impacts of the supported projects to the fulfillment of the vision of transformation and modernization of the energy sector in accordance with approved strategic materials. This will be achieved through support for energy research, development and innovation with a focus on:

- support for projects in the public interest,
- new technologies and system features with high potential for rapid deployment in practice,
- supporting long-term technological perspectives.

The biggest advantage of this program due to the requirements is again a high rate of funding, which is as well set at 90% for this program and is also provided ex-ante. In addition, programs of the Technology Agency of Czech Republic are characterized by lower administrative burdens, mainly because these programs are financed from the government budget of the Czech Republic and not from EU funds.

The next step was to solve the personnel composition, both for the preparation phase of the project application for these innovative projects as well as for the stage of possible project implementation.

Due to the long experience of BIC Brno, which has a team of experienced specialists, the two requesting organizations were offered personnel support and subsequently active involvement of BIC Brno employees both in the preparation and implementation of both projects.

Options and scenarios

The whole process resulted in the implementation of the proposed procedure. BIC Brno provided its capacities and their staff, in cooperation with experts from ALIES and INCIEN, prepared the following two innovative projects:

Project in co-operation with the Institute for Circular Economy "Waste as Resource, or Application of New Research Methods for the Development of the Circular Economy in the Czech Republic"

In the project scope, the "Circular City Scan" method, created by the prestigious Dutch organization "Circular Economy Amsterdam", is piloted in the Czech Republic. This is a research of material flows, to which expert groups and the general public will be involved. This method has already been successfully applied across the EU (Scotland, the Netherlands, Italy, Spain, etc.) and demonstrably leads to improving the competitiveness of the region and creating effective links between companies, public administration, research organizations and other stakeholders.

The City of Prague was selected for this pilot testing, expressing great interest in participating in this pilot project. In the future, however, we plan to extend this concept to other cities in the Czech Republic, which is accented mainly by the Government of the Czech Republic, which is the main guarantor of the project during the application.

The "Circular City Scan" output will be an action plan with specific activities. These will be realized through the newly established Circular City HUB, which originated in Prague and became the center for the dissemination of knowledge, good practice and other research and educational activities. Through expert roundtables, panel debates or workshops it creates interdisciplinary links between the key themes of the transformation of the economy towards low carbon, with lower demands on energy consumption and better material utilization of resources.

Project in cooperation with the Alliance for Energy Sufficiency "Energy-Efficient Consumers - An Opportunity to Use Local Energy Sources"

An essential condition for greater involvement of energy consumers is the finalization of the European “Clean Energy for All Europeans” package. Its integral part is opening up space for innovative solutions to increase energy self-sufficiency for consumers. And just mapping potential, finding potential barriers and identifying the most appropriate solutions will help to correctly implement new elements into the energy market.

The results of this research project will serve as one of the important inputs for the expected change in the tariff structure. Our research will focus on obtaining a comprehensive analysis of the potential of the key element of decentralization of energy (active energy consumers), which has not yet been elaborated for the Czech market. We therefore consider research to be crucial in view of the expected developments in the area of small purchasers as well as current trends that can be traced in a number of foreign markets. Proper tracking of the expected development of this modern energy sector will help set up a quality regulatory environment.

In the initial phase, the research project will focus on research of the technically and economically feasible potential of energy-intensive consumer groups, focusing on the following target groups: households, apartment buildings, businesses and municipalities. The research of realistic potential will be complemented by research into socio-demographic characteristics that will help map out consumer behavior in the coming decade and reveal potential barriers to consumer entry into the role of energy-active players in the market.

The solution will also include research of the current state, regulatory tools and experience with existing projects on energy-active consumers on EU foreign markets (we will focus on markets in Germany, Austria and the Netherlands). The outcomes of the research of existing foreign projects will be supplemented by theoretical data for the Czech environment.

These two projects were submitted in years 2017 and 2018 in the current calls for funding and were subsequently selected for support. Now these two projects are in the phase of implementation.

Summary of recommendation(s)

If you are an innovative organization or a company with interesting ideas or projects, but you are missing out on financial and other resources to implement them, you should consider the following recommendations:

- look for experts within the innovation infrastructure (innovation centers, science and technology parks, business incubators)
- Do not be afraid to consult your innovative intentions with these experts
- Make use of grants to support innovative projects (national and international grant programs and resources)
- Cooperate and do not fear involvement in project consortia (national and international)

Conclusions of recommendations

The aim of this referral package was to show the benefits of working with experts on a practical example. Not always an organization or a company has all the necessary inputs to implement new ideas or projects. Smaller or emerging organizations and startups in particular often lack the necessary financial or other resources.

For such cases, there are entities of innovative infrastructure (innovation centers, science and technology parks or business incubators) that have a team of experienced experts who are able to advise with the possibilities and know-how to remove or supplement these shortcomings.

We should certainly not oppose cooperation with these entities, because the resulting effect has been positive in many cases. Thanks to this cooperation it is possible to implement innovative projects that will often help in company or organization development. Their main contribution lies in their benefit to society and the environment. Last but not least, the implementation of these innovative projects increases the competitiveness of the Danube region on an international scale.

List of useful links

Useful links

http://www.bicbrno.cz/

https://incien.org/

https://www.alies.cz/

https://tacr.cz/index.php/cz/programy/program-eta.html

https://tacr.cz/index.php/cz/programy/program-theta.html

http://www.obnovitelne.cz/

https://hub.cirkularnicesko.cz/

Date of recommendation package

20th February 2019

Author

BIC Brno, Czech Republic

33. Recommendation for innovators to collaborate with Education and Research Centre for the Metal industry- Metal Centre Čakovec

This recommendation package supports the collaboration of project idea and source of funding – in the scope of the Education and Research Centre for the Metal industry - Metal Centre Čakovec

Keywords: Collaborative projects, innovator, research institution, technology transfer, prototyping, internet of things, regional competitiveness, product development

Aims of this recommendation

This document provides general recommendations on how to approach a research institution (i.e. Metal Centre Čakovec) which gathers innovators, SMEs and scientists with an aim to strengthen scientific excellence, create a knowledge society and increase the competitiveness of the Region.

This recommendation package presents a model of linking innovators, research and market, SMEs and scientific community.

The Metal Centre Čakovec can help solve developmental problems by linking three important sectors: business, R&D/academia and the public administration. It will be fully functional mid 2020 since works and purchase of equipment are still in progress.

Target group of this recommendation package

Innovators, start-ups, SMEs and scientific and research community

Background to the recommendation package

SMEs often lack resources to develop new products and perform research in their respective area of activity. A public institution could provide support, both in terms of access to finance and human resources. Namely, the inadequate linkage of the scientific community with the business sector, particularly in the area of innovative solutions, has resulted in a project and a new institution that will encourage this cooperation.

Metal Centre foresees the collaboration of the scientific-research sector, the business sector (metal industry) and the public sector (Međimurje County with supporting institutions), respectively creating a triple helix effect that will contribute to solving development problems of Međimurje County and the wider region, as well as strengthening regional competitiveness.

The Metal Centre will carry out activities of experimental research, knowledge and technology transfer, and offer product development services, rent of equipment and services and incubation for new businesses.

Metal Centre as research infrastructure will engage the networking activities of scientists, researchers, scientific research institutions, educational institutions and entrepreneurs, who will be able to share experience, knowledge and skills within the infrastructure.

Options and scenarios

In order to increase competitiveness of a business and/or sector it is necessary, among other things, to base the process of product development on scientific and research achievements as well as current engineering knowledge.

Međimurje County as the founder of the Metal Centre intends to build a high-quality technology platform for scientific research activities, education of entrepreneurs, academic staff and other target groups.

Metal Centre is guided by the needs of entrepreneurs for a particular technology, knowledge and skills on one hand, and knowledge and scientific-research interests on the other hand.

Metal Centre will be organized in two departments, apart from administration - the Research and Development Department (with the Laboratory for Internet of Things (IoT) and the Laboratory for Prototyping) and the Technology Department.

The Laboratory for prototyping covers the development of prototypes for innovations applicability testing in fields of digital management systems and special electronic circuits, advanced engineering materials, which will be used in the fields of mechanical engineering, electrical engineering, computing and similar fields. The focus of the laboratory will be on rapid small-series prototyping construction and testing. The following premises are foreseen within this laboratory: 3D scan room, design simulation, 3D FDM – POLYJET, 3D DMLS, 3D SAND and workshop for additional processing.

The Technology Department will support the Research and Development Department in carrying out scientific-research activities, focusing on the application of research results to users from the industry or the market.

Individuals/start-ups/SMEs are offered different options to cooperate with the Metal Centre, depending on their specific requirements:

a) Collaborative projects – a partnership can be established to implement a project where entrepreneurs need to engage researchers to work on a specific research problem or to develop a solution to be used in product development. Entrepreneurs need to formulate their idea/problem and the Metal Centre can provide support in evaluating and validating the idea, assist in finding a source of funding, prepare a project application and act as a partner in implementing the idea.

b) Use of published research results – the research team of Metal Centre will work on different research projects, where results will be published and available to all interested stakeholders in form of scientific articles and presented at conferences.

c) Rent of equipment and office space for reverse engineering and prototyping – entrepreneurs with a research idea/problem and own research team can use the equipment in both labs and other parts of the facility based on a contract with Metal Centre (according to prices set by the institution).

d) Ordering product development services – SMEs lacking human resources (RDI team) and/or research equipment can contract the Metal Centre to provide product development services. It is required to prepare a brief presenting particular problem, idea or customer preference or need as well as own expectations in order for the Metal Centre to assess the scope of work required.

e) Seminars, presentations and trainings – the Metal Centre will organize seminars and trainings on different topics of interest to the metal and related sectors, i.e.: current technology developments, research results of implemented projects, show case of new technology, intellectual property rights IoT, etc… Entrepreneurs are free to propose topics of their interest.

f) Networking – different networking and matchmaking events will be organized periodically by the Metal Centre to link different stakeholders in the RDI ecosystem so they can exchange ideas. Stakeholders are required to sign up to Metal Centre's mailing list to receive invitations or they can follow the news on the institution's web site.

g) Incubation – start-ups looking for space to start manufacturing can apply for incubation in the Metal Centre. The terms are yet to be determined.

Funding opportunities for collaborative and individual research and innovation projects:

- EUREKA
- HORIZON2020
- LIFE
- Interreg V – European Territorial Co-operation

- National Innovation process support programme:
- Proof of concept (POC).

Summary of recommendations

The institution will focus its work on companies that want to address their development problems and need support in form of knowledge/technology transfer and/or access to finance. The current team working on project implementation is open to project ideas, has experience in developing ideas, submitting project proposals for obtaining grants and linking with experts and partners.

Individuals/start-ups/SMEs can approach the Metal Centre for support in one of the following ways:

- Collaborative projects
- Use of published research results
- Rent of equipment and office space for reverse engineering and prototyping
- Ordering product development services
- Seminars and trainings
- Networking to exchange ideas
- Incubation.

Through the interaction of entrepreneurs, scientific research communities and top engineers through the development and research projects, new discoveries, solutions and products are being sought that will contribute to creating value added and opening new jobs in the metal industry.

Conclusions of recommendations

Numerous products of the metal industry in North-western Croatia can be improved by the addition of so-called smart functionality that can increase their value added. Products with no additional smart functionality are being squeezed out of the market or are under increasing pressure to cut production costs. Integration of other wireless modern technologies into machines and manufacturing systems management is one of the most significant trends of today's industry concept 4.0.

List of useful links

https://metalskajezgra.hr/

https://www.eda.europa.eu/docs/default-source/brochures/esf-brochure

YourEurope – Access to funding & financing

EU funds funding tenders and *EU Funds- funding opportunities*

Horizon 2020 Calls for proposals

ESIF (DG REGIO)

CEF- Connecting EUrope Facility (energy and transport)

EIPP- European Investment Project Portal- the meeting place for project promoters and investors

Innovation Radar tool – a data-driven online tool which provides easy access to innovations supported by EU funding and the innovators behind them

EIAH – European Investment Advisory Hub

Covenant of Mayors – Interactive funding guide – Financing opportunities for Sustainable Energy & Climate Action Plans

Fi-Compass - platform for advisory services to managing authorities of EU funds, financial intermediaries or others on features, design and set-up of financial instruments under the European Structural and Investment Funds (ESIF)

EIB products

EIB advisory

EIF (the European Investment Fund is part of the EIB Group) financial intermediaries

EDA's European Funding Gateway for Defence

https://rio.jrc.ec.europa.eu/en/library/strategy-innovation-encouragement-republic-croatia-2014-2020

https://www.ciraz.hr/en/strategija-pametne-specijalizacije-s3/

https://ec.europa.eu/regional_policy/en/funding/erdf/

https://ec.europa.eu/easme/en/eic-sme-instrument

https://een.ec.europa.eu/?pk_campaign=EIC_SMEi&pk_kwd=lndng

https://ec.europa.eu/clima/policies/lowcarbon/ner300_en

https://ec.europa.eu/growth/access-to-finance/cosme-financial-instruments_en

https://ec.europa.eu/regional_policy/en/policy/cooperation/european-territorial/

Date of recommendation package

27th February 2019

Author

Technology Innovation Centre Međimurje Ltd.

34. Recommendation for start-ups and SMEs on using the incubation process in the Technology-Innovation Centre Međimurje Ltd.

Interactions type: Incubation process in the Technology-Innovation Centre Međimurje Ltd.

Keywords: Business incubator, business support programme, start-ups, entrepreneurship, technology focused SMEs, Technology Innovation Centre Međimurje

Aims of this recommendation

The recommendation package presents a tool for EcoInn project partners to create valuable information and interesting views regarding the incubation process and management expertise based on the example of Technology Innovation centre Međimurje (TICM).

Target group of this recommendation package

EcoInn project partners, SME supporting institutions in the Danube region

Background to the recommendation package

This document provides an overview of the Technology Innovation centre Međimurje (TICM) intensive business support program that accelerates the successful development of technology-focused startups/SMEs/ companies by providing an array of resources and services. It can be used as a best-practice example.

Summary background description

Start-ups and SMEs have an important role in economic development and the creation of new employment opportunities. Unfortunately, many entrepreneurs are faced with a lack of business skills required to launch a new company into a success. Technology Innovation Centre Međimurje Ltd. (TICM) as a business incubator can help these entrepreneurs in numerous ways, such as assisting them in the development of business proposals or by supporting these clients in finding the capital required for the initial investment. TICM also offers office space and provides shared equipment and space among its clients in a flexible environment. By working with the incubator (TICM) and surrounding network, a client should ultimately end the incubation process prepared for the requirements of operating a successful business on their own at market conditions.

Options and scenarios

The TICM incubator is focused on the ICT sector and technology start-ups. However, if an applicant's business idea is not technologically advanced, there is still a possibility for accommodation under commercial terms. Services provided by TICM to such applicants are of a commercial character and rent for accommodation is

determined according to market trends. However, when it comes to strategic partners, the price can be adjusted. Other services will be provided under commercial terms.

Summary of recommendation(s)

To be considered for incubation in the TICM business incubator, there is an application process where applicants should meet the following criteria:

- Applicant must be a tech-based company/individual/project who intends to establish company/craft/institution. The advantage is given to tech-based companies and those companies of strategic interest for the Međimurje County (metal processing, energy and construction industry – knowledge based);
- Applicant must demonstrate the ability to manage the project;
- Applicant must have job creation potential;
- Applicant must be ready to share the common infrastructure with other tenants and visitors.

The general strategy for incubation in Technology Innovation Centre Međimurje involves five steps:

1. PRELIMINARY APPLICATION – candidate fills in an online form describing the business venture.

- Public call for the incubation process is continuously open on the TICM website for candidates who meet the eligibility criteria. The purpose of the call is to point out TICM services and to motivate candidates who meet the incubation eligibility criteria. The public call is open permanently or until recalled.
- Potential candidates must fill in the preliminary application form in which they give the information needed to assess their eligibility.
- The preliminary application contains basic information about the candidate and their business venture. In addition to the application form, candidates must send a CV of the applicants, i. e. responsible person, in Europass CV format.
- Before completing the preliminary application form, potential candidates are recommended to consult TICM's employees by telephone or e-mail.

2. INITIAL ASSESSMENT – TICM assesses business venture potential.

- TICM Assessment Committee evaluates the eligibility of the candidate/applicant based on the received preliminary application and supporting documents. If a candidate's preliminary application complies with the required eligibility criteria, TICM employees will contact the candidate and provide them assistance in the process of joining the incubator.

3. BUSINESS PLAN DEVELOPMENT – candidate creates a business plan with TICM's assistance.

- The business plan represents a proposal for the establishment of a new organizational unit (company, institute or project) within the TICM or a proposal for further development of the incubated entity. The business plan made by the candidate must contain all the necessary elements based on TICM's guidelines.
- TICM's employees will then direct the candidate to required content of the business plan and provide professional support in developing a business plan or help with engaging external experts.
- TICM's employees will not take responsibility for creating a business plan. The candidate is fully responsible for developing the business plan in accordance with TICM's guidelines.

4. DECISION – TICM makes a decision on candidates joining the incubator.

- The TICM Assessment Committee decides about entering the incubator based on the established business plan. If the decision is positive, the next step is signing the incubation contract between the incubated company and the TICM.

5. INCUBATION – the incubation period lasts between one and five years.

- TICM employees monitor clients in the incubation process and business development. Once it is determined that the applicant meets the conditions for launching the incubation process, an assessment of the required workspace is carried out.
- Incubation in TICM provides companies with an opportunity of using premium office space including necessary infrastructure, common areas such as meeting and multimedia rooms and high – tech equipment under favourable terms and conditions.
- TICM provides consulting services to incubated companies in the development and commercialization of product and services. It also facilitates companies' participation in training programmes and conferences organized by TICM.

Conclusions of recommendations

The overall conclusion of recommendations is to provide the field of business incubation with new insight on how business incubator and the elements they offer to their clients might influence the start-ups and SMEs in rapid and successful development of their innovative ideas.

List of useful links

List of documents supporting the recommendation.

Preliminary application

TICM Incubation Program

Public call for reception in TICM business incubator

Price list for incubation services

Price list for renting office space and equipment

Date of recommendation package

27th February 2019

Author

Technology Innovation Centre Međimurje Ltd.

35. Recommendation for the Agricultural Conference Organization

This recommendation package provides guidelines for organizing an event promoting eco-innovation in the field of agriculture.

Keywords: Agriculture, eco-knowledge transfer, innovative solutions, research and innovation, conference, networking

Aims of this recommendation

The aim of this recommendation is to provide directions on organizing an event gathering different stakeholders interested in new knowledge and eco-innovation in the field of agriculture.

Target group of this recommendation package

The main target audience of this RP is a group of farmers, agriculturists, Agricultural Associations, R&D institutions, SME's, Ministries, Chamber of commerce, County representatives.

Background to the recommendation package

The Agricultural Conference is a one-day event organized annually by PI REDEA with the aim to assist and support successful eco-knowledge transfer between SMEs and R&D institutions. The guiding thought is to bring together unique mix of experts, researchers and decision makers, both from academia and industry, to exchange their knowledge, experience and research innovations. The best outcome of the Conference would be a concrete cooperation between the defined stakeholders. The annual Agricultural Conference should be the premier environmental and agricultural event to foster information exchange and networking.

The recommendation directly contributes to the main objective of EcoInn Danube project in a way that it enhances cooperation between innovation actors in the field of eco-innovations with the special emphasis on development and application of eco-technologies in the Danube Region.

Agricultural producers from Northern Croatia are facing a great challenge to keep track with the fast growing technological and innovation development. Therefore, this Agricultural Conference is planned to provide necessary information and support in the field of high technologies, new approaches and innovative solutions which could be used to upgrade the existing production. Also, the Conference should provide the overview of the available funds for financing implementation of high technologies and eco solutions.

Target stakeholders are: Agricultural Associations, agriculturists and farmers, R&D institutes, SMEs, Manufacturing Agricultural Devices Companies, Faculty of Electrical Engineering and Computing, Faculty of Agriculture, Chamber of Agriculture, Ministry of Agriculture, Ministry of Regional Development and EU Funds.

Summary of the RP:

- parties (1): farmers, agriculturists and Agricultural Associations
- eco-solutions/knowledge/technology (2): R&D institutes, SMEs, Manufacturing Agricultural Devices Companies, Faculty of Electrical Engineering and Computing, Faculty of Agriculture, Chamber of Agriculture, Ministry of Agriculture, Ministry of Regional Development and EU Funds
- proposed collaboration/proposed partnership and knowledge transfer (3): Agreed cooperation between 1 and 2.

Summary description

Agricultural producers from Croatia are facing a great challenge to keep track with the fast growing technological and innovation development.

Agricultural R&D and innovations have a major impact on the long-lasting food production, with the emphasis on the environmental sustainability and resilience of competitive land-based primary production for food or non-food systems as well as the boost of sustainable growth of rural territories.

Digital technologies are developing rapidly and have the potential to transform production systems in agriculture. ICT provides considerable development opportunities, improvement of competitiveness and better connectivity.

Therefore, this Agricultural Conference is planned to provide necessary information, support and cooperation opportunity in the field of high technology, new approaches and innovative solutions which could be used to upgrade the existing production.

Encouragement of cooperation between the farmers, researchers and institutions is a priority. To make the conference successful, all key stakeholders should be involved.

Exchange of knowledge, research, experience and needs will be organized through presentations, panel discussions and dialogues.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

The main motive of this Agricultural Conference is to boost innovations and technological development, creating synergies between sectors. Synergies between the public and private sector are essential to make the best use of different sources of research funding as well as to ensure that publicly-supported research and innovation activities are to be put to actual use. Policy and decision makers should encourage farmers and agriculturists to implement innovations.

The concept of the Conference is to be divided into different parts: expert lectures, presentation of actual policies, presentation of the latest research, presentation of best practices and presentation of ICT devices developed with the aim to increase competitiveness of the agricultural sector.

Each defined target stakeholder of the Conference should give an overview of the following questions:

Policymakers - What are the institutions and policymakers doing in terms of agricultural digitalisation? What is the point of view of the EU commission on the digitalisation in agriculture?

R&D – What are the latest devices?

Agriculture – What are the best practices in using technology for better production?

Farmers - What are their needs and demands for digitalisation?

The purpose of the Conference is that the targeted stakeholders get the needed knowledge.

- Sector: Rural sector
- Results aimed to be achieved: Increase of competitiveness, economic and ecologic benefits

Summary of status of knowledge transfer

Agricultural conference provides an opportunity to share, learn and connect. Direct transfer of knowledge is possible in both directions between the expert lecturers and the farmers. Farmers could use this knowledge to improve their production processes as well as the related business activities. Also, they would have the opportunity to present their needs and demands and get the instant feedback on the possible solutions. This will result in exchange of experience to confront and overcome the challenges.

Options and scenarios

The Conference could be organised and financed by several options:

1) finance through County budget

2) organised by regional development agencies, NGOs

3) EU funds

Summary of recommendation(s)

The purpose of this Agricultural Conference is to boost innovations, learn about the new technologies, best practices, sustainable rural development strategies and encourage the networking between the participants in the field of eco-innovations in agriculture.

Rural innovation systems mean looking at new knowledge and learning processes; getting better understanding about the interaction between producers and end users, local government and research institutions.

Knowledge and information are the key elements. Public-private partnerships, along with the development of a co-

operation culture between different levels of government and the different rural stakeholders are a must. Innovative rural regions rest on the well-developed human capital, effective use of technology, a dynamic financial sector and a public policy that is adapted to the new profile of rural areas.

Direct knowledge transfer will result in the exchange of experience to confront and overcome the challenges. Encouraging the networking between the defined stakeholders is important to stimulate the potential matchmaking.

Eco innovations and digitalization have a direct positive effect on the economy and ecology.

Innovative policies can make a huge difference for rural regions but they can only be effective if innovation is well integrated with the tradition and local identity. Innovation is about rural people, it is about how to overhaul the capacity of rural citizens to adapt to the changing conditions, to face the new challenges and to exploit the new opportunities.

In-depth details / explanations of recommendations with links

Rural development conference, Edinburgh, April 2018, example:

https://enrd.ec.europa.eu/news-events/events/11th-oecd-rural-development-conference-enabling-rural-innovation_en

Knowledge transfer in Scotland, example: https://www.ruralpayments.org/publicsite/futures/topics/all-schemes/knowledge-transfer-and-innovation-fund/knowledge-transfer-and-innovation-fund-full-guidance/

Rural evaluation news:

https://enrd.ec.europa.eu/evaluation/publications/rural-evaluation-news-issue-number-11_en

Conclusions of recommendations

In many rural regions, manufacturing and the service industries dominate the local economy. Because the economies of rural regions are particularly exposed to external competition and because most rural regions face an ageing and shrinking workforce, they must focus on boosting productivity. In rural regions the key drivers of productivity will be innovation in the form of the new products and processes that strengthen SMEs and improve workforce skills. Modern rural economies will be able to replicate the high rates of productivity increase exhibited in the primary industries over the last decades in other key sectors in manufacturing and services. The rural people will be the main drivers of this process but the key role will have the national, regional and rural governments in supporting this bottom-up development effort.

Agricultural Conference serves as a great opportunity to connect and transfer the eco-knowledge between SMEs and R&D institutions and presents the important starting point of the future rural development. The main goal is to initiate a concrete cooperation between the defined stakeholders.

Annexes

http://enrd.ec.europa.eu/sites/enrd/files/w30_rural-innovation_1a_adding-value-locally.pdf

http://enrd.ec.europa.eu/sites/enrd/files/w30_rural-innovation_1b_smart-rural-communities.pdf

http://enrd.ec.europa.eu/sites/enrd/files/w30_rural-innovation_2a_climate-change-technologies.pdf

http://enrd.ec.europa.eu/sites/enrd/files/w30_rural-innovation_2b_skills-future.pdf

http://enrd.ec.europa.eu/sites/enrd/files/w30_rural-innovation_3a_business-innovation-support.pdf

http://enrd.ec.europa.eu/sites/enrd/files/w30_rural-innovation_3b_rural-policy-governance.pdf

https://www.digitalistmag.com/iot/2017/12/07/how-will-digitization-effectively-transform-agriculture-05620552

https://www.futurefarming.com/Smart-farmers/Articles/2018/11/Digitalisation-in-agriculture-is-not-simple-361194E/

https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/agri_strategypaper_web_1.pdf

Date of recommendation package

28 February 2019

Author

Public Institution REDEA

36. Recommendation for AKSOLEN – from innovation to commercialization

This recommendation package supports AKSOLEN – from innovation to commercialization

Keywords: Solar concentrator; renewable energy; thermal energy; innovation protection; patent granting; commercialization; technology readiness level scale (TRL); sources of financing

Aims of this recommendation

This document provides general recommendations from the innovation to commercialization phase of the innovative eco-solution.

The recommendation package presents strategic guidance for growing a business with a specific eco-solution.

Target group of this recommendation package

Businesses with a specific eco-solution

Background to the recommendation package

The owner of AKSOLEN concept, Mr Vladimir Grlica, approached the project partner Public Institution for the Development of the Međimurje County REDEA at Agro Arca conference, held on 23rd October 2018 in Zagreb, with the aim of introducing his innovation concept and efforts to commercialize it.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

AKSOLEN is an advanced solar concentrator that uses a specially optimised system of mirrors in order to efficiently produce thermal energy. It is a technical invention with far superior performance compared to existing technical solutions for solar energy usage. Aksolen is currently defined as TRL2 on Technology Readiness Scale, but with a high potential of rapid development (see the detailed classification of TRL in Summary of status of knowledge transfer section). According to the initial financial plan, there is a potential of very high investment returns (IRR is around 115% in accordance with current projections) and high Net Present Value (app. 227 mil. EUR). To finalize this project successfully, the funds for further development and commercialization should be acquired.

AKSOLEN is an advanced concept of solar energy usage based on a large number of innovative solar micro-energy plants that are placed in the vicinity of an energy consumer. AKSOLEN is collecting solar energy and is efficiently transforming it into heat at temperature levels of around 700°C. This heat energy can either be used directly or stored in a heated container for later use. One way to use this energy is to produce electricity.

Basic characteristics of AKSOLEN are:

1. Distribution of solar energy production, i.e. production of energy where it is needed

2. High energy independence on the local level, even on a household level

3. Possible industrial production of system components and competitive product price.

AKSOLEN with a mirror size of app. 25 m2 produces the same amount of energy as 190 m2 of PV panels. In the region of continental Croatia AKSOLEN of 25 KW is able to produce app. 50.000 KWh of energy annually. To get this much thermal energy from conventional sources, 5.000 L of oil or 5.700 m³ of natural gas is required.

Application of the system is possible in various business fields, where it was not feasible to use renewable energy sources so far.

By using Aksolen technology the following results are to be achieved:

- High efficiency and power regardless of Sun's position
- Ability to easily reach high temperatures
- Practical and effective heat storage.

Summary of status of knowledge transfer

During the Agro Arca conference in Zagreb, PI REDEA made a contact with AKSOLEN owner, Mr. Grlica. Since AKSOLEN is in TRL2 phase and is looking for partners and other sources of financing to move on to the next phases of development of the project, we decided to prepare a recommendation of next phases which lead to the commercialization of the finished product.

Options and scenarios

As the first step is to protect their own innovation, the innovator has to go through the procedure of the patent granting which is instituted by filing an application consisting of:

- request for the grant of a patent (P-1 Form)
- description of the invention
- claims
- drawings - where the invention is such that it is appropriate to be represented by drawings
- abstract - a summary of the essence of the invention for the purpose of technical information.

Further development of AKSOLEN project could be conducted through four key phases:

1. Preparation phase – approximately 4 months
2. Prototype creation phase – approximately 14 months
3. Prototype batch phase (20 pcs) – approximately 12 months
4. Commercial product exploitation

The last phase is commercialization which can be successful if the following major steps are realized:

1. Business potential - for an innovation to be turned into business, it must be related to customers' needs.
2. Getting the value chain involved - the different opinions and skills can best be assembled when the whole value chain is involved in the project
3. Clear roles and responsibilities
4. Risk management - managing risks is facilitated by pilot tests at a sufficiently large scale before full-scale implementation
5. Commercialization - requires cooperation between sales, marketing, production and finance

For every step listed above, a financial injection is needed. With relevant partner finding, there are several funds and financing schemes presented in the table below. This table provides examples of funding and financing sources for projects according to their Technology Readiness Level (TRL) as well as its degree of bankability.

PICTURE 1 in Annex

Picture 1. Combination of funding, source https://www.fch.europa.eu/page/combining-funds

2Technology readiness level scale:

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space).

Innovators can rarely find a one-stop-shop institution due to fragmentation of competences but recently some institutions were able to establish an eco-system where most of requirements for innovative companies can be found and innovators can be supported throughout the entire process.

Here are some of the main support structures and sources for facilitating (eco) innovations listed:

o Government support – legal and strategic framework

- Strategy for innovation encouragement of Croatia 2014-2020
- Smart Specialization Strategy (S3) 2016-2020
- State aid support for research and development law

o Domestic support funds

- Innovation support programmes (Proof of Concept,)
- Fund for co-financing of EU projects on a local and regional level

o ESIF (European Structural and Investment Funds)) – Operational Programme Competitiveness and Cohesion 2014-2020

- PA 1 Strengthening the Economy through Application of Research and Innovation
- PA 3 Business Competitiveness

o Framework programmes (Horizon 2020)

- SME instrument (NER 300, LIFE, COSME financial instruments, Interreg V - European Territorial Co-operation)

o Business incubators (local incubators, national incubator network, mentorship programmes, co-working initiatives and fab-labs)

o Support by companies (internal and external)

- Apprenticeship programs
- Private scholarships/fellowships
- Organizations of hackathons

o Crowdfunding

- National platforms (Croinvest, Croenergy.eu, Funderbeam SEE)
- International platforms (Gofundme, Kickstarter, Indiegogo)

o Events and networking (local workshops, international seminars and conferences)

o Promotion on international fairs and expos

Summary of recommendation(s)

1. Innovation protection
2. Product developing from the innovation idea to the commercialisation
3. Developing the successful commercialisation

Commercialisation is the process of turning products and services into a commercially viable value. Concerning Intellectual Property (IP), this term can be more specifically defined as the process of bringing IP to the market in view of future profits and business growth. It is certainly not an easy task to manage IP commercialisation as the success of this process depends on several internal and external factors such as business objectives, type of IP as well as economic and intellectual resources.

In addition, since IP can be commercialised either directly by its owner, through an assignment or by building up business partnerships, the selection of the most appropriate tool is often challenging, especially for Small and Medium-sized Enterprises (SMEs).

In general, commercialisation of innovation (eco-innovation included) is subject to existing IP legislation framework and other relevant legal frameworks of the Republic of Croatia. No special legal treatment has been given to eco-innovation.

Picture 2. gives an overview of options, inventors can pursue in their commercialisation process.

Picture 2. IP Commercialisation options (source: European Union, IPR Helpdesk)

See ANNEX

In-depth details / explanations of recommendations with links

1. Innovation protection

First step in innovation protection is make a patent granting. Based on information from the State intellectual property offices web site, Aksolen should first fil the application. After the formal investigation follows the announcement of the application in the Official gazette of the State intellectual property office. After the publication of the application the procedure is continued only under condition that the applicant files one of the requests for examination of the requirements for the patent grant. If, within the prescribed time limit, one of the specified requirements has not been filed and the corresponding fee and procedural charges have not been paid, the patent application will be considered to be withdrawn, and the Office will suspend the patent granting procedure.

After one of the specified requests for examination has been filed, the Office carries out a corresponding additional procedure comprising the examination as to the substance

of the patent application. The procedure may result in the grant of a patent for a proposed invention, provided that the prescribed requirements are complied with, or in the refusal of a request for the grant of a patent, if such requirements are not complied with.

The protection for a patent granted on the basis of the results of substantive examination shall last for 20 years as from the filing date of a patent application. For a consensual patent it shall last for 10 years. For the maintenance of a patent the prescribed annual maintenance charges shall be paid.

2. Product developing from the innovation idea to the commercialisation

After the preparation phase (patent granting) and developing the base for the prototype with all the necessary inputs, prototype creation is the next phase. Using the knowledge, necessary technical requirements and needed materials, the prototype is made. Using laboratories (e.g. Metal Centre, Čakovec) and technical experts to test the prototype is leading to the prototype finalisation. When prototype is ready and all the malfunctions are reduced to minimum, batch phase is next. 20 pcs of the product are produced in order to use it in presentation to the potential partners. After approximately 2,5 years, the product is ready for the commercialisation and big series production.

3. Developing the successful commercialisation

In order to make a product interesting, it has to correspond to customers' needs. Developing a useful product should be the priority in the preparation phase. With a great product the producer can motivate a number of experts to invest their knowledge and experience and became a part of a successful story. Finding the right partners with a clear role eases the process. Pilot testing should contain all the main part of business planning – market research, financial budget, production and sales plan, marketing activities, post-sales activities, customer care service, etc. in order to collect the feedback data and make a requested action before stepping on the wide market and achieving full commercialisation of the product.

Conclusions of recommendations

AKSOLEN has an interesting product which can find its market. The idea of energy accumulation and using it when needed is new in the area of renewable energy. The only limiting factor could be financing the development of the product, but with a good project finding a suitable partner and using possibilities of EU funding should not be a problem.

List of useful links:

http://aksolen.weebly.com/

http://ecoinnovative.eu/aksolen-new-concept-of-solar-energy/

https://www.iprhelpdesk.eu/sites/default/files/documents/EU-IPR-Guide-Commercialisation.pdf

http://www.mrms.hr/wp-content/uploads/2015/03/labour-act.pdf

http://www.irb.hr/content/download/14902/307648/file/Pravilnik-o-intelektualnom-vlasnistvu-09-2016-prihvaceno-na-UV.pdf

http://www.dziv.hr/files/File/eng/zakon_patent_ENG.pdf

http://www.dziv.hr/files/File/eng/pravilnik_patent_eng.pdf

http://www.dziv.hr/files/File/eng/Zakon_autor_ENG.pdf

https://www.iprhelpdesk.eu/sites/default/files/documents/EU-IPR-Guide-Commercialisation.pdf

https://narodne-novine.nn.hr/clanci/sluzbeni/full/2018_01_2_60.html

http://www.dziv.hr/files/File/eng/intellectual/fees_patents.pdf

http://www.dziv.hr/en/intellectual-property-protection/patents/the-application-process/filing-an-application/

http://www.dziv.hr/en/representation-before-sipo/patent-representatives/

http://www.dziv.hr/en/representation-before-sipo/trademark-representatives/

http://www.dziv.hr/files/File/zakonodavstvo/zakon_zastupanje_ENG.pdf

http://www.hok-cba.hr/hr/imenik

http://www.dziv.hr/files/File/eng/zakon_patent_ENG.pdf

http://www.obzor2020.hr/rh-u-obzoru-2020

https://mzo.hr/hr/poziv-na-dostavu-prijava-za-potporu-na-temelju-odluke-o-poticanju-prijave-na-medunarodne

https://www.zakon.hr/z/652/Zakon-o-unapre%C4%91enju-poduzetni%C4%8Dke-infrastrukture

https://poduzetnistvo.gov.hr/arhiva/stranice/poduzetnicke-potporne-institucije/poslovni-inkubatori/151

http://www.crowdfunding.hr/2017-crowdfunding-infografika-3771

http://inovator.hr/

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http://www.investincroatia.hr/

https://www.hok.hr/

https://rio.jrc.ec.europa.eu/en/library/strategy-innovation-encouragement-republic-croatia-2014-2020

http://ec.europa.eu/competition/state_aid/register/hr.pdf

https://hamagbicro.hr/otvoren-javni-poziv-poc8/?fbclid=IwAR3fnZfH7_Wha48Ig-3MCy2JTi0nU5dEwnRZfPv-wPvW9iXysImif_uFuy0

Date of recommendation package

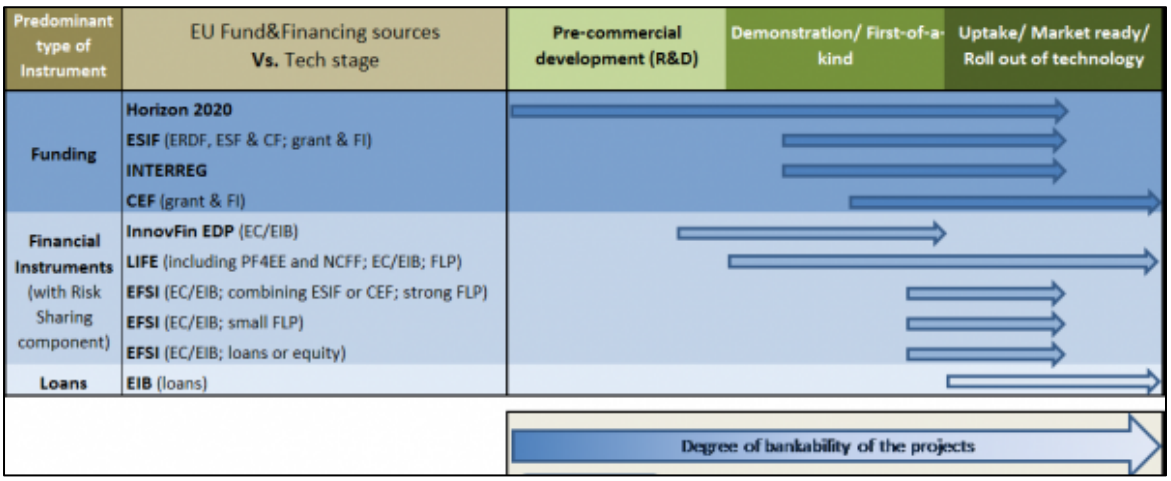
4th March 2019

Author

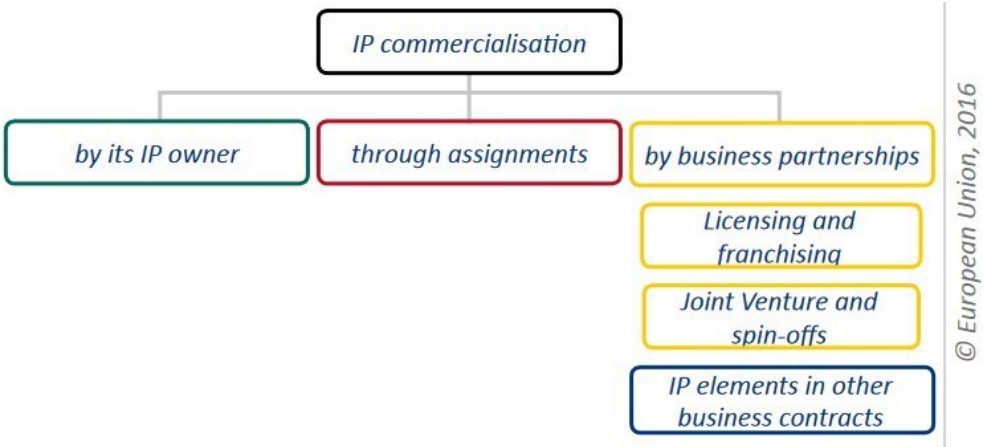
Technology Innovation Centre Međimurje Ltd

Annexes

Picture 1



Picture 2



37. Recommendation for small IT enterprise to offer their services to the public sector market

This recommendation package supports small IT Croatian SME for finding the way of cooperation with public institutions on energy recovery

Keywords: Energy recovery; public sector buildings; smart houses; energy savings; energy costs reducing; energy efficiency; Energy Service Company (ESCO)

Aims of this recommendation

The aim of this package is to introduce possibilities for small IT enterprise to find cooperation with public institutions on energy recovery of public sector buildings.

Target group of this recommendation package

Businesses with a specific eco-solution

Background to the recommendation package

The general objective of EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on the development and application of ecotechnologies in the Danube Region.

Results of recommendation packages will support the generation and development of ecotechnologies based on environmental needs.

The existing building fund in the Republic of Croatia represents the single sector with the highest potential for energy saving (most of the buildings in Croatia are rated as E or F energy class, but many of them in the G class). According to the “Decision on the provision of the energy reconstruction program of the public sector building for period 2016 - 2020” the focus is on raising the rate of renovation of buildings with an emphasis on public sector buildings which, due to their visibility in public life should serve as a model in the implementation of energy efficiency measures. The aim of the Program is to raise the level of energy recovery activities to 3% of the public sector building fund annually, reduction of energy consumption for cooling/heating of renovated buildings public sector up to 70%, or annual savings of about 50 GWh.

According to the overall situation in Croatia, and big potential in the public sector, there’s a great opportunity for the IT enterprise to offer their services. IT enterprise offers, among other things, tool for monitoring, analysis, control and optimization of energy consumption within the building and is fully in line with the international standard for energy management ISO 50 001.

Summary description

Croatian SME was founded in the year 2015 as the sequel of three decades lasting family business in providing mid-scale electrician services. Experience gained in that line of business provided a great foundation for further development of Croatian SME. Thus, they invested all of their resources, knowledge and skills, as well as modern technology into their new field of operations. The company's main business activities are 4Dx technology and Screen X cinemas based on the "turnkey" approach, the development of energy management systems, e-mobility software design, design and manufacturing decorative lighting design,

programming and installation of electrical works for smart houses and making feasibility studies on energy management.

This IT enterprise is looking for a possibility to expand its business with energy consumption monitoring system service in public sector buildings.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Croatian SME software package is a tool for monitoring, analysis, control and optimization of energy consumption within a building and is fully adapted to the international standard for energy management ISO 50 001. Through responsible monitoring of system operations in real time, reporting, alarming and providing professional assistance, Croatian SME tool will contribute to lower operational costs. The anticipation of system operations based on measured parameters can detect potential problems and therefore minimize human-induced errors as well as the risk of appearance of unwanted scenarios. The Croatian SME tool can provide a great deal of information to energy managers in the decision-making process; how to minimize the cost and enhance the reliability of the system.

The systematic approach to energy issues will contribute to procedures that aim to reduce energy costs. Energy consumption analysis in real time and on hotspots is necessary to measure in order to create the system for energy management. Daily, weekly, monthly or annual reports provided in PDF format and delivered via e-mail just in time and in suitable volume – that is what this system can provide.

Energy management is the systematic path toward constant care of energy consumption. In order to have all the right answers about energy consumption (where and when energy is consumed, what type of energy?), it is necessary to monitor the consumption on the hotspots.

Energy consumption analysis in real time and on hotspots is necessary to establish systematic energy management. The analysis is made of:

- Building selection and counters to be monitored
- Data gathering related to consumption (electrical energy, water, heating oil, temperature, humidity, air pressure, CO2, …)
- Analysis of gathered data and defining the goals / expected savings
- Interpretation of analysed data.

The main purpose is to increase energy efficiency including passive and active energy efficiency measures.

With software for energy consumption monitoring public buildings can increase their energy efficiency and therefore can reduce energy costs which drive to lower costs on a regional and national level and less pressure on the state budget in next 30 years.

Summary of status of knowledge transfer

As one of PI REDEA's activities was consultations and implementation of EU projects for the private sector, Croatian SME was one of the beneficiaries. We defined the needs for the enterprise and decided to make a recommendation package on how to expand their business to public sector buildings.

Options and scenarios

There are three possible options for establishing contacts and cooperation with the public sector:

1. Tracking tenders and submitting bids

According to the "Decision on the provision of the energy reconstruction program of the public sector building for period 2016 - 2020", the Program is implemented by The Environmental Protection and Energy Efficiency Fund (EPEEF). The fund is allocating funds through interest-free loans, subsidy, help and donation, based on the public tender.

In the "Energy efficiency plan of Međimurje County for the period from 2017 to 2019", one of the planned measures is "Energy Renewal and Use of Renewable Energy Sources in Buildings owned or co-owned by the Međimurje County, or the building institutions and/or enterprises where the county is founder". The main task for Croatian SME is to track future tenders and submitting bids.

2. Becoming an Energy Service Company (ESCO)

The ESCO (Energy Service Company) offers in its business scope a wide range of comprehensive energy solutions that include: designing and implementing energy saving, energy storing, production and energy projects and managing energy project risks.

The particularity of these projects is that they are financed from the savings realized. Most often, a time period of five to fifteen years is required to close the financing cycle (depending on the client and the project), and the savings achieved are included in reducing energy costs and maintenance.

Energy service providers operate in the private and public sector, that is in the field of building (schools, kindergartens, offices, universities, hospitals, hotels, etc.), public lighting, industry and energy supply systems (district heating, cogeneration).

The condition for becoming an ESCO Company:

- a company operates as an energy service provider defined under the Energy Contracting and Energy Services Regulation and the Energy Efficiency Act (Official Gazette 127/2014)

- energy savings which are achieved as a result of the company's projects are registered in the SMIV system.

3. Establishing cooperation with an ESCO Company

Should Croatian SME not have conditions to become an ESCO company yet, it can establish cooperation with one and through this cooperation can provide an energy consumption monitoring system service.

Summary of recommendation(s)

- Follow tenders and submitting projects
- Becoming an ESCO company
- Establishing cooperation with an ESCO company

This way, Croatian SME can expand their services on the public sector. According to the Energy Efficiency Act, every self-government unit and large city has to prepare a plan for energy efficiency so there's a big market potential for expanding their business.

In-depth details / explanations of recommendations with links

1. Tracking tenders and submitting bids

All tenders are submitted and published at the Electronic Public Procurement of Republic of Croatia website (EOJN) (https://eojn.nn.hr/Oglasnik/). The first step is to make a free registration in order to download tender documents, attachments or put the process into favourites. The next step is to search for relevant tenders. If all the conditions are met, the next step is to fill out the offer and collect all the necessary documentation. In order to be as competitive as possible, it is important to track all the potential applicants/competitors on the market. After collecting all the documents and filling out the offer, it is necessary to submit an offer respecting the delivery deadline. All the instructions for Applicants are available at this link: https://help.nn.hr/support/solutions/articles/12000028500-upute-za-ponuditelje

The greatest risk of submitting an offer is that the company will not have the most favourable offer according to the criteria of the tender.

2. Becoming an Energy Service Company (ESCO)

If the enterprise fulfils all of the conditions of becoming an ESCO (according to Energy Contracting and Energy Services Regulation (https://narodne-novine.nn.hr/clanci/sluzbeni/2015_01_11_212.html) and the Energy Efficiency Act (Official Gazette 127/2014 (https://narodne-novine.nn.hr/clanci/sluzbeni/2014_10_127_2399.html)), and the energy savings which are achieved as a result of company's projects are registered in the SMIV system (http://cei.hr/smiv-sustav-mjerenje-pracenje-i-verifikaciju-usteda-energije/), the next step is to fill in the Application questionnaire in the Service Provider List (https://www.enu.hr/ee-u-hrvatskoj/tko-je-tko-ee-rh/pruzatelji-energetske-usluge/). Being on that list allows greater visibility to the company and a bigger possibility for engagement in the project.

3. Establishing cooperation with ESCO Company

If the enterprise doesn't fulfil all the conditions of becoming an ESCO, it can become a partner to one (or more). The whole list (database) of ESCO companies is available on https://www.enu.hr/ee-u-hrvatskoj/tko-je-tko-ee-rh/pruzatelji-energetske-usluge/, so Croatian SME can create an offer and send it to the most interesting ESCO Company.

Conclusions of recommendations

Providing services to public sector - increasing energy efficiency in the public sector is a growing trend, so providing the energy consumption monitoring system

service in public sector buildings is a good opportunity for business expansion of Croatian SME.

Annexes

https://help.nn.hr/support/solutions/articles/12000028500-upute-za-ponuditelje

https://narodne-novine.nn.hr/clanci/sluzbeni/2017_03_22_508.html

https://www.enu.hr/wp-content/uploads/2016/02/Upute-za-izradu-godi%C5%A1njih-i-akcijskih-planova-energetske-u%C4%8Dinkovitosti.pdf

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https://narodne-novine.nn.hr/clanci/sluzbeni/2015_06_71_1368.html

https://narodne-novine.nn.hr/clanci/sluzbeni/2014_04_48_929.html

https://www.enu.hr/javni-sektor/obaveze/

http://cei.hr/upload/2016/01/smiv_upute_za_korisnike_56a5f93eb2208.pdf

http://cei.hr/smiv-sustav-mjerenje-pracenje-i-verifikaciju-usteda-energije/

Date of recommendation package

1st March 2019

Author

Public Institution REDEA

38. Recommendations for Comenius University Science Park Incubator to create new role as a researcher Job Search Tool

We apply the CUSP Incubator as a tool to get information about particular firms and start-ups or to find a job by offering excursions into the innovative companies in the CUSP. The recommendation focused on students who are looking for potential new job positions. Moreover, students can use gained knowledge about relevant successful business stories and motivation to run own business.

Keywords: New graduate, Young scientists, Job Search, Business incubator, Innovative companies

Aims of this recommendation

Current CU incubator goals (with new recommended aim):

- To contribute to the sector development through the support of innovative ideas and to the start-ups and spin-offs arise and development on the regional as well as on the international level especially in areas: biomedicine, biotechnology, enviro-medicine, bioinformatics, relevant ecological innovations, with interdisciplinary engagement of the legal, managerial and sociology consultancy.
- To support the commercialization of knowledge based on the transfer of the science and technological outputs from the university into companies and especially into the start-ups and spin-offs.
- To support the connectivity with established companies through the focusing of the research and research outputs on the needs of the established companies with the aim to enhance their innovativeness and competitiveness on the market.
- New goal: To support of potential employment of students and young researchers in innovative firms and start-ups operating or cooperating with the Comenius University

Target group of this recommendation package

The target institution of the package is CU incubator, which should effectively searching for CU students – Comenius University researchers and young graduates interested in areas: biomedicine, biotechnology, enviro-medicine, bioinformatics and relevant ecological innovations, with interdisciplinary engagement of the legal, managerial and sociology consultancy.

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions
- Researchers and new graduates

Background to this recommendation package

This recommendation package is in line with the EcoInn project intent, specifically WP5 because our applied tool-CUSP Incubator- has priority to promote knowledge exchange between University students and innovative companies, start-ups and eco-innovative actors cooperating with or working in the CUSP.

It is widely known that a large number of young graduates leave for better jobs abroad. This trend has an increasing

character, especially in the academic sphere. Every opportunity to stop this trend results in a reduction of outgoing students and ensure increasing competitiveness of each SME and the stability of the national economy and labor market, which in turn leads to a better future for the next generations. That the reason which led us to this recommendation: CUSP Incubator as a tool for graduated researchers to give them a potential co-working place and option to find the job by using well-known environment of the firms in CUSP.

Summary description

In recent years, Slovak colleges have been facing increasingly poor student quality. Thousands of talented young people are leaving to study abroad. In the past, the elite went to study at a home university. Today, approximately 15 % of the best go away after graduation at foreign universities. The continuation of this trend could complicate Slovakia's transition from production to knowledge economy. Without the best students, there is a lack of healthy competition and a desire to achieve the best results. Companies in Slovakia today are eager for such graduates who have at least minimal work experience. According to many experts, practice should be linked to university studies. Therefore, our objective is to point out CUSP Incubator as a tool for CU students who are looking for career opportunities which make them stay and get the job.

CU Incubator (https://cusp.uniba.sk/inkubator/) offers and prepares various types of business and support services according to the interest and requirements of clients that support and facilitate the emergence, development and establishment of startups and spin-offs on the market. In the proposed change, CUSP Incubator acts as a promoter of knowledge exchange between scientists, students and small eco-innovative companies by organizing several excursions for eco-positive students studying at Comenius University. We assume that increasing of job opportunities reduces the number of outgoing students and increases the number of applications to study at Comenius University as well as the number of job applications for small businesses dedicated to innovation.

Summary of status of knowledge transfer

Companies in Slovakia would welcome a higher number of graduates who would go directly to practice after finishing their bachelor's degree, in other words, the theory and practice should be closely linked during the study at Universities.

Increasing the share of practical training directly with employers is an absolute necessity. It is also necessary to increase the quality of teachers with an emphasis on practical experience of collaboration or involvement in organizations outside academia.

For that reason, based on our recommendation, the CUSP Incubator organized several excursions for talented students studying at Comenius University. The options to get to know the environment of successful companies and start-ups operating in CUSP help them to be inspired by their interesting business stories or discuss questions and find motivation for their own business.

Summary of recommendation(s)

The CU Incubator organized four separate excursions for students studying at Comenius University. Students were able to choose which ones to attend by online login form. The event were designed for students of all Faculties of Comenius University (CU Faculty of: Medicine; Law; Arts; Natural Sciences, Education, Pharmacy; Physical Education and Sports, Jessenius Medical School; Mathematics, Physics and Informatics; Roman Catholic Cyril and Methodius Theological; Evangelical Theological; Management; and Social and Economic Sciences.

Realized excursions were based on “Be inspired by the stories of successful entrepreneurs! Find motivation for your own business!”

Company: GoSpace Tech. Ltd. - SMART technology experts

Date: 10.10.2018

Topic: Introduction of spin-off and its activities, the beginnings of business and its further development, important milestones in the life of the company, discussing issues business and spin-off specialization, mentoring based on practical experience, company management, career opportunities

Company: GHC Genetics

Date: 25.10.2018

Topic: Discussion on human diseases, paternity tests, DNA diagnostics, and career opportunities

Company: SlovGen –Genetic analysis of animals

Date: 07.11.2018

Topic: Introduction of the company and its activities, important milestones.

Visiting a state-of-the-art diagnostic laboratory for DNA analysis. Discussing business issues and company specialization. Mentoring based on practical experience.

Company: Fablab – Creative Laboratory

Date: 29.11.2018

Topic: Space for materialization (business) ideas, 3-D innovation, creativity, fast and economic prototyping. Presentation of creative workshop and its activities. Visiting a creative laboratory and learning about the work and technology of the 21st century digital production

CU Incubator as a tool for young researchers: Using the tool through the possibility of participating in the excursion pointed to the high interest of the students. Bring the start-up environment closer, getting to know the weaknesses and strengths are the right motivation for students or absolvents who are considering how to deal with their education, whether it is the right choice to pursue a job in Slovakia, whether the future is going in that direction.

The incubators' staffs are involved in the arrangement of excursions with the help of each study departments of Comenius University and it's in free of charge.

Conclusions of recommendations

At present, we are faced with an outflow of students to work abroad because of the lack of leadership positions, poor financial appraisal and lack of jobs in science.

CUSP in Bratislava is recommended to use CUSP Incubator as a Job search tool for students to find out more about concrete firms and start-ups and also look for a job of dream here. The recommendation goes to the interest into firms working in the CUSP by Comenius University (CU) students who are looking for relevant successful business stories and motivation to run own business.

Incubator CUSP gives the opportunity to come to know the business environment, to know the story and to explore the possibilities of cooperation, which is beneficial for both the students and the companies themselves. All this brings participation in the excursion offered by Incubator. Login is on our website, login is via online forms. Excursions will be occasionally complemented.

In-depth details / explanations of recommendations with links

One of Slovakia's biggest problems, and not only in academic sphere, is the long term exit of talented student abroad. Our priority as a society should be to build infrastructure for the easy return of graduates back to Slovakia, but first and foremost to focus on applying their acquired academic, linguistic, and personal skills to the Slovak labor market and Slovak society.

However, there is a need for real contact between private and public companies with the graduate before the graduate's integration into society and the labor market. A successful example is a particular sector or job offer, whether in the private or public domain, and that's why we are presenting our recommendation package "Researcher Job Search Tool-Incubator" (https://cusp.uniba.sk/inkubator/).

Our focus therefore is to raise awareness about career opportunities in eco-friendly companies working at Science Park Comenius University through organized Incubator excursions to stop the outflow of students abroad and to give opportunity to replace the missing positions in science (details see in the chapter above).

All relevant information about realized excursions through Incubator in CUSP are described on https://cusp.uniba.sk/fileadmin/uvp/pracoviska/inkubator/exkurzie/GoSpace/Exkurzia_Gospace_10.10.2018_fotogaleria.pdf (Go Space);

www.https://uniba.sk/fileadmin/uvp/pracoviska/inkubator/exkurzie/GHCGen/Exkurzia_GHC_Genetics_25.10.2018_fotogaleria.pdf (GHC Genetics);
https://cusp.uniba.sk/fileadmin/uvp/pracoviska/inkubator/exkurzie/Slovgen/Exkurzia_Slovgen_7.11.2018_fotogaleria.pdf (SlovGen);
https://cusp.uniba.sk/fileadmin/uvp/pracoviska/inkubator/exkurzie/fablab/Exkurzia_Fablab_29.11.2018_fotogaleria_2.pdf (Fablab);

Annexes

http://skolskyservis.teraz.sk/vysoke-skoly/zastupcovia-studentov-vysokych-skol/47641-clanok.html?combinedGlobalTab_teraz=1

https://dennikn.sk/blog/1364425/vysoke-skoly-zacnite-sa-predavat/

https://vysokoskolacidopraxe.cvtisr.sk/sk/aktuality/napisali-k-teme/odliv-mozgov-slovaci-studuju-pracuju-zahranici.html

https://cusp.uniba.sk/

https://uniba.sk/

Date of recommendation package

1st of December 2018

Author

CUSP

39. Recommendations for University incubator activity extension

Keywords: Commercialization, intellectual property, management, new strategy, eco-innovations

Aims of this recommendation

Incubator aims on various types of business and support services and other activities according to the interest and requirements of clients that support and facilitate the emergence, development and establishment of startups and spin-offs on the market.

Target group of this recommendation package

The target group of this propose are entity students, researchers working in the field of biomedicine, biotechnology, enviro-medicine and bioinformatics, innovators and public, who would have the highest benefit from the use of Incubator.

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions
- Research groups

Background to this recommendation package

The recommendation propose the Comenius University incubator incorporates different way of developing to get a higher extent of use mostly in the field of area: eco-innovation, biomedicine and bioinformatics. This service will create a new image of the Incubator from the view of academic community as a potential source of innovations

This recommendation is in line with the EcoInn Danube Project, which aims to strengthen the cooperation of innovative actors in eco-innovation. Ideally, it will lead to continuous collaboration between the Incubator and the faculties of Comenius University or other actors in innovation in the field of eco-innovation.

The Comenius University Incubator was created on the 1st January 2017 as a part of the Comenius University Science Park. As a newcomer has mainly in charge management planning assistance, mentoring, administrative and consulting services to be a support for startups and spin-offs. This recommendation for business development will made progress of its self-promotion and extend of its use.

Summary description

The Science Park is a University research and development centre with a focus on biomedical, environmental and biotechnology. One part of the science park is Incubator, whose purpose is to develop and link the research and business interests of students, employees and external associates of individual faculties of the university, and through the synergistic effects of these links to support the emergence and development of new business.

During our staffing meeting, we have identified (Eco-inn team, CUSP) the opportunity to introduce a new service for the Incubator to develop the business knowledge and experience of potential clients / stakeholders in the field of innovation transfer and to help businesses or start their own business. In other words, one of the Incubator areas will help to turn skills and technology into practice, and the Science Park UK Incubator will become more visible and recognizable to others.

Summary of recommendation(s)

The incubator will set up a scientific council consisting of experts in medicine, biotechnology, pharmacy, as well as technology transfer and management. At the same time, the incubator publish the call and selects two of the requests. This process will be repeated at yearly intervals.

New project – 2per year to lead a training under working name "I have business idea"- training by trainers in 4 thematic blocks:

- 1)Business model
  - how to create an idea model
  - testing with customers
  - feedback from experienced entrepreneurs
  - achievements and lessons learned
- 2)Testing
  - to find out the cheapest ways to create a prototype idea
  - test WEB for product, service
  - help of consultants
- 3)Marketing
  - basics of low-cost marketing
  - presenting the product on social networks
  - presenting of the idea to investors
  - run a marketing campaign to get your first orders, the phase of testing the potential of the idea
- 4)Presentation of results
  - idea evaluation before the jury
  - getting a starter pack from potential investors
  - further support

Target group: students, innovators, researchers and public

Trainers: staff from Incubator and Science Park, researchers, invited entrepreneurs and innovators

Reason why to take this training?

- You will learn to test and start an idea
- You get a starter packet
- Consultation, support in creating a test site
- You will relevant information about the stories that work
- You become client of Incubator (startup)

This is one of the ways how the incubator can support new and emerging entrepreneurs and their innovative ideas and products in the early phase of their eco based business. Incubator is a tool created just to support and accelerate growth and increase the success of new innovative projects and therefore there is a need for another development or approach.

The focus of University Incubator activities is to ensure and to promote the commercial transfer and capitalization of science and technology knowledge from University campus to new and viable businesses, especially to innovative startups and spin-offs. It is a form of transfer and application university knowledge into practice and this concept is in the world very widespread and supported by transnational institutions, including the European Union.

To Comenius University, Bratislava is recommended to focus on new way of developing of its Incubator to get a higher extent of use mostly in the field of area: biomedicine, enviro-medicine, bioinformatics and relevant ecological innovations. This offered service will create a new image of the Incubator's perception of Science Park and need of relevant academic community. Funding will be maintained by external sources, by investors who are looking for new concept and vision of their business or by EU programs which are supporting eco-innovation and startups.

List of useful links

In Slovakia, a network of 16 incubators and a virtual incubator were built from the sources of Phare pre-accession funds, the state budget, EU structural funds and the own resources of the beneficiaries, including municipalities in 2002-2008 (www.nadsme.sk). Generally, Incubators provide invaluable assistance to start-ups. Young businesses lead to create new competitive advantages and become financially independent and embark on their own.

This is why CUSP Incubator keeps creating new ways to learn how to test and start the idea to turn skills into practice. Recommendation goes to presentation of new service of Incubator to be more eco-innovative, reachable for students, innovators and researches. New

service contributes to the development of the sector by promoting innovative ideas and the emergence and development of innovative start-ups and spin-offs at regional and international level, especially in the following areas: biomedicine, Biotechnology; Enviro-Medicine, bioinformatics, related eco-innovations.

Where to find support and help : https://saptisk.webnode.sk/

More about incubators: www.nadsme.sk

The importance of incubators for business: www.podnikam.webnoviny.sk

Date of recommendation package

15th of January 2019

Author

CUSP

Annexes

List of documents supporting the recommendation:

- Link on CU SP incubator activities: https://cusp.uniba.sk/inkubator/
- Information about the first incubator established in 1959 in the USA: www.thebatvian.com
- Incubators - places where startups hatch : http://www.sbagency.sk/inkubatory-miesta-kde-sa-liahnu-startupy#.XKHQE_XgqUk
- Article " Business Incubator ": https://www.papalash.sk/2018/10/19/podnikatelsky-inkubator/
- Article "The UK Science Park Incubator launches its activities " in Naša Univerzita, https://uniba.sk/fileadmin/ruk/nasa_univerzita/NU2018-19/180928_Septembrove_cislo_NU.pdf#page=34&zoom=auto,-274,846

40. Recommendations for intellectual property protection of phage therapy

The purpose of this publication is to present possibilities of protection of intellectual property and subsequent transfer of technology in a particular case

Keywords: Commercialization, protection of intellectual property, management, antibacterial protection

Aims of this recommendation

The aim of this recommendation package is to introduce the possibilities of intellectual protection and market application if the product is not patentable. In a specific case, we are dedicated to supporting a research group that develops therapy based on unmodified organisms that are not patentable in unchanged form

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions
- Research groups

Background to this recommendation package

Recommendation package is intended for researchers engaged in bacteriology research. The purpose of this publication is to present possibilities of protection of intellectual property and subsequent transfer of technology on a particular case. Publication should identify issues that have led to unsuccessful product implementation and on how to remove them. This recommendation package is intended for research and development centre with innovative ideas and solutions that encounter problems in their implementation. Bacterial infections causes many complications in medicine as well as in environment. According to World Health Organization, the problem has two main reasons: on one side, there are an ever increasing number of human bacterial pathogens becoming resistant to antibiotics, and on the other side, there are less new antibiotics developed by the pharmaceutical industry. Pathogenic bacteria, in addition to infecting human populations, have a detrimental effect on many ecosystems. There are cases of mass water infections. Equally important, in terms of ecology, is the occurrence of antibiotics in the water, which is due to their widespread use in disinfection. A promising strategy for treatment and prevention of bacterial infections is phage therapy. The use of bacteriophages against pathogenic bacteria was intensively studied for last 20 years and several preparations has been prepared so far. Phage preparation is a mixture of well characterized viruses capable to infect and kill specific bacteria. Researchers at the phage research group have approached the CUSP incubator for consultations on the protection of intellectual property and the possible application of the product to the market

Summary description

Phage group, as part of the Department of Molecular Biology, Comenius university, has been researching bacterial viruses for commercial use since 2003. In the long run, group has been exclusively devoted to the research and development society. The group was engaged in the search, purification and characterization of individual bacteriophages capable of infecting pathogens of the genera Escherichia, Salmonella, Cronobacter, Enterobacter, Listeria and others. The group also added mutant viruses with the desired properties. Last but not least, they managed to find out the conditions in which bacteriophages achieve optimal

antimicrobial activity. The knowledge gained has been utilized by scientists in the preparation of a commercially useful formulation, phage therapy. There are several uses, given the extensive collection of characterized viruses. We assume the possible use of products in medicine, food protection and ecology. The Group has worked with other scientific institutions, but with commercial companies operating in the fields of biotechnology, medicine, medical microbiology and diagnostics. The acquired experience can be used in the case of the establishment of the company. The research itself was funded by the resources of the national research agency and university resources. The new task of the group is to commercialize products to raise funds to support further research.

This recommendation package describes and seeks the optimal form of commercialization for an antimicrobial formulation based on the use of a natural enemy of bacteria, bacteriophages. Researchers have designed a variety of products with different potential uses in medicine, food protection and environmental protection. For the sake of better market performance, we suggest food-safe protection product, to be offered on the market. This product is able to suppress the growth of Cronobacter, Enterobacter and Salmonella species from food matrices. In addition, it consists only of unmodified viruses isolated from the environment, which is beneficial for easier market application. In many cases, it is problematic to apply modified organisms from the regulatory point of view, as well as from the public opinion of users. The preparation is specific to bacterial strains isolated from food in the Danube region and some other Central European countries such as Poland. For this reason, we expect its use in this region. However, the bacterial strains used are highly related to strains in databases that are isolated from different countries, so the formulation is likely to be effective in other parts of the world. Although the phage cocktail preparation itself has a minor impact on ecology, its wider use will lead to a reduction in antibiotic production and thus an increase in water and air quality. Phage preparation is significantly less ecologically harmful than antibiotic preparation. In addition, phages are self-replicating and therefore frequent dosing repetitions are not needed, as is the case with antibiotics. Last but not least, bacteriophages are ubiquitous and specific to particular bacterial species, so that they do not burden the surrounding natural microflora.

We discussed with one company with which we were looking for a suitable economic solution and product application. Unfortunately, there was no cooperation, due to insufficient financial coverage of the investor. The problem in negotiating cooperation is the long-term return on funds spent and the low interest of companies to innovate their control processes in production. They mostly fulfill the basic conditions set by the inspection body and are not interested in investing in innovative home solutions. Many companies are part of multinational chains and take technology from central operations abroad. That is why we intend to focus on small, purely national food producers. Our target group is mainly dairies and the meat industry. Potential sectors include animal production. After successful exams, we offer our partners to build a control laboratory at the food producer site. The laboratory will not only control the effectiveness of the preparation, but also isolate new food contaminants and modify the formulation as needed. Our current goal is to set up a business plan, how to protect our intellectual property. For this, you need to develop a detailed survey of the local market, or the market of neighboring countries. Last but not least, the design and sustainability of product features will need to be designed.

Summary of recommendation(s)

Based on the demands of phage representatives, we have compiled a set of recommendations that should help the successful transfer of technology from the laboratory to the market.

Recommendations:

- Prepare detailed Business plan with draft of your product design and proofs of product efficiency
- Prepare a list of all potential customers and contact them. Try to ask for a list of problem

bacterial pathogens and offer them a tailor-made solution.
- Investor search. Banks are the most likely and most secure investor. However, funding can also be obtained by crowd funding, by another investor or by business support.
- Create a spin-up company
- Create name, logo and design of product package.
- Request a national trademark for the product
- Popularization of the use of phage preparation in the food industry by means of scientific conferences, meetings of food producers on fairs and media.

The phage formulation is an example of a product that cannot be patented. However, it can be protected by a trademark. Its acquisition requires product design, logo as well as packaging, as well as company formation. Given the considerable financial complexity of these steps, it is necessary to find an investor. Therefore, we need to develop a detailed plan with product design and preliminary design to reach not only potential clients but also banks or crowd funding structures.
Main steps:

- Prepare detailed plan of your business (design of your product included)
- Using conferences, fairs and media communication, such as press briefings, announcements, providing information to the media about phage therapy, thereby increasing the likelihood of finding an investor
- Market research will help to find list of clients as well as new source of pathogens for product modification.

Prepare logo, design and package of the product and apply for national trademark. This will help to protect your product on market.

Detailed recommendations

Prepare detailed Business plan with draft of your product design and proofs of product efficiency

The first step in launching a product should be a detailed business plan. This must include evidence of the use of phages or phage preparations currently in use. For example, two US companies commercialize products for the disinfection of surfaces against Salmonella (BacWash™) and E. coli O157:H7 (Finalyse™). Besides surface decontamination, phages can also be applied as food biopreservatives. Although this application appears even more complicated from a regulatory perspective, several phage products intended as food additives are currently marketed in the US. Thus, phage preparations against Listeria monocytogenes (Listshield™), Salmonella enterica (SalmoFresh™), and Escherichia coli (Ecoshield™) have received GRAS designation by the FDA for direct application to food and are commercially available. In the EU, on the other hand, the use of bacteriophages in food from animal origin was evaluated by the European Food Safety Authority (EFSA) in 2009. More recently, the use of PhageGuard Listex for removing L. monocytogenes from raw fish was assessed in 2012. In both studies, EFSA concluded that bacteriophages are harmless for consumers but it is not clear whether they can protect against food re-contamination. Finally, bacteriophages have been approved as processing-aids in food processing and handling in several countries. Indeed, two such products against L. monocytogenes (PhageGuard Listex) and Salmonella (PhageGuard S) are currently available. Both products can also be used for decontamination of surfaces. The plan should also include the estimated cost of production, the estimated price of the product and the market research. A substantial part of the draft must also be the design of the product design and the sketch of the logo.

Prepare a list of all potential customers and contact them. Try to ask for a list of problem bacterial pathogens and offer them a tailor-made solution.

The group works closely with the Food Research Institute. I recommend using these contacts to get a list of potential clients. Another option is participation in food fairs in Bratislava and Nitra. Searching producers via the Internet is also a good option. Upon obtaining contacts, relevant people, and therefore quality, research and development managers as well as company traders, need to be tagged. Personal meeting with presentation of prepared business plan is optimal.

It is likely that you will not directly find an investor, but you will get an idea of potential clients that you can use when looking for an investor outside the food safety area.

Investor search. Banks are the most likely and most secure investor. However, funding can also be obtained by crowd funding, by another investor or by business support.

If the food safety investor could not be obtained, there are several possibilities. The first is to address state support structures (research agency, ministry of economy, etc.). Unfortunately, national support programs are mostly only promises without positive examples, and it may be that it will take a long time to fund. The second option is to reach out to banks that mostly support spin-up and start-up companies, but in this case, it is advisable to present as many details as possible and also potential clients. The third option is to get funding using crowd funding schemes.

Create a spin-up company

The phage group has conducted its initial research at the university, so it is advisable to create a spin-up company with a possible university share.

Create name, logo and design of product package. Request a national trademark for the product

Once you have earned the support, you will need to invest resources in the design of the logo, title, and product packaging that will be required to obtain the trademark. This will help to better identify the product on the market as well as protect it from abuse. We have also been exploring the potential patenting of the product, but since phages are unmodified, they cannot be patented. Possible modification would allow their patenting, but would limit their use on the market. Many companies do not want to use modified organisms in food. Moreover, the EU regulators do not fully support their use.

Popularization of the use of phage preparation in the food industry by means of scientific conferences, meetings of food producers on fairs and media.

An important step after creating a product is its introduction on the market. The food safety area is still working closely with the scientific community, and it is therefore appropriate to present the product not only through advertising in mass media, but also at scientific conferences and exhibitions where most food producers appear.

Annexes

List of documents supporting the recommendation.

- https://www.smartsheet.com/communications-strategy-how-to-templates
- What can be patented https://www.indprop.gov.sk/?co-a-ako-patentovat
- Evidence about phage efficiency https://www.ncbi.nlm.nih.gov/pubmed/28252175
- Evidence about phage efficiency https://www.ncbi.nlm.nih.gov/pubmed/31102236
- Evidence about phage efficiency https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5812529/
- https://verdikto.sk/brandema?gclid=EAIaIQobChMI4K3e79Gx4gIVh7TtCh1RNARwEAAYASAAEgIaMPD_BwE
- Evidence about phage efficiency https://www.ncbi.nlm.nih.gov/pubmed/30880345
- Financial support for starting companies info: https://www.startitup.sk/podpora-startupov-na-slovensku-vs-v-cesku-ako-sa-starame-o-zacinajucich-podnikatelov/
- Phage therapy products review: https://www.frontiersin.org/articles/10.3389/fcimb.2018.00296/full

Date of recommendation package

1st of February 2019

Author

Michal Kajsik, Comenius University Science Park (CUSP)

41. Recommendations for commercial use of enzybiotics

Recommendation to partner engaged in research and development of recombinant enzymes. Identification of market implementation options for enzybiotics

Keywords: Enzybiotics, intellectual property, commercialization, recombinant proteins

Aims of this recommendation

The aim of this recommendation package is to introduce the possibilities of intellectual protection and application to the market of a product that is patentable. In a particular case, we support a research group that develops a product based on both native and recombinant antimicrobial proteins useful in the food or pharmaceutical industries.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions
- Small research groups

Background to this recommendation package

Recommendation package is intended for researchers engaged in proteomics research. The purpose of this publication is to present possibilities of transfer of technology on a particular case. Publication should identify issues that have led to unsuccessful product implementation and on how to remove them. This recommendation package is intended for research and development centre with innovative ideas and solutions that encounter problems in their implementation. Currently, bacterial infections are still a major health problem. Problematic human pathogens include species of the genus Cronobacter. They are facultatively anaerobic, gram-negative bacteria belonging to the Enterobacteriaceae family. The dangers are particularly low for low birth weight infants and immunodeficient people who can cause serious health problems such as necrotizing enterocolitis and sepsis. The main source of infection is food in which the pathogen is able to persist due to its high resistance to drying, elevated temperatures and osmotic stress. A particularly serious problem is contaminated dried

Quick read

- The aim of this recommendation package is to help with the intellectual protection and application on market of the protein based antimicrobial product.
- Due to the wide use of antimicrobials in industry and medicine, we have recommended the preparation of a product for food industry
- We advised the group to construct the product with recombinant proteins that they can patent

baby food, which is a major cause of neonatal infections. An important virulence factor for the species of the genus Cronobacter is their ability to produce a biofilm, which makes it even more difficult to eliminate this pathogen with disinfectants or antibiotics. The answer to this problem could be the use of depolymerases, enzybiotics, which can degrade bacterial exopolysaccharides, which are an important component of the capsule and a major cause of biofilm formation. Researchers at the proteomics research group have approached the CUSP incubator for consultations on the protection of intellectual property and the possible application of the product to the market

Summary description

Proteomics group, as part of the Department of Biotechnology, Comenius university, has been researching depolymerases for commercial use since 2013. In the long run, group has been exclusively devoted to the research and development society. The group searched for, purified and characterized individual enzymes capable of degrading biofilms of various bacterial genera, especially Cronobacter, Enterobacter and E.coli.

The group also produced recombinant proteins with the desired properties. Last but not least, they were able to find out the conditions under which the enzymatic agents achieve optimal anti-biofilm activity. The proteins described in detail by the scientists have been used in the preparation of antibiotic compositions that are species specific. An extensive collection of characteristic enzymes has many uses since bacteria form a biofilm on most food, medicine, or natural surfaces. We therefore assume the possible use of products in medicine, food protection and ecology. The research itself was funded by the National Research Agency and university resources. The new mission of the group is to commercialize products to raise funds for further research.

This package of recommendations describes and seeks the optimal form of commercialization for an anti-biofilm preparation based on the use of depolymerases that naturally reduce biofilm during phage infection. Researchers have designed different products with different potential uses in medicine, food protection and environmental protection. In the interest of better application on the market, we propose to specialize this product in sanitizing surfaces in medicine and food. This product is capable of suppressing the formation of the biofilm of Cronobacter, Enterobacter and E.coli species on various surfaces used, including PVC, metal, glass and others. The formulation is specific for biofilms formed by bacterial strains isolated from food operations, patients and hospitals in the Danube region and some other European countries such as England and France. For this reason, we expect its use in this region. However, the bacterial strains used are related to strains in databases that are isolated from different countries, so the formulation is likely to be effective against biofilms in other parts of the world. Although the enzyme preparation itself has little effect on ecology, its wider use will lead to a reduction of the production and use of antibiotics and disinfectants such as quaternary salts or hypochlorites, thereby increasing water and air quality. Enzybiotics are naturally occurring in nature and even their increased concentration does not yet affect the ecological niches in which they were used, so it is believed that they do not burden the surrounding nature as much as antibiotics or conventional disinfectants.

The problem in negotiating cooperation with companies is the long-term return on costs and the low interest of companies in innovation in manufacturing processes. Mostly they meet the basic conditions set by the inspection body and are not interested in investing in innovative home solutions. Many companies are part of transnational chains and use technology from central operations abroad. Therefore, we focus on small, purely national food and disinfectants. Our target group is mainly companies that provide sterility in the hospital environment, manufacturers of medical equipment and foodstuffs in the meat processing industry and dairies. After successful tests, we offer our partners a long-life lyophilized product that can be easily prepared by rehydration and applied to any surface. Our current goal is to create a business plan to protect our intellectual property. For this purpose, a detailed survey of the local market or the market of surrounding countries is needed. Last but not least, it will be necessary to design the design and sustainability of product features.

Summary of recommendation(s)

Based on the demands of group representatives, we have compiled a set of recommendations that should help the successful transfer of technology from the laboratory to the market.

Recommendations:

- Prepare detailed Business plan with proofs of product efficiency
- Prepare patent application
- Create a spin-up company

- Prepare a list of all potential customers and contact them
- Investor search. Banks are the most likely and most secure investor. However, funding can also be obtained by crowd funding, by another investor or by business support.
- Popularization of the use of enzybiotics preparation by means of scientific conferences and media.

Prepare detailed Business plan with proofs of product efficiency

The first step in launching a product should be a detailed business plan. This must include evidence of effective anti-biofilm application of depolymerases or depolymerases preparations. Researchers need to prepare a detailed description of not only the product, but also description of the technology of production. In particular, this description is required to complete the patent application. Less detailed description will be needed for potential investors. The plan should also include the estimated cost of production, the estimated price of the product and the market research. A substantial part of the draft must also be the design of the product design. An important part of the plan is also the selection of the production site, the way of transporting the products, their storage and the way of obtaining the permission to transport the biological substances.

Prepare patent application

Basic research was done at university and from university resources. Researchers have a work contract statement that they will consult with the university about intellectual property protection. For this reason, the proteomic group has to offer their technology to the university that has to decide whether to use and patent the technology or leave it to scientists as individuals. If the university is interested, the researchers will remain the authors of the technology with the share and the cost of application and the patent itself will be paid by the university. Alternatively, researchers will have to bear the costs of patenting themselves. According to the patent law, patents are granted for inventions that are new, involve inventive activity, and are industrially exploitable after formal and legal research. The so-called. postponed survey, with the publication of applications after eighteen months from the date of priority. The full survey shall be conducted on application, which must be submitted no later than 36 months after the filing of the patent application. It is also possible to patent chemically produced substances and drugs. Our product is one of the chemically produced substances and drugs that is not yet on the market, according to ongoing research. It is therefore a good chance to patent the product. Due to the local specificity of the product, it is sufficient to choose the Slovak patent

Create a spin-up company

The proteomics group has conducted its initial research at the university, so it is advisable to create a spin-up company with a possible university share. In addition, the group must offer technology to the university that may decide to patent it.

Prepare a list of all potential customers and contact them

During the development of the enzybiotic mixture, the Group has established cooperation with several hospitals in regional cities, and at the same time cooperate with suppliers who, in addition to laboratory technology, also supply medical instruments. Acquired contacts can serve as a basis for a list of potential clients. Searching producers via the Internet is also a good option. Upon obtaining contacts, relevant people, and therefore quality, research and development managers as well as company traders, need to be tagged. Personal meeting with presentation of prepared business plan is optimal. It is likely that you will not directly find an investor, but you will get an idea of potential clients that you can use when looking for an investor outside the public health area.

Investor search. Banks are the most likely and most secure investor. However, funding can also be obtained by crowd funding, by another investor or by business support.

There are several possibilities for finding financial support. The first is to address state support structures (research agency, ministry of economy, etc.). Unfortunately, national support programs are mostly only promises without positive examples, and it may be that it will take a long time to fund. The second option is to reach out to banks that mostly support spin-up and start-up companies, but in this case, it is advisable to present as many details as possible and also potential clients. The third option is to get funding using crowd funding schemes. In general, a company with functional technology, low-cost production, wide market penetration and, moreover, patent application has a good chance of finding an investor

Popularization of the use of enzybiotics preparation by means of scientific conferences and media.

An important step after creating a product is its introduction on the market. The public health area is still working closely with the scientific community, and it is therefore appropriate

to present the product not only through advertising in mass media, but also at scientific conferences.

Conclusions of recommendations

Enzybiotics, specially designed and recombinant proteins can be patented, as well as their method of preparation. Such protection not only ensures uniqueness in the market but also promotes technology for investors. However, it takes a long time to approve a patent and it is therefore advisable to look for an investor already during the application. Therefore, we need to develop a detailed plan with product design and preliminary proposal to reach not only potential clients but also banks or crowd funding structures

Main steps:

- Prepare detailed plan of your business
- Prepare and apply patent application
- Market research will help to find list of clients as well as new source of pathogens for product modification.
- Using conferences and media communication, such as press briefings, announcements, providing information to the media about enzybiotics mixture, thereby increasing the likelihood of finding an investor

List of useful links

List of documents supporting the recommendation.

- https://www.smartsheet.com/communications-strategy-how-to-templates
- What can be patented https://www.indprop.gov.sk/?co-a-ako-patentovat
- Industrial Property Office of the Slovak Republic https://www.indprop.gov.sk/?contacts
- A Genetically Modified Enzybiotic Database https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0103687

Financial support for starting companies info: https://www.startitup.sk/podpora-startupov-na-slovensku-vs-v-cesku-ako-sa-starame-o-zacinajucich-podnikatelov/

Date of recommendation package

7th of February 2019

Author

Comenius University Science Park (CUSP)

42. Recommendations for a firm specializing in next-gen sequencing to extend the services offered by microbial analysis to gain new clients

New service implementation

Keywords: Next generation sequencing, microbiome analysis, service implementation

Aims of this recommendation

The aim of the recommendation package is to help in selecting and applying a new service in an already established company. One of the main tasks is market research and testing of established technology

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

Background to this recommendation package

The recommended package is designed for managers of the company for a long time dedicated to prenatal diagnosis. The company has stagnated for two years with the same product portfolio and the same customers. One of its goals was to introduce a new method and with it a new clientele. The aim of this document is therefore a recommended package that will help the company to achieve a new goal and new business opportunities. The new product design must be based on market research, financial feasibility analysis as well as a list of instrumentation and personnel costs. The company is dedicated to second generation sequencing and subsequent data analysis. This is also reflected in the staffing and equipment of the laboratories. It is therefore appropriate to find a new product that uses the existing infrastructure as much as possible. The company has long been cooperating with CUSP. The science park, as well as the university itself, are clients of the company and therefore we were approached with a request to set up a product that would suit us and be usable for other clients.

Summary description

Anonymous Company has been active in the research and development of DNA sequencing since 2006. In the long run, the company is dedicated exclusively to research and development in diagnostics, data analysis, dressing analysis, training and bioinformatics. The company has a number of successful collaborations with hospitals, universities and large nationwide diagnostic concerns. She has been a successful project promoter in the past. It was a regional development project. The aim of the project is to create a research centre, which will enable research in the field of next-generation sequencing (NGS). The results of this research can be used e.g. in clinical genetics, microbiology and virology, neonatology, oncology, pharmacology, transplantology, pathology and many others. In the past, the company has developed an innovative prenatal diagnostic test that is able to detect chromosomal aberrations. It does not need a stressful and dangerous amniocentesis for this determination, but a mother's blood collection is sufficient. Despite the fact that the test is often used, society needs to face new challenges.

The company has not yet dealt with any technology, nor has it provided a service that we could call ecological. However, thanks to our interest and recommendation, the company has introduced a new service, microbiological and microviral analysis of the environment. Part of the solution is their unique pipeline for processing sequencing data, assembling sequences and annotating them. Microbial and microviral analysis is highly needed to accurately determine the impact of pollution or other environmental impacts. From an ecological perspective, it is an effective and exact tool that government agencies and other organisations can use as evidence in the process of polluting societies. The use of this technology and the obtained data are also highly significant for research. The microbial composition is a direct image of the surrounding environment. Another microbiome occurs in a clean and healthy environment than in a contaminated environment. Moreover, it is possible to apply this analysis also in medicine, agriculture or in veterinary medicine.

We have discussed with several partner companies with whom we have been looking for suitable new technologies and economic solutions. Unfortunately, there has been no cooperation due to the lack of financial resources for research in the company. The problem in negotiating cooperation is the long-term return on costs and low interest of companies. One option was to transfer new technology from abroad, but the economic return of such a solution, especially with regard to the size of the market in Slovakia, was low to none. Our current goal is to create a market research and search for services that are not yet present on the market. In the past, in collaboration with CUSP, we have conducted several pilot microbial analyses using the next-gen sequencing. CUSP staff suggested the possible commercial use of such a service during mutual communication.

Prepare a detailed market survey focusing on using existing facilities and company personnel

The company, in collaboration with CUSP, has contacted the largest institutions on how to conduct microbial environmental studies. Similarly, we have contacted universities and several other companies. We have found that if they are investigating microbiome, they send samples for evaluation abroad because no one is providing a similar service in Slovakia. The company liked the idea of introducing its own pipeline. At the same time, this method is based on devices that they already own and the staff is flexible in terms of new knowledge.

Once you have found a service that is missing on the Slovak market, prepare a feasibility plan for implementing the technology

The feasibility plan was to identify new equipment and consumables that the company would need to purchase to implement the methodology. We have found that if we set the condition that we accept an already processed sample, like foreign service providers, we will not need almost any special material and the cost of implementing the methodology will be minimal. Similarly, staff do not need to be trained because they will use the same resources to analyse the microbiome as they do now. The last complication but the most important is the compilation of own unique pipeline for bio-infomatic sample processing. After consultation, we decided to modify the existing old pipeline and make some necessary changes. This option has proven to be the cheapest and highly effective since the proven method was only modified and its main change was to change the reference database

Provide the necessary equipment and personnel and launch pilot technology tests. Depending on the cost of each test, a pricing policy for the service is needed

CUSP has provided us with several microbiome and microvirus samples prepared for testing. At the same time, they participated in the evaluation and testing of data accuracy. By repeating the tests, we also set the price per sample, the amount of consumables and the staff needed for one analysis.

After testing, run an ad campaign targeting potential clients.

An important step after creating a product is its launch. The area of environmental cleanliness is still working closely with the scientific community, so it is advisable to present the product not only through advertising in the mass media, but also at scientific conferences. The Slovak environment is a small community, so it is often possible to present a new product in personal contact. Due to the proximity of the market in the Czech Republic and Austria, we plan to launch an ad campaign here later. One of the ways of media presentation, we have chosen also the Ecoinn Danube virtual lab.

Summary of recommendation(s)

Based on the demands of company representatives, we have compiled a set of recommendations that should help to establish new technology:

Recommendations:

- Prepare a detailed market survey focusing on using existing facilities and company personnel
- Once you have found a service that is missing on the Slovak market, prepare a feasibility plan for implementing the technology
- Provide the necessary equipment and personnel and launch pilot technology tests.
- Depending on the cost of each test, a pricing policy for the service is needed

After testing, run an ad campaign targeting potential clients.

Successful start-up companies can face the challenge of further development. If they do not enrich their product portfolio, they will eventually lose clientele, which will ultimately jeopardize their entire operations. Also, the company in our recommendation package needed to introduce a new technology. The company already had an idea of what technologies it could introduce, but it also needed a look from another environment to decide. Thanks to our recommendation, it has decided to introduce microbial analysis of the environment. The introduction of this technology has not burdened the budget because it uses the same materials and devices that they use in their normal activities. Nevertheless, it was necessary to do a market research and feasibility analysis of the introduction of technology before launching the technology. It is also important to reconsider staffing capacities in order to avoid overloading and consequent loss of personnel. If it is possible to run the technology cheaply, it is advantageous to do a few tests before the introduction of live operation. These tests will help pricing as well as set up internal processes in society. If the technology is profitable and you decide to deploy it, it's useful to run an ad campaign. The best targeted, inexpensive campaign for specific workplaces and companies that might be interested. The list of such clients should follow from the market survey we conducted at the beginning. However, new technology can also bring new clients with new requirements. These can lead to the introduction of new and even better technologies.

List of useful links

List of documents supporting the recommendation.

- https://www.projectmanager.com/templates/communications-plan-template
- Article as a result of microbiome study https://www.ncbi.nlm.nih.gov/pubmed/30346516
- Article as a result of non commercial microbiome study https://www.ncbi.nlm.nih.gov/pubmed/30051567
- The Slovak Inspectorate of the Environment https://www.sizp.sk/slovak-environmental-inspectorate/about-us

Date of recommendation package

1st of November 2018

Author

Michal Kajsik (CUSP)

43. Consultation to the new invention to put the emphasis on Intellectual Property Rights (IPRs)

Keywords: Intellectual Property Rights, energy, biofuels, patent, commercialization plan, protection

Aims of this recommendation

This type of recommendation package includes consultation about a technology with recommendations about how to move forward with commercialization.

Target group of this recommendation package

Researchers

Background to the recommendation package

This type of recommendation package aims to aid successful eco-knowledge transfer by focusing on given interactions of EcoInn Danube project partner within R&D at Brno University of Technology. The recommendation package focuses on a given issue, area or topic related to knowledge transfer. This type of recommendation package also includes technological consultations about the technology itself with recommendations about how to move forward with commercialization.

This type of recommendation package is based on consultations that are related to the specific field of expertise, carried out between the EcoInn Danube project partner - Brno University of Technology and researchers that develop and offer innovative ideas, eco-knowledge or eco-technologies.

- Parties involved: Brno University of Technology
  - Technology Transfer Office (TTO)
  - Department of Project Support (DPS)
  - Researchers
- Eco-solutions/knowledge/technology

Summary description

Technology Transfer Office provided the consultation to researchers from Brno University of Technology, Faculty of Mechanical Engineering, the Section of Processes and Environment. The researchers from the Section of Processes and Environment dedicate their work to the incineration processes in industry and energy in the long term. Combustion of fuels is not only used in the energy industry for the production of heat and electricity but is applied across all industries where heat is needed, for example for heating process materials (e.g. water, oil) or processing of materials (metallic, non-metallic).

The researchers developed a new combined oil-gas burner designed for combustion of gaseous and liquid fuels in non-standard conditions and for combustion of non-standard fuels (e.g. biofuels, vegetable oil, secondary liquid products or wastes).

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

At present, there is an increasing interest in using alternative fuels that can replace conventional fuels. Alternative eco-fuels can be deliberately manufactured (e.g. biofuels), or

they can be a secondary product (waste) of production (e.g. petrol, glycerine, etc.).

- Product or knowledge description: new combined oil-gas burner designed for combustion of gaseous and liquid fuels in non-standard conditions and for combustion of non-standard fuels.

- Purpose: Gases are commonly burnt by means of gas burner heads and nozzles having diverse constructional arrangements. Such burner heads or nozzles are mostly designed to burn a particular noble gaseous fuel. Besides that, such burner heads do not enable non- noble gases to be burnt, such as by-products from chemical and processing industries or gases originating from alternative sources (e.g. biogas, landfill gas or the like). In most cases, such gases are waste products having low and variable calorific values. Common gas burner heads are not able to ensure sufficient stability of the burning process when lean gases are burnt and an oversupply of combustion air cannot be avoided.

- Sector: biofuel, processing of biomass, decreasing of air pollution, processing secondary liquid products or wastes (e.g. gasoline from depolymerisation of plastics or alcohols from bioethanol production).

Summary of status of knowledge transfer

The new combined oil-gas burner was developed and was passed a primary measuring. The Proof-of-Concept Prototype was constructed and demonstrated the effectiveness of functionality of the primary idea.

Options and scenarios

- Legal background:

The invention belongs to Brno University of Technology (100%) according to the employee to employer relationship.

- Intellectual Property Rights (IPRs) options and scenarios:

The research of the technology patentability is carried out (e.g. novelty, prior art).

- Individual scenarios how to gain patent(s):

1. Start in the Czech Republic

Filing in a patent application form at Industrial Property Office of the Czech Republic, waiting for the high-quality full examination of the patent application up to 9 months since filling in the application, utilizing the one-year priority to extend the patent application.

2. Start in European Patent Office

Utilizing the one-year priority to extend the patent application.

3. Start with the patent application according to the Patent Cooperation Treaty (PCT) at the World Intellectual Property Organization (WIPO)

Utilizing the 30/31 months from the priority date to decide between 152 PCT contracting states to extend the patent application.

- Commercialization plan:

The commercialization plan will be elaborated (to answer the questions to what is the product or service and its advantages over competitors, who will buy it and what are their needs, the size of the market, and how much of it can you realistically cover/capture, what is your development and funding plan, and so on).

Summary of recommendation(s)

1. Carry out the research of patentability of the technology.
2. Elaborate the commercialization plan.
3. Fill in a patent application and gain the priority filing date.
4. Progress according to the commercialization plan (or business plan) to find the interested party.
5. Find the financing to commercialization activities and to extend patent protections.
6. Commercialization (license, sell the products, establish a start-up, etc.).

In-depth details / explanations of recommendations with links

Three routes to patent protection

You can apply to patent your invention in one or several countries individually or you can choose a centralized granting or application procedure such as the European or international procedure.

1. National application

If you only want to protect an invention in a few countries, you have to fill in the patent application and lead the patent processing in national languages, preferably with the local patent attorney. For multi-national protection, you need to submit a patent application with the same technical content to every country. The date of the first application is considered the priority date. The additional applications

must be submitted within the following 12 months. The priority date is then considered as the reference date for the state of the art (also known as the prior art) for all applications of this patent family. Legal frameworks, application requirements as well as examination and granting procedures vary country to country. Applying directly to the relevant national IP offices is usually cheaper, but it must be only a few countries.

If the technology has a major impact and the market is larger or worldwide, you need to choose a different route (international or territorial).

2. Territorial application, e.g. European

Through the European Patent Office, you can obtain patent protection in all member states of the European Patent Convention (EPC) – 44 states. You can save time, effort and financing (with only one application (in one of three EPO languages - in German, French or English), with one patent examination and with one patent proceeding, and one fee).

Through the European Patent Office gaining the granted patent is more expensive and if you lose the protection in one country, you lose it in all contracting states.

3. International application

If the technology has global potential, you have enough financing and need to obtain protection outside Europe, you can submit the application to the World Intellectual Property Organization (WIPO). Your invention is then provisionally protected in all contracting states of the Patent Cooperation Treaty (PCT) – 152 contracting states.

You can fill in one application in one language and gain the provisional protection for 30 or 31 months from the priority date to decide on the countries in which you want to obtain patent protection. After 30 or 31 months you have to extend the applications to selected countries (in national languages, with a local patent attorney, and under the local legal framework). International route is the most expensive and it is suitable only for high technology solution with global potential.

Conclusions of recommendations

Protect the technology by granted patent(s) and commercializing the technology.

List of useful links

- List of the relevant national legislature about Intellectual Property Rights in the Czech Republic:
  - Act No. 89/2012 Coll.1 the Civil Code
  - Act No. 121/2000 Coll.2 the Copyright Act
  - Act No. 441/2003 Coll.3 on Trademarks
  - Act No. 221/2006 Coll.4 on Enforcement of Industrial Property Rights
  - Act No. 527/1990 Coll.5 on Inventions and Rationalisation Proposals
  - Act No. 206/20006 on the Protection of Biotechnological Inventions and on the Amendment to Act No. 132/1989 of Coll., on the Protection of Rights to New Plant and Animal Varieties, as amended by Act No. 93/1996 of Coll.
  - Act No. 478/1992 Coll.7 on Utility Models
  - Act No. 207/20008 of the Protection of Industrial Designs
  - Act No. 452/2001 Coll.9 on the Protection of Designations of Origin and Geographical Indications and on the Amendment to the Act on Consumer Protection
- List of the patent attorneys:

You need to start the cooperation with the first-rate patent attorney or patent office.

E.g. Katerina Hartvichová from the HARBER IP s.r.o.

(http://www.harber-ip.cz/en/)

Michal Jordán from the PATENTENTER S.R.O.

(http://www.patententer.com/kontakt/)

Jiří Sedlák from the PatentCentrum Sedlák & Partners s.r.o.

(http://www.patentcentrum.cz/en)

More information about the patent attorneys in the Czech Republic you can find at a webpage of the Chamber of Patent Attorneys: http://www.patzastupci.cz/

- List of the Intellectual Patent Offices:

  1. Industrial Property Office of the Czech Republic (IPO CZ)

     Address: Antonína Čermáka 2a, 160 68 Praha 6, Czech Republic

     Web: http://upv.cz/en.html

  2. European Patent Office (EPO)

Address: Munich, The Hague, Berlin, Vienna, Brussels, Munich

Web: https://www.epo.org/index.html

3. World Intellectual Property Organization (WIPO)

Address: 34, chemin des Colombettes, CH-1211 Geneva 20, Switzerland

Web: https://www.wipo.int/portal/en/

Date of recommendation package

2. 1. 2019

Author

Brno University of Technology, Czech Republic

44. Recommendation for an inventor for commercialization of his invention with the accent on confidentiality

Keywords: confidentiality, Non-Disclosure Agreement, due diligence, protection, electric energy, invention

Aims of this recommendation

The recommendation package includes consultations about a technology commercialization and essential steps for property and know-how protection.

Target group of this recommendation package

Researchers

Background to the recommendation package

This type of recommendation package aims to aid successful eco-knowledge transfer by focusing on given interactions of EcoInn Danube project partner within R&D at Brno University of Technology. The recommendation package focuses on a given issue, area or topic related to knowledge transfer. This type of recommendation package also includes technological consultations about the technology itself with recommendations about how to move forward with commercialization.

This type of recommendation package is based on consultations that are related to the specific field of expertise, carried out between the EcoInn Danube project partner - Brno University of Technology and researchers that develop and offer innovative ideas, eco-knowledge or eco-technologies.

- Party: Brno University of Technology
  - Technology Transfer Office (TTO)
  - Department of Project Support (DPS)
  - Researchers
- Eco-solutions/knowledge/technology

Summary description

The background of the case deals with a special cover cooled or resp. heated air flow through an integrated battery fan for electric cars. The scientist currently has a prototype of the invention. The first result shows energy savings in cold start of a car and the cooling mode as a suitable method in summer days when overheating of batteries threatens. The scientist approached Technology Transfer Office in his university with the question how to protect his idea.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

- Optimal electric car battery cooling
- Electric energy savings
- Better starts in case of cold whether

Summary of status of knowledge transfer

Currently undergoing Czech patent proceedings. The university (technology transfer staff) are now deciding whether to extend the patent in other territories in the future. Publicity and promotion on the Internet will take place after getting the patent.

The invention may be offered to producers of electric cars or producers of batteries for these cars.

Options and scenarios

The innovation targets specifically at automotive industry, which is a highly closed market segment from the point of view of a producer. Therefore, a spin-off company will not have a chance to penetrate the market. Other options for commercialization is a sale of the IP rights or a license agreement.

The prototype provided good results in the first test and this data are very promising. The invention is ready to be offered to industry. The invention has not yet been published despite the priority application in place, which gives three options:

1) To widely disseminate and promote the invention using all channels in hopes the companies will react and a licensing deal will be negotiated.

2) To keep the invention secret until the patent is eventually published and approach a carefully chosen producer with a pitch. Given the overall circumstances of this case, I believe this is the right option.

Approaching potential partners individually makes sense in more respects. If the deal is made quickly, the producer gains precious time ahead of competition, which is an added value. If the solution is published, the producers may rather start looking at how to overcome the patent protection than negotiating with a university for a license. It is also possible that after discussions with the industry partner you will reach the conclusion that the invention is best to be perfected further - maybe agree on a research collaboration from which a new patent would arise, in which case it could even be strategic to take back the priority patent application entirely!

Summary of recommendation(s)

- Create a commercialization plan. By creating a commercialization plan, we can map the market and set the price of the invention for potential customers.
- Decide where to extend Czech patent.

In-depth details / explanations of recommendations with links

You are selling know-how, which is extremely difficult to do, if you cannot say what it is you are selling. But when you tell them, they will say thank you and go do it on their own (even better).

Actually, it comes to the same steps as always, make a solid commercialization plan with a market analysis and a valuation of the invention. Find out who your clients are and how to approach them. Create a brilliant pitch. Choose one of them and go offer them the invention. JUST you have to be very careful when speaking about the invention, to whom, what do you say and on what conditions.

Educate your team. Everybody should know that you are dealing with confidential, secret information and if anybody talks you all lose money. Make sure you have appropriate clauses about confidentiality in place in employment contracts with your employees. Above all else, the inventor needs to be disciplined because university scientists tend to free exchange of knowledge and are happy to explain how their inventions work to anybody who listens. This also includes inside rules and training on (IT and physical) safety measures in your organisation; you are now in a category similar to business secrets and the largest organizations have internal rules on how to handle such type of information.

Make the pitch without explaining how it works. In the pitch and any material that is to be presented, orally, in writing or as a demonstration, never include any technical description. Simply don’t say how it works. Concentrate on what it does and how that could be of use to the customer. When you are asked follow up questions, stick to the benefits, the data from the test, how much the company could save using it. If a demonstration is absolutely necessary, make the demonstrator a black box so not even an engineer professor would be able to know the principles of the invention. It is best not to let the inventor make the pitch, because for the inventor it is very hard not to let information away, for other people it is easier because they are used to expressing themselves in non-technical words and even may not have a complete understanding of the invention (they can’t say what they don’t know). To get a positive feedback of interest, no technical data is in fact needed, either the producer is interested in saving money with your help, or they aren’t.

Perform due diligence. This step is even more important with selling know-how than in any other case. Find out all you can about the company you plan to make the pitch to. Google them, ask around on social networks and among your contacts. After your pitch, if you feel their aggressive questioning is beyond natural curiosity and they do not accept that you are not ready to say more in this stage, do not answer and run away (to find other company). Be extra

careful with companies from countries with bad reputation of stealing intellectual property.

Sign a Non-disclosure agreement (NDA). If everything is going well, the communication flows and it is time to say more, first step is to sign an NDA to make a legal commitment of the potential buyer to keep your invention confidential. The structure of an NDA is quite standardized, it identifies the parties (the Disclosing party and the Recipient; the NDA can also be two-way and with both parties in the role of the Disclosing party) and may state the context of the agreement, which is the pre-contractual exchange of information, discussing a possibility of collaboration or similar. The information that is to be confidential cannot of course be included, but is specified as a category of information relating to a certain technology. There are two approaches how to define confidential information:

- formal – confidential is what is thus marked when disclosing the information; on written materials, labels like secret or confidential are used, when disclosing information orally, a statement is usually made and later confirmed what was told in writing,
- material – all information, that is exchanged in the said context is confidential (sometimes with a clarifier, the information which would any prudent person find confidential, which does not really clarify much) and is up to the Recipient to prove that it is not in fact so.

Both approaches have advantages and disadvantages and is up to the disclosing party to choose the better for its situation or the one which it is more used to. Next, the NDA says what you can (or more typically, what you must not) do with received confidential information. In this stage, it is only appropriate for the other party to use the information for evaluation whether they want to proceed further in the negotiations of a deal. The NDA should state a prohibition of using the information to any other purpose, e.g. patent it, research it further or use it to make products. To reflect the normal functioning of the World, NDAs usually contain exceptions for information that has entered the public by other means, which must be disclosed by order of the law and similar situations. For the agreement to have proper force, include provisions to be activated when the Recipient breaks the confidentiality. The usual consequence is for the party to stop breaking the agreement and pay for your damages. Unfortunately, in case of know-how, the offense usually is a one-time thing and a publication cannot be taken back, the value is lost (here you are in advantage because you have a patent application filed, which is a great thing if it can be done). Damages are entirely indirect and are hard both to prove their existence and to quantify. Best you can do are monetary penalties high enough to deter the company to steal from you. Finally, it is important to make sure you can reach to justice if the need comes, that is to choose a governing law and a way to settle disputes. Arbitrations are generally recommended for their quick work and private setting.

The next steps are standard, such as using the term sheet to help in negotiations, negotiate a win-win deal and prepare a license agreement with the help of lawyers.

Conclusions of recommendations

Educate your team on confidentiality, completely avoid pitching technical details of the invention, make all disclosures under an NDA and perform due diligence.

Annex

Sample of a non-disclosure agreement (NDA)

Date of recommendation package

15. 2. 2019

Author

Brno University of Technology, Czech Republic

NON-DISCLOSURE AGREEMENT

This Agreement is concluded by and between

University XY, …(hereinafter referred to as „University“ or “Disclosing Party”)

and

Company ABC, …(hereinafter referred to as “ABC” or “Receiving Party”)

WHEREAS, the University holds certain intellectual property in the area of … and seeks a partner from the business sector to help to commercialize this intellectual property;

WHEREAS, ABC is a company active in the area of… and is interested in exploring the possibility of utilizing intellectual property of the University in creating new products;

WHEREAS, the parties hereto wish to discuss the possibility of a licensing scheme, research and development collaboration or other form of commercialization opportunity (the “Business opportunity”); and

WHEREAS, the University has agreed to disclose or may disclose certain Confidential Information (as hereinafter defined) pertaining to its intellectual property on a strictly confidential basis and on terms and conditions set out below;

NOW THEREFORE, the parties agree as follows:

Definitions

“Confidential Information” shall mean any Confidential information of the Disclosing Party whether it is written or oral, tangible or intangible.

The confidentiality obligations of this Agreement shall not apply to any information which (a) is already in the public domain through no breach of this Agreement; (b) was lawfully in the Receiving Party’s possession prior to receipt from the Disclosing Party, as can be evidenced in written records; (c) is received by Receiving Party independently from a third party free to lawfully disclose such information to Receiving Party; or (d) is independently developed by Receiving Party without use of the Confidential Information, as can be evidenced in written records. Confidential Information shall not be deemed to be in the public domain merely because any part of the Confidential Information is embodied in general disclosure or because individual features, components or combinations thereof are now or became known to the public.

The Receiving Party shall have the burden of proof in establishing any of the above mentioned exceptions.

Third Parties mean any company, association, group, or person other than parties to this Agreement.

Restrictions

All Confidential Information delivered pursuant to this Agreement (a) shall not be copied, distributed or disseminated in any way or form by the Receiving Party without the prior written consent of the Disclosing Party; (b) shall be maintained in confidence and may only be disclosed to those employees and consultants of the Receiving Party or its Affiliates who have a need to know. Any such disclosure to third parties shall be conditioned upon obtaining in advance the written approval from Disclosing party. All persons of the Receiving Party shall sign confidentiality undertakings when they commence cooperation with the Receiving Party (c) shall not be used by the Receiving Party for any purpose other than the purposes of its evaluation of the Business opportunity, without the prior written consent of the Disclosing Party; and (d) shall remain the property of, and be returned to, the applicable Disclosing Party all Confidential Information and all embodiments thereof then in its custody, control or possession (along with all copies thereof) within thirty (30) days of receipt by the Receiving Party of a written request from the Disclosing Party that sets forth the Confidential Information to be returned or the termination of this Agreement.

The Receiving Party agrees to retain the Confidential Information of the Disclosing Party in strict confidence and to exercise towards it at least the same degree of due care and protection that it takes to safeguard its own Confidential Information.

Should the Receiving Party receive a request of disclosure of the Confidential Information from court or the competent authorities, the parties hereto shall consult faithfully in advance and the Receiving Party may not disclose any Confidential Information without such consultation.

Without derogating from the above, the Receiving Party shall advise the Disclosing Party as soon as it is informed or becomes aware of its duty to disclose such Confidential Information in order to enable the Disclosing Party to take whatever steps it deems necessary to protect its interests in this regard.

Nothing in this Agreement shall be construed as granting to the Receiving Party any rights by license or otherwise, express or implied, to or in any of the Disclosing Party's patents, unpatented inventions or other intellectual property. No representation or warranty is made by the Disclosing Party with respect to information disclosed.

The Receiving Party shall be liable to Disclosing Party for any and all damages suffered by Disclosing Party arising out of or in relation to any breach of the Receiving Party's undertakings herein. The Receiving Party understands that any violation of this Agreement may cause immediate and irreparable harm to the Disclosing Party which monetary damages cannot adequately remedy. Without prejudice to rights and remedies available to the Disclosing Party, Receiving Party agrees that injunctive relief may be sought against it, in order to remedy, or to prevent a violation hereof.

Nothing herein (including the exchange of Confidential Information hereunder) shall be deemed as obligating the parties to enter into any business relationship with respect to the Project or otherwise.

This Agreement consists of the entire agreement and understanding between the parties with respect to the subject matter hereof and supersedes all prior written or oral agreements with respect hereto. This Agreement may not be modified except by written instrument signed by a duly authorized representative of each party hereto.

Duration

Unless mutually agreed otherwise in writing, the Receiving Party's obligations hereunder with respect to each item of Confidential Information shall remain in force and effect for indefinite time period.

Shall the Receiving Party break any of the duties stated in this Agreement this Party is obliged to pay to the Disclosing Party a contractual fine in the amount of EURO 10.000 (ten thousand EURO) within 30 days since having obtained the written notice issued by the Receiving Party. Creation of right of contractual fine payment or settlement does not eliminate the right to damage compensation.

This Agreement is governed by and construed in accordance with the laws of Czech Republic. All disputes arising out of this contract or related to its violation, termination or nullity shall be finally settled under the rules of Czech legal system by the competent court. The language of the court procedure will be Czech.

University	Company
By_____	By_____
Title_____	Title _____
Date_____	Date_____

45. Recommendation for an inventor to commercialize the invention through licensing

Keywords: Invention, licensing, commercialization, protection, term sheet, valuation, license agreement, ventilation turmoil

Aims of this recommendation

The recommendation package is based on a consultation that is related to a specific field of expertise. It focuses on knowledge transfer options and further discusses the option of licensing.

Target group of this recommendation package

Researchers

Background to the recommendation package

This type of recommendation package aims to aid successful eco-knowledge transfer by focusing on given interactions of EcoInn Danube project partner within R&D at Brno University of Technology. The recommendation package focuses on a given issue, area or topic related to knowledge transfer. This type of recommendation package also includes technological consultations about the technology itself with recommendations about how to move forward with commercialization.

This type of recommendation package is based on consultations that are related to the specific field of expertise, carried out between the EcoInn Danube project partner - Brno University of Technology and researchers that develop and offer innovative ideas, eco-knowledge or eco-technologies.

- Party: Brno University of Technology
  - Technology Transfer Office (TTO)
  - Department of Project Support (DPS)
  - Researchers
- Eco-solutions/knowledge/technology

Summary description

The background of the case deals with the optimal shape of the ventilation turmoil designed for circulating the outflow of the apartment house regulating the mass flow. The scientist currently has a series of measurements containing data with more than two years of operation. Data show annual savings for both electricity and heat losses. The scientist approached technology transfer staff of the university with the question of the possible commercialization of his invention.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

- Optimal ventilation turmoil designed
- Energy savings
- High network of potential customers
- Residential/panel houses (civil engineering)
- Money saving/ecological way

Summary of status of knowledge transfer

Currently undergoing European patent proceedings.

Companies with a potential interest are being sought-after.

Publicity and promotion on the Internet will take place in the near future.

Options and scenarios

Knowledge transfer options:

- Sale of the invention.
- Licensing the invention.
- Setting up a spin-off company.

The best option for commercialization of this invention appears to be licensing, which is the best compromise of risk and revenue and suits best the given circumstances (the eco-innovation may be easily replicated without very specific scientific knowledge, the inventor is not interested in entering the business world himself). The focus should be on finding a potential licensee, capturing its interest by a good pitch and negotiating fair terms for the deal. If the potential candidate is found, the license agreement will be prepared and implemented.

Summary of recommendation(s)

- Create a commercialization plan.
- Valuate the invention.
- Make a pitch, promote the invention.
- Perform due diligence
- Create a term sheet.
- Draft a licensing agreement.

In-depth details / explanations of recommendations with links

Create a commercialization plan. By creating a commercialization plan, we can map the market and set the price of the invention for potential customers. The plan should provide a market analysis that would enable to shortlist potential licensees on the relevant market (considering the patent protection), research the options of how to address them (where do I get in touch, do I have a contact in the firm, do I seek a meeting on an event, on which events should I present the invention?...). Make a plan of activities to do to reach your end and plan your budget. Consider possible risks and hurdles. Realize the plan, update it if necessary.

Make an attempt at valuation of the invention - what can you ask for it, what should be the royalty rate? Consider all aspects affecting the price of the license, such as exclusivity, field of use, strength of the patent protection etc. There are no exact calculations which can provide a definite number, or, more precisely, the exact calculations work with input data such as estimated future sales and risk assessment, which are always only as good as the source, sometimes the market data are impossible to get and the best you can do is an expert guess (there are not that many Sibyls among valuation experts, whatever they may tell you). Comprehensive insight into this theme is available here or here.

Promote the invention. Create a presentation and work on your pitch (very short presentation to capture the attention of a businessman). Make sure to base in on the unique selling proposition – why does the licensee need it, what is the one thing that makes it better than competition. Study how to make a good pitch e.g. here. Publish the invention by suitable channels to promote it after patent process (the patent application will be published after 18 months). If you want to publish the invention earlier, weigh the risks versus benefits and never publish an invention without a non-disclosure agreement in place if you have not yet filed a patent application. Be segment specific, find out how information of this sort spreads in the business circles you are targeting on.

Address potential partners outside the Czech Republic in order to select countries where the knowledge will be protected by patent. It is very convenient to establish licensing partnership as soon as possible to reduce patenting costs and cover the strategic countries by your patent.

Perform due diligence. If you find an interested party, find out all you can about them. Research public sources and don't hesitate to ask around. Look for signs of financial difficulties or bad reputation. It is no good making a great deal on paper and later realizing that the licensee is going bankrupt or lying to you about actual sales and cheating on royalties.

Create a term sheet. A term sheet is a non-legal document listing the key conditions of a license deal. What precisely is to be licensed (patent or even some unpublished know-how?), in which countries, what is the field of use, are sublicenses allowed, how is the price to be structured (lump sum, royalties or combination of both), who is to bear the patenting costs are the typical points to be covered. It is far easier to discuss terms than to argue about clauses in the full agreement. An example of a term sheet template is in the annex to this recommendation.

Negotiate a deal. If you are a university inventor, leave this to the technology transfer office, they are on your side and will usually fight like lions to get good terms. If you are not sure about doing this step yourself, it is ok and then it is better to get help. It takes a skilled negotiator to do a good job, it is, to a great extent, about how good a psychologist you are. If the people are disciplined and on the same page, it is also possible to make a team where the inventor holds technical information and somebody else does the bargaining itself (whatever you do, never disagree in front of your negotiating opponent, get a timeout, if you need to discuss something in private). Strive for win-win solutions wherever possible, the licensing relationship is long term and the conditions must be good for both sides, otherwise the business will not do well, both parties will be losing money and time and, in best case, you will have to re-negotiate very soon. For inspiration how complex a negotiation may be, read here.

Draft a license agreement. Here you should let lawyers do the actual work. Make sure you hire a lawyer who specializes in intellectual property, some patent attorneys can also do this kind of job well. A sample license agreement is in the annex to this recommendation.

Conclusions of recommendations

Choose a commercialization strategy based on qualified analysis of the invention, the market and the ensuing business opportunity, then draft a plan what is to be done. Think of the price. Follow through your plan and find yourself a good licensee. Negotiate good terms and get professional help with drafting the license agreement.

Annexes

(currently in confidentiality mode, no information on the technology can be given)

- term sheet template
- license agreement sample

Date of recommendation package

15. 2. 2019

Author

Brno University of Technology, Czech Republic

LICENSE AGREEMENT

between

… (hereinafter referred to as "the Licensor")

and

… (hereinafter referred to as "the Company")

WHEREAS:

(A) The Licensor has created and developed a secret and substantial body of confidential information relating to … *(name of the technology)* and is the owner of the Patents and Know-How;

(B) The Company wishes to use and exploit the Patents and Know-How in the Field; and

(C) The Licensor has agreed to grant to the Company an exclusive license to use and exploit the Patents and Know-How in the Field, on the terms and conditions set out in this Agreement.

THE PARTIES AGREE as follows:

1. **DEFINITIONS AND INTERPRETATION**

In this Agreement (including the recitals), unless the context otherwise requires, the following words and expressions shall have the meanings set out here in the definitions clause:

Field means the field of … *(field of the industry, usually the field in which the company operates)*;

Improvements means all improvements, modifications, adaptations to or new uses or applications of the Patents and/or Know-How but excluding any improvements, modifications, adaptations or new uses or applications which are separately patentable or which are the subject of an obligation of confidentiality owed to a third party;

Know-How means the various techniques, methods, skills and all technical information, data, notes, reports, and other knowledge of a secret and confidential nature relating to the Patents now in the possession of the Licensor;

Net Sales Income means the gross income received by the Company in respect of Sales, less any sales or excise taxes payable thereon, credits, returns, charges for freight and insurance charges relating to damage to the Products in transit;

Patents means the patent applications details of which are set out in the Schedule, any other patent applications filed by the Licensor which claim priority from the patent applications referred to in the Schedule, any patents granted pursuant to the patent applications referred to in the Schedule and any patent applications claiming priority therefrom, and any reissues, extensions, substitutions, continuations, divisions, continuation-in-part applications and supplementary protection certificates based on and including any subject matter claimed or disclosed in any of the aforementioned patent applications and/or patents;

Products means any products obtained or derived directly or indirectly from or utilising the Patents, the Know-How and/ or any Licensor Improvements;

Territory means … *(name the countries where the technology may be used)*;

Sales means any sale or other disposal of Products by the Company and **Sold** shall be construed accordingly;

Schedule means the schedule annexed to and which will be deemed to form part of this Agreement;

Accounting Period means the period of six (6) months commencing on the effective date of this Agreement and each subsequent period of six (6) months during the period of this Agreement.

1.2 Words denoting the singular include the plural and vice versa, words denoting a gender include all genders, and words denoting persons include corporations and all other legal entities.

2. **DURATION**

2.1 This Agreement will commence on the effective date and subject to earlier termination under Clauses 11 or 13, the licenses granted hereunder will continue in full force and effect for a period of 10 (ten) years or until the expiry of the Patents, whichever is later:

2.1.1 in relation to the Patents, on a country by country or territory by territory basis (as appropriate) until the later of the date on which all of the patent applications comprised within the Patents have been finally rejected by the patent office in the relevant country or territory, or the date on which all of the Patents have been held invalid or are abandoned in the relevant country or territory, or the date of expiration of the last to expire of the Patents in the relevant country or territory; and

2.1.2 in relation to the Know-How, 10 (ten) years from the date on which Products are first put on the market in the Territory by the Company.

This Agreement may thereafter be extended for a further period or periods by the written agreement of both parties.

3. GRANT OF LICENSE

3.1 The Licensor hereby grants to the Company, and the Company hereby accepts, an exclusive royalty bearing license to use the Patents and the Know-How in the Territories for the purpose of developing, manufacturing, distributing and selling Products in the Field on the terms and conditions contained in this Agreement. The Company shall only be entitled to sublicense the use of the Patents and the Know-How if it obtains the prior written consent of the Licensor.

3.2 The Licensor will not during the period of this Agreement grant a license to use and exploit the Patents and Know-How in the Field in the Territories to any third party.

3.3 Nothing contained in this Agreement shall prevent the Licensor from using the Patents, Know-How for any internal academic purpose or for conducting research.

4. SUPPLY OF KNOW-HOW

4.1 The Licensor will during the period of this Agreement deliver to the Company the Know-How in written form in sufficient detail to enable the Company to use the Patents for the purpose of developing, manufacturing, distributing and selling Products in the Field.

5. COMMERCIAL EXPLOITATION

5.1 The Company will at all times during the period of this Agreement use all reasonable endeavours to commercially exploit the Patents and the Know-How in the Field in the Territories to the fullest extent.

5.2 The Company will not at any time sell, lease, hire or otherwise dispose of Products for a non- monetary consideration or other than at normal commercial rates.

5.3 The Company will at all times comply with all legislation, rules, regulations and statutory requirements applying to and obtain any consents necessary for its use of the Patents, Know-How in any country or territory.

6. FEES/ROYALTIES

6.2 In consideration of the rights granted to it under this Agreement, the Company will pay to the Licensor royalties at the rate of per cent (%) of Net Sales Income generated in each Accounting Period, in the manner specified in Clauses 6.2 to 6.10.

6.2 The Company will pay all royalties due to the Licensor in respect of each Accounting Period within thirty (30) days of the end of the relevant Accounting Period. All payments of royalties to the Licensor will be accompanied by a written statement showing the following:

6.2.1 the number of Products sold by the Company during the relevant Accounting Period;

6.2.2 the Net Sales Revenue generated during the relevant Accounting Period; and

6.2.3 the royalties due to the Licensor for the relevant Accounting Period.

6.3 All sums payable under this Agreement are expressed exclusive of any Value Added Tax which may be due thereon and for which the Company shall be additionally liable.

6.4 All royalties and other sums payable under this Agreement will be paid in *…(fill in a currency)*, and if any royalties are calculated in a currency other than …, they will be converted into … at the average of the … Bank average buying and average selling rates in respect of that currency during the Accounting Period in respect of which the royalties are due.

6.6 The Company will at all times keep true and accurate records of all sales of Products during the period of this Agreement in sufficient detail to enable the amount of royalties or other sums payable to the Licensor under this Agreement to be calculated. The Company will allow the Licensor or its authorised agents on giving reasonable notice access to inspect and take copies of such records for the purpose of verifying the amount of royalties due to the Licensor under this Agreement.

6.7 If at any time following an inspection pursuant to Clause 6.6 the Licensor reasonably believes that the Company has not paid to the Licensor the correct amount of royalties due to the Licensor under this Agreement, the Licensor may by serving a written notice upon the Company require the Company to obtain and submit to the Licensor within thirty (30) days of the date of the written notice a statement prepared by the Company's auditors of the true amounts due to the Licensor under this Agreement. If it is established that the amount of royalties paid to the Licensor in respect of any Accounting Period is less than the amount of royalties properly payable to the Licensor in respect of the relevant Accounting Period, the Company will within seven (7) days of the date of submission of the statement referred to in this Clause pay the shortfall to the Licensor. Any overpayment of royalties will be credited against any royalties due in the following Accounting Period.

6.8 If the statement referred to in Clause 6.7 establishes that the amount of royalties properly payable to the Licensor in the relevant Accounting Period is five per cent (5%) or more greater than the amount of royalties actually paid to the Licensor in the relevant Accounting Period the Company shall bear the costs of obtaining the statement and shall reimburse the Licensor for all costs and expenses reasonably incurred by the Licensor in making the inspection pursuant to which the underpayment is discovered. In all other circumstances the Licensor shall reimburse the Company for any costs and expenses reasonably incurred by the Company in obtaining the relevant statement.

6.9 All payments due to the Licensor under this Agreement will be made without any set-off, deduction or withholding except as may be required by law. If the Company is required by law to make any deduction or to withhold any part of any amount due to the Licensor under this Agreement, the Company will give to the Licensor proper evidence of the amount deducted or withheld and payment of that amount to the relevant taxation authority, and will do all things in its power to enable or assist the Licensor to claim exemption from or, if that is not possible, to obtain a credit for the amount deducted or withheld under any applicable double taxation or similar agreement from time to time in force.

6.10 The provisions of this clause 6 will remain in full force and effect following termination of this Agreement for whatever reason until settlement of all subsisting claims of the Licensor under this Agreement.

7. **CONFIDENTIALITY**

7.1 The Company will not at any time during the period of this Agreement or at any time thereafter disclose or use, or permit to be disclosed or used, the Know-How or any other information of a confidential nature which the Licensor may disclose to the Company during the period of this Agreement (including but not limited to information relation to the Licensor‘s business or scientific strategies, opportunities, finances or processes) to any third party or to any of its employees who are not directly and necessarily involved in developing, manufacturing, selling or distributing the Products without the Licensor’s prior written consent. The Company will ensure that its employees to whom the Know-How and/ or any other information as referred to above is disclosed are made aware of the confidential nature thereof and comply at all times with the terms of this clause 7.

7.2 The Company will take all practicable steps whilst the Know-How is in its possession to prevent access to the Know-How by any person not so entitled under this Agreement.

7.3 The obligations contained in this clause will not extend to any information which the Company can show by written evidence:

7.3.1 is or becomes generally available to the public otherwise than by reason of a breach by the Company of the provisions of this clause; or

7.3.2 is known to the Company and is at the relevant party’s free disposal prior to its receipt from Licensor; or

7.3.3 is subsequently disclosed to the Company without obligation of confidence by a third party owing no obligation of confidentiality to the Licensor in respect thereof; or

7.3.4 legally requires to be disclosed.

7.4 The rights and obligations of the parties under this clause will survive termination or expiry of this Agreement.

8. **WARRANTIES AND INDEMNITIES**

8.1 No warranty is given by the Licensor in relation to the Patents, the Know-How or the uses to which they may be put by the Company or their fitness or suitability for any particular purpose or under any special conditions notwithstanding that any such purpose or special conditions may be known to the Licensor. The Company hereby acknowledges that it has satisfied itself in relation to the foregoing matters. All conditions and warranties, express or implied, arising under statute or common law are hereby excluded.

8.2 The Company hereby warrants to the Licensor that:

9.2.1 it has the full power and authority to enter into and to perform its obligations under this Agreement; and

9.2.2 it will at all times observe and comply with the terms of this Agreement.

8.3 The Company shall and hereby agrees to indemnify the Licensor in full in respect of any loss, liability, damage, loss or expense (excluding indirect or consequential losses, special damages and loss of profit) incurred or suffered by or imposed upon the Licensor, whether arising by way of a claim made by a third party or otherwise, as a result of or in connection with a breach by the Company of the warranties given by it under this Clause 8 or as a result of or in connection with use of the Patents, the Know-How by the Company or in relation to any Product developed, manufactured, sold or distributed by the Company.

8.4 The indemnity given by the Company under Clause 8.3 will not apply to any liability, damage, loss or expense to the extent that it is directly attributable to the negligent act or omission, reckless misconduct or intentional misconduct of the Licensor or its employees and agents.

8.5 Each party agrees that if it is notified by a third party of any claim or potential claim arising as a result of or in connection with the use of the Patents, the Know-How by the Company or in relation to any Product developed, manufactured, sold or distributed by the Company, it will:

9.6.1 forthwith inform the other party of such claim or potential claim;

9.6.2 take all reasonable steps to prevent judgement by fault or by default being granted in favour of that third party;

9.6.3 ensure that the other party is given the right to conduct proper consultations with the third party in relation to the claim or potential claim; and

9.6.4 if appropriate, allow the other party to join in the defence (including but not limited to settlement, litigation or appeal) of any claim.

If reasonably requested by either party the defence to any such claim will be jointly conducted by the Licensor and the Company.

8.6 The rights and obligations of the parties under this clause will survive the termination of this Agreement.

9. **PATENT PROTECTION AND INFRINGMENT**

9.1 The Licensor will during the period of this Agreement be responsible for prosecuting the patent applications comprised within the Patents and maintaining the Patents in the countries specified in the Schedule and will ensure that all filing and renewal fees necessary to prosecute and maintain the Patents in the countries specified in the Schedule are timeously paid. Notwithstanding the foregoing, the Licensor will have sole discretion in relation to any decision which requires to be taken with regard to prosecution and/or maintenance of the Patents, including any decision relating to removal of any country from the scope of the Patents or abandonment of any patent application comprised within the Patents or amendment of any claims comprised within any such patent applications.

9.2 The Company shall reimburse the Licensor on demand in respect of (and on the Licensor's request provide the Licensor with reasonable security for) the costs, fees and expenses applicable to the Field incurred by the Licensor in prosecuting and maintaining in force the Patents during the period of this Agreement.

9.3 The Company may at any time during the period of this Agreement by serving three (3) months prior written notice on the Licensor elect to discontinue reimbursing the Licensor for the costs, fees and expenses incurred by the Licensor in prosecuting and maintaining in force any of the patent applications and/ or patents comprised within the Patents.

9.4 If a notice is served on the Licensor by the Company under clause 9.3, the Company's obligations pursuant to clause 9.2 and the Licensor's obligations pursuant to clause 9.1 in respect of the relevant patent application and/ or patent shall terminate upon expiry of the notice period referred to in clause 9.3 and the Company shall no longer have any right to use the relevant patent applications and/ or patents for any purpose whatsoever from such date.

9.5 Each party will notify the other party of any actual, threatened or suspected infringement of any of the Patents; proceedings commenced against it in which the validity or ownership of any of the Patents is challenged; and actual, threatened or suspected breach of confidentiality relating to the Know-How, as soon as reasonably practicable after it becomes aware of such matters. The parties will meet reasonably promptly following notification of any matter under this clause to decide what action, if any, should be taken in respect of the relevant infringement, challenge or breach.

10. **TERMINATION**

10.1 The Licensor may terminate this Agreement forthwith by giving written notice to the Company if:

10.1.1 any fees, royalties or other sums payable by the Company under this Agreement remain unpaid thirty (30) days after the due date for payment thereof; or

10.1.2 at any time during the period of this Agreement the Company directly or indirectly opposes or assists a third party to oppose the grant of any patent pursuant to any patent application comprised within the Patents or disputes or directly or indirectly assists a third party to dispute the validity or ownership of any patent comprised within the Patents or any of the claims thereof.

10.2 Each party may terminate this Agreement forthwith by giving written notice to the other party if:

10.2.1 the other party commits a material breach of any of the terms of this Agreement and, if the breach is capable of remedy, fails to remedy it within thirty (30) days after being given a written notice containing full particulars of the breach and requiring it to be remedied; or

10.2.2 an order is made or a resolution is passed for the winding-up of the other party except in the case of a voluntary winding-up for the purposes of a scheme of reconstruction or amalgamation the terms of which have previously been approved in writing by both parties; or

10.2.3 an administration order is made, or a petition for such an order is presented, in respect of the other party; or

10.2.4 a Receiver (or Administrative Receiver) is appointed in respect of the other party or all or any of its assets; or

10.2.5 any voluntary arrangement is proposed under Section 1 of the Insolvency Act 1986 in respect of the other party.

10.3 For the purposes of this clause, a breach will be considered capable of remedy if the party in breach can comply with the provision in question in all respects other than as to time of performance (provided always that time of performance is not of the essence).

10.4 Following expiry or the lawful termination of this Agreement, the Company will:

10.4.1 immediately return all copies of any confidential documents provided by the Licensor to the Company pursuant to this Agreement to the Licensor;

10.4.2 for so long as the Patents remain in force and the Know-How and any Licensor Improvements remain secret and confidential, cease using the Patents, the Know-How and/ or any Licensor Improvements in any manner whatsoever except that the Company may, for a period of six (6) months after the date of expiry or termination of this Agreement and subject to payment of the appropriate royalties under Clause 6, continue to distribute and sell any unsold stocks of the Products; and

10.4.3 within thirty (30) days of the expiry of the six (6) month period referred to in clause above 10.4.2 calculate and pay to the Licensor all outstanding sums due under this Agreement up to the date of expiry or termination hereof.

11. **GENERAL**

11.1 Neither party shall be entitled to assign or transfer any of its rights or obligations under this Agreement without the prior written consent of the other party, such consent not to be unreasonably withheld or delayed.

11.2 Nothing contained in this Agreement shall be deemed to constitute or imply any partnership, joint venture, agency, fiduciary relationship or other relationship between the parties other than the contractual relationship expressly provided for in this Agreement. In the performance of this Agreement, the status of each party including its employees and agents shall be that of independent contractor and not of employee, agent or fiduciary of the other party. Neither party shall have, nor represent that it has, any authority to make any commitments on behalf of the other party.

11.3 No failure or delay by either party in exercising any right or remedy under this Agreement shall operate as a waiver of such right or remedy nor shall any single or partial exercise or waiver of any such right or remedy preclude its further exercise or the exercise of any other right or remedy.

11.4 This Agreement constitutes the entire understanding between the parties with respect to the subject matter hereof and supersedes and replaces all prior agreements, understandings, representations, writings and discussions between the parties whether written or oral in relation hereto.

11.5 If any of the provisions of this Agreement are or become invalid, or are ruled illegal by any court of competent jurisdiction, or are deemed unenforceable under then current applicable law from time to time in effect during the period of this Agreement, it is the parties' intention that the remainder of this Agreement will not be affected thereby provided that

the parties' rights under this Agreement are not materially altered. It is further the parties' intention that in lieu of each such provision which is held to be invalid, illegal or unenforceable, there will be substituted or added as part of this Agreement a valid, legal and enforceable provision which in effect will be as similar as possible to the effect of the original invalid, illegal or unenforceable provision.

12. **APPLICABLE LAW**

12.1 This Agreement will be governed by and construed and interpreted in accordance with the laws of … and the parties hereby prorogate to the exclusive jurisdiction of the …Courts.

IN WITNESS WHEREOF these presents, consisting of this and the eleven preceding pages together with the Schedule annexed hereto have been executed by the parties as follows:

For Licensor: For Company:

Schedule of documents for the purposes of patent protection

The Patent Applications

	LICENSE TERMSHEET	
	Parties	**… as Licensor** **… as Licensee**
	Scope	license to manufacture and market …(name of the technology)
		limited for the use in … industry / unlimited scope
		geographic limitation: none / list respective countries
		exclusive / non-exclusive
		if exclusive, includes the right to sublicense: yes / no
	Consideration (price of the license)	lump sum / royalties / combination thereof (in case of royalties, specify the calculation method and reporting and auditing)
		price? to be valued by professionals
	IP Management	who will maintain the patent
		who will bear the costs of eventual registration of the licence with national patent offices
	Assistance/transfer	technical help with manufacturing process (paid in addition to the license fee) – yes / no (if yes, specify details, where, who, how many hours…
	Representations and warranties	(do NOT warrant suitableness for any purpose)
	Liability	limit liability to the amount of received consideration no damages for lost profits (indirect damages)
	Confidentiality/ Publications/ Use of name	(what is not published in the patent or elsewhere should remain secret know-how)
	Term	until the expiration date of the patent, unless terminated before
		withdraw on the grounds of fundamental breach of contract
	Governing law and jurisdiction	the law of the licensor's country WIPO mediation and arbitration
	Other	(invoicing, communication, no partnership, severability, export control, amendment in writing, penalties, delayed payment interest, assignability…greatly depends on the applicable law)

The present termsheet reflects the non-binding intention of the Parties. Though the Parties intend to negotiate diligently and in good faith to reach a license agreement incorporating the principles set forth in this termsheet, the failure to conclude a license agreement will not cause either of the Parties to incur any liability or entitle either of the Parties to any claim whatsoever vis-à-vis the other Party.

46. Recommendation for a university researcher on how to establish a Spin-off at the Brno University of Technology

Keywords: Spin-off, eco-innovation, environment, wastewater treatment, know-how, practice, results, constructed wetlands

Aims of this recommendation

The recommendation package focuses on a given issue related to eco-knowledge transfer. For this specific case it is the creation a university spin-off company. The specific field of focus is constructed wetland treatment plant.

Target group of this recommendation package

Researchers

Background to the recommendation package

This type of recommendation package aims to aid successful eco-knowledge transfer by focusing on given interactions of EcoInn Danube project partner within R&D at Brno University of Technology. The recommendation package focuses on a given issue, area or topic related to knowledge transfer. This type of recommendation package also includes technological consultations about the technology itself with recommendations about how to move forward with commercialization.

This type of recommendation package is based on consultations that are related to the specific field of expertise, carried out between the EcoInn Danube project partner - Brno University of Technology and researchers that develop and offer innovative ideas, eco-knowledge or eco-technologies.

- Parties involved: Brno University of Technology
  - Technology Transfer Office (TTO)
  - Department of Project Support (DPS)
  - Researchers
- Eco-solutions/knowledge/technology

Summary description

The recommendation addresses a possible way of creating a university spin-off company in cooperation with researchers/a research team. The recommendation focuses on a university spin-off company in its inception phase that would like to focus on doing business in the field of eco-innovative and environmentally friendly wastewater treatment.

New and attractive university spin-off companies can significantly help to transfer new eco-technology; innovative results and inventions into practice. The objective of the EcoInn Danube project, among others, is to extend new eco-innovations into practice and apply those in everyday life. This recommendation package can be very helpful in resolving similar cases.

The reason for this recommendation was the requirement of a university research team to set up a company in which they could use the results of their research.

Our Technology Transfer office was approached by a team of scientists from Faculty of Civil Engineering who wanted to help to transfer their know-how into practice. The research team, consisting of employees and students of the university, has achieved a number of research and development results in the field of ecological waste water treatment plants.

The team is very successful in its activities, for example at present, two inventions are protected by utility models and are delivered to the market on the basis of a license agreement between the BUT and a major Czech company in the field of wastewater treatment.

The research team was invited to present to the TTO its activities and to specify its eco-innovative know-how. The aim of the meeting was to find the optimal way to apply the know-how on the Czech market.

Based on the meeting and the subsequent communication of the research team with the TTO, it was suggested that the research team could set up a university spin-off company, which should enter the Czech market with its know-how and inventions.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

The research team is dedicated to eco-innovative technology for wastewater treatment based on nature-friendly processes with minimal environmental impact. This technology is commonly known as constructed wetland. There are number of modifications and types of constructed wetlands. Those that are studied by the research team from BUT are characterized by high cleaning efficiency, reliability guaranteed by special patented devices and possibilities for large communities.

The main focus of the newly established spin-off company should be to design a new type of the constructed wetland treatment plant as an ecologically smart way on how to treat wastewater.

Constructed wetlands treatment systems are engineering structures designed to improve water quality that use natural processes involving wetland vegetation, soils, and their associated microbial assemblages. They are used worldwide to treat sewage wastewater of different qualities. This technology is often classified as an alternative to wastewater treatment, it is commonly used for treatment in small communities. Constructed wetlands are effective in removing organic matter, nitrogen, phosphorus, and additionally for decreasing the concentrations of toxic trace metals, organic chemicals, and pathogens.

Constructed wetlands have been in use for over 30 years in the Czech Republic. Compared to other European countries and the rest of the World, they are not a popular wastewater treatment technology in the Czech Republic. The cause of this failure is most likely poorly designed and operated objects (from the 90s of the 20th century). However, the research team brings in new solutions for constructed wetland technologies that have been proven and have excellent results in wastewater treatment.

Major customers could be, for example, small municipalities, house groups, or family houses that are looking for an appropriate wastewater treatment. The research team has already been in contact with mayors from different villages who asked for help with a design of constructed wetland. The research team has several technical projects and even the realization of constructed wetlands, those have been created in the framework of scientific research. In all these cases they have applied their patented inventions and their know-how both verified by a good experience.

Summary of status of knowledge transfer

Based on examinations and discussions, it was agreed that the research team could establish a university spin-off company with the support from BUT. An agreement that will impose obligations and rights on both parties will present as a result of such decision.

TTO undertakes the activity to provide its services in favour of a proper functioning of the spin-off company.

- A lawyer of the TTO helps the research team with an administration, which is associated with the establishment of a spin-off company according to the valid legislation of the Czech Republic.
- Researchers were advised to contact a faculty business development manager to help them to create a business plan on how to apply to the market. The business development manager provided several consultations, asking for the company's basic strategy (finding and addressing potential customers, identifying possible weaknesses of the company, identifying competition, opportunities for presentation, etc.). The company was recommended to participate in professional local events, such as, conferences and workshops where the team could present their activities.
- The marketing department has interviewed the research team about its work so far and the emerging spin-off company - the interview is published on BUT's web site.
- TTO drafts a contract between the spin-off company and the university. It will define the possibility of using the company's spin-off label and imposes obligations and rights on each of the parties involved.

- The TT office will propose the advantageous use of licensing rights to the researchers' own inventions that they would like to use in their spin-off business.

In-depth details / explanations of recommendations with links

The recommendations issued by the TT office:

- recommend to start a business according to the legislation of the Czech Republic (follow the TTO lawyer's line)
  - to set up rules and roles within the company itself (consultation with a TTO lawyer)
  - to visit the Trade Licensing Office
  - to write a business with a notary
- recommend attending courses and trainings organized by the BUT:
  - intellectual property in academic practice
  - effective management
  - courses organized within EcoInn Danube (summer school)
  - consultation with a university business development manager
- recommend and provide marketing ideas and tools
  - create a company name, design a logo, create a website
  - an interview for the marketing department of BUT

Recommended tasks for both parties – BUT (represented by TT office) and spin-off company (represented by the research team)

- preparation of a contract for the use of status “spin-off of BUT”
- consent of the head of the research team (head of the department)
- consent of the necessary departments within the Rectorate
- preparing a license agreement to use the results

Conclusions of recommendations

Technology transfer office is willing to help the research team with their intention to establish a university spin-off company. The team of researchers has received individual recommendations that should be carried out, e.g.:

- prepare a presentation about the intent of the business in the field of eco-innovation constructed treatment wetlands and about the scientific results achieved within this topic
- to officially start a business with the help of the TTO lawyer
- participate in recommended courses and training in marketing and intellectual property organized by the University
- to work together to establish a contract between the spin-off company and the University that would define the rights and obligations of both parties
- prepare materials for the marketing department of the University

Annexes

- List of inventions (utility models) of a research team
- Excerpt from emerging Contract between BUT (TTO represents the University) and emerging spin-off company (represented by the researcher team) - (only in Czech)

Date of recommendation package

19. 2. 2019

Author

Brno University of Technology, Czech Republic

A list of inventions (utility models) of a research team created during the research projects at BUT

Abstract and ?

Group Non selected and ?

Active document and ?

Valid licence offer and ?

☑ regardless of diacritics ☐ Non-patent literature ?

Query criteria Inventor='kriška' AND Applicant/Holder='Vysoké učení technické v Brně'

The database contains Czech patent applications published since 1991, registered patents since no. 1, registered utility models and European patents valid in the Czech Republic.

Resources actualization: IPO : 13.02.2019

Data obtained on: 14.02.2019 16:06

	Group	Application number	Document number	Status	IPC	Title	Applicant/Holder
☐	UM	2012-26321	24188	Expired document	G01N15/08, G01N13/04	**EN:** Device to determine hydraulic conductivity of material **CS:** Zařízení ke stanovení hydraulické vodivosti materiálu	Vysoké učení technické v Brně, Antonínská 548/1, 601 90 Brno, Czechia
☐	UM	2012-26925	24924	Expired document	E03F5/10	**EN:** Overflow of wastewater treatment plant **CS:** Odlehčovací komora pro čistírnu odpadních vod	Vysoké učení technické v Brně, Antonínská 548/1, 601 90 Brno, Czechia
☑	UM	2014-29263	27142	Valid document	E03F1/00, E03F5/10, E03F5/14, C02F9/00	**EN:** Multi-compartment septic-plant tank **CS:** Vícekomorový septik	ASIO spol. s r.o., Spáčilka 83, 664 51 Jiříkovice, Czechia Vysoké učení technické v Brně, Antonínská 1, 601 90 Brno, Czechia
☑	UM	2015-30811	28083	Valid document	F16K33/00, F16K31/08, F16K1/00	**EN:** Device for automatic sudden discharge of liquid **CS:** Zařízení pro automatické rázové vypouštění kapaliny	Vysoké učení technické v Brně, Antonínská 548/1, 601 90 Brno, Czechia
☑	UM	2015-31311	29181	Valid document	C02F3/04	**EN:** Assembly for forcible arrestment of vertical percolating filter **CS:** Sestava pro nucenou aeraci vertikálního skrápěného filtru	Vysoké učení technické v Brně, Antonínská 548/1, 601 90 Brno, Czechia
☑	UM	2016-33030	30185	Valid document	B01D24/02, B01D24/14, B01D39/04, C02F3/30	**EN:** Vertical denitrifying bioreactor **CS:** Denitrifikační vertikální bioreaktor	Vysoké učení technické v Brně, Antonínská 1, 601 90 Brno, Czechia DEKONTA, a.s., Dřetovice 109, 273 42 Stehelčeves, Czechia
☑	UM	2017-33547	30714	Valid document	E03B3/00, E03B3/40, E03B5/04	**EN:** A device for water distribution at low flow rates **CS:** Zařízení pro distribuci vody při pomalých průtocích	Vysoké učení technické v Brně, Antonínská 548/1, 601 90 Brno, Czechia
☑	UM	2018-35617	32426	Valid document	C02F3/34, C02F101/16	**EN:** A denitrification barrier in subsurface discharge from agricultural soils **CS:** Denitrifikační bariéra v podpovrchových odtocích ze zemědělských půd	Vysoké učení technické v Brně, Antonínská 548/1, 601 90 Brno, Czechia

☐ Select everything into the hitlist

Showing 8 out of 8 results

An excerpt from emerging Contract between BUT (TTO represents the University) and emerging spin-off company

SMLOUVA O PODMÍNKÁCH UŽÍVÁNÍ OZNAČENÍ SPIN-OFF VUT - VZOR

Číslo smlouvy: XXX

uzavřely níže uvedeného dne, měsíce a roku a za následujících podmínek tyto smluvní strany

Conwe s.r.o.

Sídlem:
IČ:
DIČ:
Bankovní spojení:
Zastoupená:
Odpovědný zaměstnanec za dalšího účastníka:
dále též jako **„spin-off"**

a

Vysoké učení technické v Brně

Sídlem:
IČ:
DIČ:
Bankovní spojení:
Zastoupené:
Odpovědný zaměstnanec za příjemce: XXXX
dále též jako **„VUT"**

Preambule

Vzhledem k tomu, že

a) společnost Conwe s.r.o. byla založena zaměstnanci VUT, kteří jsou jejími společníky a jednateli.

b) společníci Conwe s.r.o. řad zaměstnanců VUT dávají svými zkušenostmi a expertízou záruku šíření dobré pověsti VUT v Brně jako přední instituce na poli výzkumu, vývoje a inovací,

c) Conwe s.r.o. má zájem stát se spin-off firmou VUT a získat právo užívat označení „Spin-off firma VUT" a označení „Vyvinuto na základě výsledků výzkumu VUT" pro propagaci svých výrobků a služeb,

d) VUT má zájem na vzniku spin-off společností jakožto jednoho z nástrojů komercializace duševního vlastnictví, zajišťujícího přenos poznatků vědy, výzkumu a inovací do praxe s přímou návazností na ekonomiku regionu, vznik pracovních míst a synergií s činnostmi VUT.

rozhodli se VUT a Conwe s.r.o. (dále společně jen jako „smluvní strany") upravit mezi sebou způsob a podmínky užívání označení „Spin-off firma VUT", používání loga VUT a označení „Vyvinuto na základě výsledků výzkumu VUT" a podmínky další vzájemné spolupráce.

47. Recommendation for diverse R&D funding opportunities

Keywords: Research and Development, passive building envelope system, commercialization, funding, partner, international projects

Aims of this recommendation

The recommendation package focuses on the options of an ongoing research, where the possibility is commercialization of the invention or further research for result verification.

Target group of this recommendation package

Researchers

Background to the recommendation package

This type of recommendation package aims to aid successful eco-knowledge transfer by focusing on given interactions of EcoInn Danube project partner within R&D at Brno University of Technology. The recommendation package focuses on a given issue, area or topic related to knowledge transfer. This type of recommendation package also includes technological consultations about the technology itself with recommendations about how to move forward with commercialization.

This type of recommendation package is based on consultations that are related to the specific field of expertise, carried out between the EcoInn Danube project partner - Brno University of Technology and researchers that develop and offer innovative ideas, eco-knowledge or eco-technologies.

- Party: Brno University of Technology
  - Technology Transfer Office (TTO)
  - Department of Project Support (DPS)
  - Researchers
- Eco-solutions/knowledge/technology

Summary description

Consultation on the application of promising research on the passive building envelope system, with regard to the commercialization of results and further developments. The team is looking for options that will move the research further, and is interested in the opportunities it offers. The team has not decided whether it is better to try to commercialize or to continue the research.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

It is a new technology for reducing the energy demands of buildings, consisting of a passive ventilation system for cladding due to innovations of the ground heat exchanger and other solutions for flat roofs and an innovative ventilation system. At present, the technology has a patent protection.

Summary of status of knowledge transfer

As the research of the new technology has already acquired patent protection, it is necessary to verify the results of applied research and experimental development (hereinafter "R & D"), especially their practical application and preparations for their subsequent commercial use. Researchers are not yet in contact with any company that might be interested in using this patent. At the moment, researchers are considering further research.

Options and scenarios

In cooperation with the Technology Transfer Office (TTO), it is appropriate and necessary to draw up a commercialization plan.

Concurrently, the Department of Project Support can provide an overview of diverse funding possibilities for further research and development of the technology.

In the spring of 2019, new TAČR GAMA competition will be announced. The main objective of the TAČR GAMA program is to support and significantly improve the transformation of R & D results achieved in research organizations. Especially, in cooperation with other research organizations or private enterprises. The goal is to enable commercial use and implementation into practice.

The priority is to find a suitable partner for potential commercialization, and for further development and verification. A useful tool is the European Commission's Funding and Tender Portal, there researchers and project managers can find the terms of tender opportunities related to research and development and its commercialization. This website can be also used to search for partners.

The Horizon 2020 Fast Track for Innovation (FTI) challenge is also recommended. A deadline for project proposal submission is either in May or in October 2019.

Summary of recommendation(s)

- Searching for a strategic partner on the basis of a completed commercialization plan.
- Further development of research through international projects.
- Verifying the commercialization potential of research through the project.
- The possibility of a scholarship at one of the major universities - research and development.

In-depth details / explanations of recommendations with links

1) Recommendations for monitoring websites specializing in project funding opportunities (Funding and Tender Portal, FFG, etc.)

- https://www.ffg.at/foerderungen
- https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home
- https://www.tacr.cz/index.php/en/programs/program-gama.html
- https://www.volkswagenstiftung.de/en/funding/our-funding-portfolio-at-a-glance/artificial-intelligence-and-the-society-of-the-future
- https://www.dzs.cz/en/fondy-ehp/vyzvy/
- https://www.visegradfund.org/apply/grants/visegrad-grants/
- https://gacr.cz/vyzva-k-podani-rakousko-ceskych-navrhu-projektu-v-zakladnim-vyzkumu-3/

2) Recommendations for participation in trade fairs and conferences on the applicability of technologies

- Closer contact with TTO, regular consultations, checklist;
- Humboldt / Fulbright, etc., scholarships for internationalization and development of the intent, research, etc.;
    - o https://www.fulbright.cz/en/fulbright-scholarships/basic-information/
    - o http://www.humboldt-foundation.de/web/home.html

Conclusions of recommendations

During research and development of an intent or a technology, it is essential to be in a close contact with the TTO, for the applicability of intellectual property. It is also necessary to add an international dimension to the research in order to obtain broader possibilities for the use of intellectual property. The options are listed in the previous section.

Annexes

An annex that presents an example of a Commercialization Plan form is attached.

- Sample Commercialization Plan form

Date of recommendation package

20. 12. 2018

Author

Brno University of Technology, Czech Republic

Commercialization project

(Name of the project)

Principal researcher

(Name of the principal researcher)

Written by	(John Doe)
Date	(DD. MM. YYYY)
Version	(01)

1. What is unique about the invention

(How is it different from existing solutions on the market)

2. Technical description of the problem and its solution

(More details on what it is and how it works)

3. Benefits of the invention for customers / end-users compared to existing products. Why should customers / end users / distributors use a new product rather than the product they are currently using?

- (Benefit 1)
- (Benefit 2)
-

4. Barriers (disadvantages) for the use of products by end-users or for entering the market

(What can deter customers from buying the product? Is the market open or closed to new companies?)

- (Disadvantage 1)
- (Disadvantage 2)

-

5. Identify commercial applications (instant applications, possible applications, and which will be developed first)

(Where can the invention be used)

-

6. Market identification, estimation of market sizes and financial value of commercial opportunities

(Description of individual markets, areas where the invention would apply, current market position, estimate of interest in the invention, estimate of sales profits, ...)

7. Identify key customers

(Who, in particular, may want to buy the invention? Name, company ID, seat address if available, how many employees it has, how long they are on the market, etc.)

(List the most important potential customers, later the list will be expanded with other prospective customers. Larger list should be included in an excel chart as an attachment.)

8. Intellectual property protection plan

(Short description of how the invention is protected and specify a type of protection in the list of bibliographic data such as application number, filing date, date of the grant, number of the grant. If the given form of protection is not yet granted, the date and number of the entry will remain empty and will be filled in later. Indicate, what other applications should be filed, in which countries and estimate a budget. If the invention is not yet published, state when the publication shall take place.)

9. Commercialization plan

(How and where will the invention be offered to the customers? In the form of a license, research collaboration? Publications in professional journals, conferences, trade fairs, etc. The detailed list can be included in the annex with a description of what audience the publication plans to address).

Steps to be done:

(Add information if the activity is planned and set a deadline for the task. Include any further scheduled activities. The list will be updated periodically. If a deadline is not met, explain how that happened.)

- Developing the final commercialization plan
- Analysis of companies operating on the market
- Analysis of competing products / technologies / services
- Create a business model
- Development of marketing strategy / mix (4P) incl. prices
- Direct addressing, establishing relationships
- Developing relationships - Demonstration, promotion of the invention
- Promotion of professional and thematic conferences / events (Event date and description)
- Negotiation of the deal and preparation of legal documents
- (Additional Activity)

10. Risks of the commercialization project and measures to eliminate them

- (Early publication of the invention, the inventor is not available ...)

(Attachments with company listings, conferences, fairs)

48. Recommendations for waste management and recycling collaborations

The document recommends collaboration between two partners. It aims to find a common technology to solve waste management and recycling.

Keywords: Commercialization, collaboration, common technology, knowledge transfer, possible match

Aims of this recommendation

The document recommends collaboration between two partners. It aims to find a common technology to solve waste management and recycling. The possible matches can do from searching in EcoInn Virtual Lab. The partners can complete forms in the “offer” or in the “demand” category, so the profiles show both interests. Furthermore, the document shall raise interest among municipalities affected by heavy metal-pollution in lakes, ponds, etc.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

Background to this recommendation package

As the general objective of the EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region, this recommendation represent useful suggestions and proposals to the target audience on this case how to resolve specific problem through forms of knowledge transfer.

This recommendation report has occurred, when the SMVKA was informed from current partner about the problem of waste management of tires. Due to EU policies and regulations are less accessible and understandable, so our recommendations also cover how partners align themselves to the many regulations.

Summary description

Agro Tyre Ltd has been dealing with tire trade / repair since 2011. The company are waiting for existing and prospective customers with a wide range of new and used tires in online warehouse. Agro Tyre offer covers the entire tire range and deal with agriculture, cargo, off-road, loader, forklift, or personal tires, rim or hose. In assembly works they perform tire assembly, vulcanization, repair of side and tread injuries, wheel balancing of cars, cutting of tire tread and modification of truck rims. The company also have special presses and special tools for installing solid forklift trucks. Agro Tyres undertake to deliver free of charge agricultural and loading tires purchased from itself. Over 15 years of existence the company is constantly experiencing problems with the agricultural scrap tire; we have accumulated this type of tire for years.

Abandoned tires can cause severe environmental damage when released into nature. Due to the regulations, the worn tires are now taken back in several places, and their recycling is increasingly solved. Unfortunately, it is not yet mandatory to take over and is not necessarily free. Product fee payable by released: car tire: 1 Euro/piece, truck tire: 0,8 Euro/piece, bicycle: 0,4 Euro/piece. Agricultural tire (steel reinforced) is the only one whose adoption is not completely solved and causes problems.

<u>Regulation of tire takeover and recycling:</u>

Some industry players take over tires, even for free. According to the European Union Directive Directive 99/31 / EC since 1 July 2003 it is forbidden to discard waste tires in communal waste in Hungary. Responsibility for complying with the rules lies with the manufacturers and importers

who have a duty to pay and use the product. Damaged tires can be delivered directly to a specialist service or their placement can be solved by the coordinating organizations. The role of coordinating organizations in non-profit form is to coordinate the activities of the actors involved in the system, and regulate their operation Waste Management Act form 2000 and 94/2002. government regulation. Joining to the coordinating organizations every year, more and more businesses have entered the national waste management system, for which it is intended recycling of as much waste as possible and fulfilling the recycling rates set by the EU for Hungary. Some local governments organize tire collection action onetime in a year with one of the tire co-coordinating organizations; it is worth to be informed about it.

Ministry of Environment and Water encourages recycling of waste tires with a product fee system: Manufacturers and importers are exempted from the mandatory product fee if they are able to collect 75% of their imported quantities for recycling.

The Ministry of Innovation and Technology has prepared the National Collection and Exploitation Plan for 2019. The Ministry of Innovation and Technology, as a state organization for the management of waste organizes and manages domestic waste management for products subject to product charges. The plan includes tasks related to monitoring, collecting and pre-processing / utilizing the amount of waste generated from products covered by the Hungarian environmental product charge payment obligation for a full calendar year. The plan clearly demonstrates what waste management volumes are assigned by public waste management organizations for the given year.

Utilization of tires:

About half of the tire waste is recycled in its material, and the rubber is practically returned to rubber production. The rubber product is shredded and granulated from it, while the steel and textile fabrics in the tire are separated. Sifting granules are used as raw materials: for example, in the manufacture of lower quality rubber products, they are replaced by rubber, or the granules are mixed with glue and pressed into a sheet, of which rubber sheets, rubber blocks, tiles, such as sports fields and playgrounds are made. The other half of the waste can only be disposed of by energy recovery - in the case of particularly damaged and lost tires practically no other way than burning in cement plants. By burning tires with a calorific value similar to black coal, cement plants substitute primary oil derivatives. Pyrolysis is good because the rubbers are renewable and plant-based; oil obtained during pyrolysis takes oil refinery and blending into gas oil. The resulting product is an agrofuel component and is a renewable energy source. Appropriate filtering equipment is required for authorization of the procedure.

So there are good solutions for waste management. It can be a very good partner with location in Pécs, near to head office of AgroTyre: Granuflex Ltd. The company was in 1993 established and has actually finished an investment for rubber waste processing production line. The new production line enables the utilization of 5000-6000 tons of waste tires per year, which leaves a much smaller ecological footprint compared to previous technologies.

Results of their developments are:

- high-purity rubber powder in sizes below 350 µm, which is also an important additive for the rubber industry

• steel chips can be used for further processing on the one hand for metallurgical purposes, on the other hand it can be used for concreting technology

• we would like to ensure the utilization of textile chips as additives as soon as possible.

Partnership brings together the knowledge and expertise of partner environmental R&D or, and knowledge and expertise of stakeholder in waste management. Planning and development to generate a scientific set of solutions in order to mitigate the environmental impact of recycling activity between the two areas.

In case if the partnership between the stakeholder with demand and the partner who brings eco-friendly technology cannot be established within the national boundary, the search and pitching should be promoted by looking for solution technology beyond the border. It is more important that the right partners find each other and discuss all of the needs and requirements.

To bring together an eco-knowledge of expert with a real current environmental problem to solve, it's necessary to cumulate all of aspects of both sides. The success of a pitching in the Eco Dabube region requires addressing not only the differences within the nation, but also the differences between the nations and the harmonization of the different legal regulations.

Summary of recommendation(s)

Waste management, including used tires was regulated in Hungary in a slowly process. According to the European Union Directive Directive 99/31 / EC since 1 July 2003 it is forbidden to discard waste tires in communal waste in Hungary. Many national laws and regulations also provide for certain rules for the recycling of waste tires. But it is even more important to create a partnership where from demand side is waste management is has to solved and available a partner with already developed technology and knowledge transfer for recycling waste tires on the supply side. The virtual lab created within the EcoInn project was created specifically for eco-innovation knowledge to bring together the demand and supply side.

List of useful links

T https://agrotyre.hu/

https://www.kormany.hu/download/c/2c/81000/OGyHT_2019%20v2.pdf

https://net.jogtar.hu/jogszabaly?docid=A1400246.KOR

http://www.szelektivinfo.hu/iparfejlesztes/uj-uton-a-hazai-hulladekgazdalkodas/a-hazai-telepulesi-szilard-hulladekgazdalkodas-jogszabalyi-keretei

http://gumihasznosito.granuflex.hu/ceg%20bemutao.htm

Date of recommendation package

2nd April 2019

Author

Entrepreneurs' Centre of Somogy County Public Foundation, Hungary

49. Recommendations for organizing eco-knowledge transfer events

This recommendation offers guidance for organisation a consultation event for all interested who are searching financial recourses for environmentally friendly solutions or for specific problems to solve.

Keywords: Commercialization, intellectual property, IP, management, strategy

Aims of this recommendation

This type of recommendation package provides guidance for innovators and researchers from the higher education and research sphere, as well as from private area: small and medium-sized enterprises, start-ups, R&D-s or NGOs to show in the framework of a consultations event how it possible to finance the development and the promotion of your own eco-innovative solutions - product or service. When an enterprise needs a financial source, the bank is the first possibility comes to mind. Nevertheless it is not so easy to find the suitable bank and the appropriate bank financing. But not only the bank recourses are available for financing an ecoinnovative idea. Our recommendations based on our experience in all type of financing because of cooperation with small and medium-sized enterprises, associated financial organizations and dealing with many financial assets.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

Background to this recommendation package

This recommendation offers guidance for organisation a consultation event for all interested who are searching financial recourses for environmentally friendly solutions or for specific problems to solve. If an eco-innovative idea gets to that point that only the financing side of the product or service development and its promotion is missing for implementation, its seems to be the easiest to access of financial resources the bank financing. However it's not easily to find the recommended from the various available financial sources. It's also important to be aware of it how to apply for bank financing and how many data's are necessary to reach the final amount. It is therefore advisable to organize a consultation event with bank finance experts to get specific answers. A consultation is also recommended to see what financial schedule is needed for the implementation of our eco-innovation idea.

The most relevant target groups are innovators and researchers from the higher education and research sphere, as well as from private area: small and medium-sized enterprises, start-ups, SME-s, R&D-s or NGOs and offer eco-innovative solutions.

Summary description

Financing an eco-innovation idea is a complex process that involves assessment of resource requirements, establishing and implementing financing decisions and measuring their effects afterwards.

Eco innovators, small and medium-sized enterprises, start-ups, research institutes, universities, NGOs and other eco-innovation development organizations generally have no experience of financing their innovation idea. We recommend working out the financing of the developed product or service in consultation with our organization's experts. Knowledge transfer can greatly accelerate the realization of eco-innovation ideas.

Based on our suggestions the financing process can start with defining the objectives of financing and setting the time frame for financing our eco-innovation idea. Obtaining the necessary resources implementation can be solved from internal, called as self-financing. But generally can be stated the businesses and institutions do not have unnecessary internal resources. The other part of the resources is obtained from outside, this is external or foreign financing. Creditors include credit institutions (commercial banks); leasing companies, suppliers (if the price of the goods or services purchased from them is not immediately settled).

When it comes to financing the implementation of our eco-innovation ideas, bank loans are always a priority. However, the bank may apply for a large number of documents in the case of bank lending financing. The compilation of the complete documentation may require significant expert tasks, which we discuss step by step with the eco-innovator during our personal consultation. For example, proof of incoming income will be at first required. But in some cases we must apply to documents by tax-authority. Borrowing by bank is possible without real estate cover and real estate involvement. Knowing your specific financial goal makes it easy to decide which type of credit is right for ecoinnovative idea.

Eco-innovation solution can be realized also from the other popular form of financing on the market: allocations from European Union or from national budget. Eligible support can requested from many aspects. No repayable grants have a greatest attractiveness, but it has a high demand for recovered grants also, because of more favourable conditions to reach financial sources of ecoinnovative projects.

Consultation with our organisation's expert is recommended to planning the implementation of financial process. Ecoinnovative solution required a total project plan, and a project plan required a financial plan, which can be completed with our experts attending the needs of eco innovators.

Data required compiling a financing plan:

- financial goals
- financial form
- financial amount required (currency)
- expected date of financing
- repayment schedule,
- guarantee for required financing.

In addition, it's also necessary to present in a text report the management of the enterprise both for the pre-financing period and for the entire duration of the funding period:

- documents proving the existence and continuous operation of the enterprise(eg authentic copy of company registration, tax authority certificate of public debts, etc.),
- accounting reports for the last two or three years
- information about the owners,
- description of major products and services

list of major customers

Summary of recommendation(s)

The aims of this recommendation are to tackle the weak linkages between ecoinnovators and financial mediator and the difficulty in accessing finance for ecoinnovative products and services. All our recommendations are available to requesting developers if they ask for a consultation by our organisation's experts. If an eco-innovative idea gets to that point that only the financing side of the product or service development and its promotion is missing for implementation, its seems to be the easiest to access of financial resources the bank financing. During a consultation is possible to figure out the exactly needed financial form to take into consideration ecologically and environmental awareness convincingly, linking it to all aspects of funding. ecological knowledge transfer helps to increase the chances of a successful eco-innovation idea.

Our recommendation targeted to promote the use the possibility of consultation about financial demands. According to the experiences of our organisation, the eco-innovation as a topic might be too broad. To find a real form financing it can be necessary to consulate with an organisation as SMVKA. Such kind of financial and incubators organisation could be helpful to find a right solution of ecoinnovative ideas.

From this aspect it is highly recommended to survey the needs of ecoinnovator and expectations of the potential creditors, and identify the local situation. In order to figure out the exactly description of project aims, and the topics of the financial process to analyse.

The provide the smooth preparation and the success of the financing, it is recommended to survey and identify the most urgent needs to fulfil a financing process. Effective and sustainable transfer of ecoknowledge and entrepreneurial skills is a challenging undertaking.

This recommendation package helps ecoinnovators to guide financing their ideas during a consultation. Our highly trained experts are able to communicate ecologically and environmental awareness convincingly, linking it to all aspects of funding.

List of useful links

https://books.google.hu/books?hl=hu&lr=&id=6e_NFDN6KPUC&oi=fnd&pg=PA409&dq=financing+of+innovation&ots=944_Er6bBI&sig=YqxobKJN_ek_WbClbsWAGK4cGHY&redir_esc=y#v=onepage&q=financing%20of%20innovation&f=false

https://link.springer.com/article/10.1007/s10961-009-9112-8

https://www.sciencedirect.com/science/article/pii/S0169721810010142

https://www.cambridge.org/core/journals/journal-of-financial-and-quantitative-analysis/article/organization-and-financing-of-innovation-and-the-choice-between-corporate-and-independent-venture-capital/F7BD4401DD138C445AF2C9602DE1C407

Date of recommendation package

5th of April 2019

Author

Entrepreneurs' Centre of Somogy County Public Foundation

50. Recommendations for strategic improvements in SME business model with implications to the environment protection by using available supporting schemes

The recommendation has to foster information exchange and transfer of eco-innovative technologies for agricultural sector. The agricultural company in our recommendation package would like to receive new information and support about new agricultural renewable technologies and energy efficient innovative solutions.

Keywords: Commercialization, Eco-knowledge transfer, eco-innovative partnership, agricultural associations, agriculturists and farmers

Aims of this recommendation

The aims of this recommendation package are to transfer successful eco-knowledge between agricultural organisations and R&D institutions.

This type of recommendation package aims to aid successful knowledge transfer and/or commercialisation for a specific (named) demand or supply side stakeholder. The other partner in the commercialisation process is expected to be a yet unknown or known, but “unengaged” potential partner. This type of package should contain recommendations and information about “how” to establish partnerships related to potential partners and eco-knowledge or eco-technology. It should be developed when one demand or supply side stakeholder has a specific offer but no relevant partner.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

Background to this recommendation package

The aims of this recommendation package are to transfer successful eco-knowledge between agricultural organisations and R&D institutions. Knowledge of researchers, experts and even agricultural decision makers is a great help for those working in agriculture (animal breeding, plant production).

The main objective of EcoInn Danube project is to bring together to exchange their knowledge, experience and research innovations and enhances cooperation between innovation actors and agricultural producers.

Agricultural stakeholders can be agricultural associations, agriculturists and farmers. The recommendation has to foster information exchange and transfer of eco-innovative technologies for agricultural sector. The agricultural company in our recommendation package would like to receive new information and support about new agricultural renewable technologies and energy efficient innovative solutions.

Summary description

MAWA Agricultural Ltd. was established in 1993 from private Hungarian and Austrian owner. Main activity is the breeding of dairy cattle and they are farming on approx. 1.000 hectares of land. A significant proportion of the grain produced is used for animal feed; the rest of grain is sold. Approximately 550 cows and its population (approx. 1.000 animals) live on farm. The majority of the agricultural enterprise's turnover comes from animal breeding. Mawa bought the dairy farm from the former agricultural cooperative, which needs renovation. The buildings were built decades ago, so they would prefer not to use them as a basic building material. But actually Mawa can't afford to invest in new buildings. The farm is looking for other methods, systems or ideas to achieve energy self-sufficiency. The agricultural company would prefer to use renewable energy sources, so they are planning to invest in solar panels, or any other renewable energy sources.

Reform of the 1990s in Hungary has greatly affected all the participants in Hungarian agriculture. Previously in the form of cooperatives existing agricultural farms have been privatized. The rules and regulations of the agricultural sector had to be completely rewritten; the condition of the farms given to private owners was typically ruined and neglected. These reforms brought of course decrease in the turnover of agricultural enterprises, also in branch of animal breeding as in branch of plant production. Farmers had to re-learn their own profession and re-increase their business income in new ways. This process started very slowly and required of course significant financial resources. The majority of the agricultural enterprises solved most of the resources from external financing (domestic supports, foreign investors and shareholders). Most of the funds received were used primarily to expand livestock, to improve the quality of feed, and to procure plant seeds. The farmers haven't spent typically on modernizing the buildings, so the condition of the properties in many cases remained in the outdated and inefficient category. Over the years, more and more EU funds were luckily available for agriculture, not only for modernization and for energy efficiency renewing of buildings, but also more for eco-friendly and environmentally friendly technologies.

Many eco-technological developments are already taking place in Hungary, which is also available for farmers and agricultural associations interested in eco-innovation, energy efficiency and eco-friendly technologies. These are for example bio factories (bio-breeding or bio-plants). Many bio-factories are already operating in Hungary, working together with research institutes or universities to develop technologies what minimize waste generated by production activities (dairy cattle breeding, bio-gas production), protect air quality, reduce environmental load and recycle industrial water.

There are bio-power plants in Hungary heated with agricultural waste and created jobs by cultivation of energy-plants for about 200 agricultural entrepreneurs. Horticulture was also created for utilization of waste heat from animal breeding.

Solar energy - with little regional differences - is available worldwide, in excess of humanity's energy needs. The European Union is leading in use of renewable energy sources. By choosing the strategy of "Forwards escape", the long-term goal is to increase the share of renewable energy sources. The EU is poor in fossil energy carriers by a relative high specific energy consumption levels. According to the Directive 2009/28. of the European Union ("Support of energy from renewable energy sources")Hungary must reach a 13% for share for renewable energy till 2020. By utilizing solar energy, it is possible to physically cover 100% of the electricity demand of dairy farms. Solar systems could save costs during their 15 years of operation on farms with 10-100 cows in Hungary, which could significantly increase the competitiveness of dairy farms.

The most popular source to obtain in Hungary are the European Union funds. For the company mentioned in the recommendation package is also available the tender "Improving the energy efficiency of agricultural breeding and plant production" supported by the European Union.

The main objective of EcoInn Danube project is to bring together to exchange their knowledge, experience and research innovations and enhances cooperation between innovation actors and agricultural producers. Virtual Lab (ecoinnovative.eu) created in Ecoinn Danube project aims is to increase the match of demand and supply in eco-innovation – Producers are forced to look for eco solutions enabling them to perform a greener production. Researchers perform environmental research which is often not problem solving oriented. Our aim is therefore to increase the match of demand of producers and supply of researchers in order to support an applied environmentally oriented research which will lead to the development of new eco-technologies with a practical application. Smart tools for easing this matching are introduced and adopted. The possible matches can do from searching in EcoInn Virtual Lab. The partners can complete forms in the "offer"

or in the “demand” category, so the profiles show both interests.

Partnership brings together the knowledge and expertise of partner environmental R&D or, and knowledge and expertise of stakeholder in renewable energy. Planning and development to generate a scientific set of solutions in order to mitigate the environmental impact of recycling activity between the two areas.

In case if the partnership between the stakeholder with demand and the partner who brings eco-friendly technology cannot be established within the national boundary, the search and pitching should be promoted by looking for solution technology beyond the border. It is more important that the right partners find each other and discuss all of the needs and requirements.

To bring together an eco-knowledge of expert with a real current environmental problem to solve, it’s necessary to cumulate all of aspects of both sides. The success of a pitching in the Eco Dabube region requires addressing not only the differences within the nation, but also the differences between the nations and the harmonization of the different legal regulations.

Summary of recommendation(s)

Primary aims of this recommendation package are to transfer successful eco-knowledge between agricultural organisations and R&D institutions. First recommendation is to visit and check in to Virtual Lab formed in Ecoinn Danube project, where can completed a partnership matching of demand and supply in theme of eco-innovation. The project has to bring together the exchange of the knowledge, experience and to foster research innovations and enhances cooperation between innovation actors and agricultural producers.

Further recommendation for company mentioned in recommendation package in the theme of renewable energy and energy saving management is to find additional resources or supports to help for the mentioned demand. Based on the statement of Hungarian agricultural decision makers is necessary in order to maintain the competitiveness of Hungarian agriculture to use more and more renewable energies, and at the same time to reduce energy costs.

Result of Hungarian government action taken the use of solar, wind, geothermal and biomass energies gained specially attention in Hungarian agriculture. Using of renewable technologies can not only reduce environmental pollution, but the cost of producing individual products can also be reduced. Agriculture sector was always an energy-producing activity, so the renewable energies can reduce not only environmental pollution and dependence on fossil energies, but the cost of producing can be reduced by using local energy.

List of useful links

https://www.alternativenergia.hu/tag/biouzem

https://www.biokontroll.hu/az-oekologiai-allattartas-szabalyai/

https://tind-customer-agecon.s3.amazonaws.com/e7072629-4bd2-47dd-8fd0-60454f8c9156?response-content-disposition=inline%3B%20filename%3D%22GAZDALKODAS_2015_04_Pinter%20et%20al_346_354.pdf%22&response-content-type=application%2Fpdf&AWSAccessKeyId=AKIAXL7W7Q3XHXDVDQYS&Expires=1558016912&Signature=pJP8Kyx5G6N2HR2NwavoQ5NTC8M%3D

https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32009L0028

http://europa.eu/documents/comm/white_papers/pdf/com97_599_en.pdf

http://napok.georgikon.hu/cikkadatbazis/cikkek-2012/doc_download/215-zsiboracs-henrik-dr-palyi-bela-a-napelemes-forgatas-osszefuggesei-nyari-idoszakban-magyarorszagon

http://journal.ke.hu/index.php/etm/article/download/2179/2790/.

Date of recommendation package

1st of May 2019

Author

Entrepreneurs’ Centre of Somogy County Public Foundation, Hungary

51. Recommendations for marketing strategy of joint developed fully electric-driven waste collector machine

Recommendations based on international experience of our experts include not only the eco-friendly knowledge needed to position the product, but also the planning of all the necessary steps for market introduction as well as the development of a continuous marketing strategy

Keywords: Commercialization, international experience, marketing strategy, developed product

Aims of this recommendation

This recommendation offers guidance for development a specific marketing strategy based on the recommendation of expert. The main goal is to position and launch on the market by the 2 participating innovators previously developed product.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

Background to this recommendation package

This type of recommendation package provides guidance for an ecoinnovative and international cooperation, where the partners have found each other based on their field of activity and the eco-innovation product – jointly developed fully electric-driven waste collector machine - has been developed based on the joint development of the innovators. Presenting and selling on the market such a special and non-standard products is a great challenge.

Marketing experts are recommended to design a unique marketing strategy for this specific product.

Recommendations based on international experience of our experts include not only the ecofriendly knowledge needed to position the product, but also the planning of all the necessary steps for market introduction as well as the development of a continuous marketing strategy. Primary goal of this recommendation package is to contribute in development of a common marketing plan for the cooperative partners.

The planned cooperation aims at the expansion and innovative, sustainable development of the existing product range and the market expansion of existing products in the Balkans in the field of waste collector machines.

Quick read

- Guidance for development a specific marketing strategy
- Based on the recommendation of experts
- Developing a complete marketing strategy

The company SERES Kft. has wide experience in the production and distribution of special-purpose communal machinery. In order to suit the recent communal machinery development trends, the company set a goal of conceiving a new, fully electric-driven waste collector machine.

The development of this new innovative environment-friendly waste collector machine represents considerable new value added even at international level. Combination of electric-driven waste collector machine with small sized body and with combined lift-in / tilting operations is a unique product in the whole East-Centre-European market and even it has not penetrated on the Western-European market either.

Summary description

Description of an active cooperation

This cooperation has 2 partners, one eco innovator comes from Hungary and the other one comes from Croatia.

SERES Gépipari és Kereskedelmi Kft. is a Hungarian medium-sized enterprise with Hungarian private owners. The company was established in 1996 in Barcs, Hungary. Main profile of the company is manufacture of communal vehicle body and hydraulics and machine service. The company's scope of activities: Machine manufacturing: communal vehicle, waste collecting and liquid transporting bodies, tilting and fixed platforms, snow ploughs, salt spreaders, hydraulic working cylinders and flexible hoses. Machine service: machine repair and renewal of hydraulic and communal vehicle bodies, loading machines, cranes, back-wall elevators, special mobile-stable hydraulic equipment, on-site repairs. Trade: trading of developed machinery of the company, trade of hydraulic elements and accessories, hydraulic cylinders. Most of the products of the company are sold in Hungary. The company exports approx. 5-10% of their products, main export markets are in Slovakia, Croatia, Romania and Bulgaria.

The company's purpose is to keep their present profile and to run a modern company that adapts itself to actual market requirements and produces high-quality products. The company is convinced that their product with corresponding innovative developments can match the markets of Croatia, Serbia, BIH, Montenegro, Albania and other countries of the former Yugoslavian state.

BRANA d.o.o. was founded in 1953. It is a Croatian medium-sized enterprise with Croatian private owners. The company is situated in Virovitica, Croatia. The company has built up a versatile scope of business activities in its 65 years of operation. The main relevant activities of the company are as follows: Civil engineering: implementation of communal infrastructural projects: construction and rehabilitation of hydro-technical facilities (watercourses, dams, melioration works, and sewerage and water supply systems). Structural engineering: construction, reconstruction, extension and modernisation of public institutions. Machinery construction: development and maintenance of vehicles, machinery and vessels, mechanical works. The company carries out its business activities mainly in Croatia. However, the company has solid export activities to several countries of the European Union with agricultural products. Although thematically it is not relevant for this project, but it shows the company has considerable export experience which sets the basis for future foreign marketing and selling activities of the commonly development machinery product.

Subject of cooperation - the product

The planned cooperation aims at the expansion and innovative, sustainable development of the existing product range and the market expansion of existing products in the Balkans in the field of waste collector machines.

The company SERES Kft. has wide experience in the production and distribution of special-purpose communal machinery. In order to suit the recent communal machinery development trends, the company set a goal of conceiving a new, fully electric-driven waste collector machine.

Presently there are only fossil fuel-driven machines on the streets which pollute the air and also these machines are relatively big ones not properly meeting of towns with narrow-street town centres where movement of larger machines causes practical problems.

The new target machine would be suitable for the collection and transport of waste glass and its unloading by tilting - glass waste collection is going to be the next phase of recyclable household waste collection in cities, thus this new machine will comply with this special need as well.

The development of this new innovative environment-friendly waste collector machine represents considerable new value added even at international level. Combination of electric-driven waste collector machine with small sized body and with combined lift-in / tilting operations is a unique product in the whole East-Centre-European market and even it has not penetrated on the Western-European market either.

Market of cooperation

The European Union lays great emphasis on environment protection. There are more and more frequently launched public procurement tenders aiming at the environment-friendly collection and processing of the generated communal waste in the new European Union member states and also in the candidate countries. The 2 partners would like to make business efficiently in this area by developing and marketing of eco-friendly waste collector machine. Target markets of the product are cities in Hungary Croatia, but partners are going to focus on cities of former Yugoslavian countries as well.

On the basis of existing waste collector machines of SERES Ltd. and with consideration of specificities of smaller body and its electric-driven technology, the estimated total market price of the newly developed waste collector machine is approx. EUR 180.000. It is realistic to predict that - owing to the effective marketing on both sides of the border - in the first year 1 -2 and in the second year 2-3 machines will be sold - after 2 years of project completion it means approx. 4 pcs of sold machines.

The marketing strategy consists of analyzing marketing opportunities, planning marketing steps, and organizing, implementing, and controlling marketing operations. Developing the marketing strategy for eco-innovation should start with research. Getting started in research and in full control of the process can give advice and recommendations our experts and work with on an overall management of the process. With the help of marketing research, the innovator company needs to obtain information about the most important market environment, to know the needs of the consumers, their location, shopping habits, etc. The marketing environment consists of micro (suppliers, market intermediaries, consumers, competitors) and macro environment (demographic, economic, natural, technical, political-legal, socio-cultural environment). After market research, the development of marketing strategy follows, primarily the target market selection. A company that carries out professional work in developing its own eco-innovation product needs external help and eco-innovative knowledge in development of marketing planning.

The next step in the marketing process is positioning the eco-innovation product, the process of designing a corporate image, with the aim of take a meaningful and distinguished competitive position in the mind of target buyers.

By developing of marketing strategies an approach called 4P can be the one of the most commonly used guidelines. 4P is short for four English words starting with P: Product - a product or service that we want to sell. Price - Price or Price Level, Place - the sales channel. Promotion - Promotion, Promotion, Advertising, Public Relations, Social Media, which practically “beat the foam” around the product. For a daily using of 4 P model was not enough, therefore were also added additional P-s: Personal selling - personal sales, how strong the salesperson's personality is. Politics - Legislative environment (a product may be marketed with a government license in a particular country or a sales channel is restricted - see National Tobacco Shops, Austria Tabak). Public opinion - "People's opinion".

When designing the eco-innovator's marketing strategies, you should also take into account the life cycle of the product in question. After deciding on this, there are many choices to complete the strategy. In the introduction phase, price and promotion can affect the improvement of eco-innovation product or service sales. In the growth phase, our marketing efforts may focus on keeping the growth achieved as long as possible. The marketing strategy of the graduation stage requires better communication and more precise positioning. In the declining phase, selective retreat is the best marketing strategy.

Summary of recommendation(s)

Generally recommended to have a continuous marketing strategy for every organization and companies with business, because the marketing strategy gives you an idea for the business and also give direction to daily activities. Marketing strategy can determine how to enter the market, what product, service, when, how do we plan the valuation, how will we tell people that we exist, etc. Based on our recommendation website design is a crucial point in the eco-innovation stakeholder's marketing strategy. When creating a good website, the same issues arise as when developing a marketing strategy.

Annexes

http://www.seres.hu/hulladekgyujtok-edenyzetmoso/

http://www.brana.hr/

https://www.sikermarketing.hu/marketing-strategia-a-regi-jo-4p-es-a-modern-marketing-felfogas/

https://www.lead-innovation.com/english-blog/innovation-marketing

http://fogyasztovedelem.kormany.hu/taxonomy/term/768

Date of recommendation package

10th of May 2019

Author

Entrepreneurs' Centre of Somogy County Public Foundation

52. Recommendation for organizing eco-knowledge transfer events

This recommendation offers a guidance for those institutions that would like to organize an event for the transfer of eco-knowledge, but they have not yet gained experience. These recommendations are based on experiences during EcoInn Green Innovation Forum in Stuttgart.

Keywords: Events, consultations and interactions, Partnership guidance, Commercialization, organization of pilot events, promote and spread of technologies

Aims of this recommendation

This type of recommendation package provides guidance for R&D institutions to successful organization of pilot events as Innovation Forum in the fields of environmental awareness raising, innovation and networking among future eco-innovators. The aim of this capacity building pilot is to improve the conditions for a successful transfer of ecoinnovative ideas into the market and to promote and spread the use of technologies in the daily live. Our recommendations come from our experience in EcoInn Green Innovation Forum (Stuttgart, Germany; 20-21 February 2018) and EcoInn Green Innovation Forum (Brno, Czech Republic 30. November 2017).

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

The most relevant target groups are innovators and researchers from the higher education and research sphere, as well as from private area: start-ups, SME-s, who performed eco-oriented R&D activities and offer eco-innovative solutions. Institutions (authorities, NGOs, universities, small and medium-sized enterprises) with limited experience in event planning, where can train young people for future eco-innovators and / or eco-awareness/ multipliers.

The other direct target groups are investors, companies, public authorities who are searching environmentally friendly solutions for specific problems. The secondary target groups are business support organisations, business angels, experts of green technologies, innovative NGO-s who can provide assistance for the eco-knowledge transfer, and policy / decision makers, who have an important role in creating the appropriate legal and structural environment. The innovation forum targets also novice innovators, who can gain knowledge from experienced representatives of eco-business.

Summary description

Innovation Forum more focused on later stage of ecoinnovators and in giving them opportunity to present their idea to a right audience of investors, business angels and technologies transfer offices in order to facilitate their access to the market. The Forum wants to offer a platform for the presentation and visibility of ecoinnovative business ideas for the exchange and networking among actors of the fields. This is a platform where ecoinnovators can meet with policy makers, public institutions, investors and companies of the field.

Due to the uncertainties between businesses and other institutions, cooperation has not been developed to establish joint eco-innovation projects. However, it is easier to achieve environmental awareness together. If the entrepreneurial spirit is encouraged, eco-innovation developments can accelerate. The current recommendation

points to overcoming such uncertainties and establishing good relationships.

The general focus of the event can be chosen if the organizer's aim is to give general eco-innovation awareness in the region, in which the forum is organised a more broad focus enlarge the potential audience of the event.

If the organizer chooses a general focus for the event, it is important, that the forum has to preserve its "signature", it should be recognizable, and more topics can be presented, but not a "random mix" of them.

An intermediate solution could be to give general focus to the conference block, and divide the interactive sessions more specific topics, this format can provide the sufficient number of participants, and the necessary conditions for the successful matchmaking at the same time.

Depend on the special characteristics of the region, the focus of forum can be kept into a specific field of eco-innovation, but with option accompanied it more topics which are interconnected as ITC, humanities.

Based on the experiences of partners the areas of interest may include:

- energy sector
- waste disposal / management recycling
- water management
- clean technology
- recycling
- digital eco innovations
- eco transport
- zero waste methods
- other eco technologies / relevant sectors.

The recommended spectrum of topics spends from green technologies to smart production:

- environmental engineering
- green IT
- resource and energy efficiency
- smart grid
- material efficiency
- smart production.

The Forum can be an event with mix between a sectorial conference and a matchmaking event oriented to the acquisition of capital.

It's very import to fulfil the following aims along an Innovation Forum:

- promoting new technologies in the field of green innovations
- matchmaking between investors and start-ups
- training and coaching of young companies
- networking.

The experience of the pilot events indicates that there are huge differences between the approach to innovation and innovative start-ups in the western and central / eastern part of the Danube region. In the western countries sustainability and green topics are considered as more important; people are more interested in the green topics. In contrast, in the central and eastern countries the public awareness about environmental needs, the knowledge and use of best available practices is not sufficient. Because of this, in the moderate innovative countries it was difficult to find ideas that were in first promoted as energy efficient or ecological, and the presenters mainly highlighted other aspects of products and ideas.

As the sensibility for eco-innovation varies among countries, the aims of the forum are different from region to region. In the western countries the event focuses in matching start-ups with investors or business partners in order to help the further development and commercialisation of eco-technologies, service or product offered. Instead in the central and eastern regions, the event is also used to spread knowledge and awareness around eco-innovation. In these countries, building awareness is crucial to educate innovators and SMEs that the ecological aspects of innovation is necessary, and also helps to market the product, also taking into consideration the EU policies which highlights the movement towards energy union.

Summary of organisation steps:

Recommendations for the successful organisation of a similar Green innovation Forum:

- Survey the needs of the participants and the regional situation is highly recommended to figure out the aims and focus of the event
- The organiser should take into consideration that in the central/eastern countries the general awareness raising role may be more emphasised, in the western countries the matchmaking function can be stronger
- Specific aim can be to encourage international knowledge transfer and matchmaking
- The event can be dedicated to a specific topic (and thus a narrow target group), or have a wider, more general scope.

Summary of recommendation(s)

The aims of the Green Innovation Forum to tackle the weak linkages between research and market and the difficulty in accessing finance for ecoinnovative products and services.

In order to achieve the aims of the green innovation forum, to tackle the diffusion of innovation, and the exploitation of the economic potential of new technologies, applications and solutions trough transfer of knowledge and dedicated matchmaking events between interesting start-ups, companies and investors, the format of the event divided two main parts:

- conference – that deal with the transfer of knowledge among experts, research institutions, universities, companies and public authorities
- matchmaking platform for start-ups and advance companies where to meet investors, business angels and potential cooperation partners.

The project partners agreed that the mix of formats – conference and matchmaking / pitching – as a structure and general framework is an optimal method for the event, but according to the experiences of the previous forums, the composition and promotion of the blocks has to be adapted to the regional needs. The chosen proportion of the blocks mainly depends on the aim that the organizer wishes to achieve trough the implementation of the forum.

The conference format can be useful to raise awareness as well as deepen particular topics with an audience of experts and matchmaking / pitching sessions can solve concrete partner finding and networking among the participants.

Conclusions of recommendations

The green innovation forum targeted to promote the use of eco-innovative technologies and to foster the knowledge transfer among the actors of the field. According to the experiences of the previous events, the eco-innovation as a topic might be too broad. But from the aspect of matchmaking and networking, the board focus has a high risk that the participants represent different fields of eco-innovation, and there is not overlapping among their fields, so they are not able to find relevant partners. However, too focused topic might involve just a niche audience of experts, so in this case the low number of participants could be the obstacle of the successful matchmaking. From this aspect it is highly recommended to survey the needs and expectations of the potential applicants, and identify the local situation. It could be a solution, to give narrower focus than general to the event, and parallel this to broaden the geographical area, even to extend it into transnational level.

In order to figure out the sufficient proportion of blocks, and the topics of the event it is crucial to analyse and understand the local needs and the specific national / regional features in the co-innovation field and adapt the forum to the local circumstances. The provide the smooth preparation and the success of the event, it is recommended to survey the characteristics of the regional ecosystem, and identify the most urgent needs and challenges that need to be addressed.

Effective and sustainable transfer of ecoknowledge and entrepreneurial skills is a challenging undertaking. Just like evoinnovations that usually mature progressively, future ecoinnovators need to undergo a maturation process. This recommendation package helps organizers to guide candidates through parts of that process. By engaging adequate performers, lecturers, workshop leaders etc., even no/less-experiences institutions can tackle such challenge, i.e. organize respective events. Possibly needed minor ad-hoc adjustments (timing, materials) should not be considered as problem but as trigger of flexibility and driver for creativity; for all involved parties (organizers, contributors, participants). Only institutions and performers with a clear “green profile” (equipment, catering, waste management etc.) will be able to convincingly communicate ecoknowledge and environmental awareness.

List of useful links

List of documents supporting the recommendation.

- Publication of news item on the EcoInn Website as well as newsletter http://www.interreg-danube.eu/news-and-events/project-news/1286 http://www.interreg-danube.eu/news-and-events/project-news/1417 http://www.interreg-danube.eu/news-and-events/newsletters/1344
- Promotion through the EcoInn social media channels (Twitter and Facebook) https://www.facebook.com/EcoInnDanube/?ref=br_rs https://twitter.com/EcoInnDanube
- Direct mailing to possible interested stakeholders (young entrepreneurs, startups, other companies but also potential multipliers as universities, R&D institutions, regional development agencies, etc..)
- Publication of a news regarding the ECOinnovation Forum on all partners’ website and social media channels Selected links:

http://www.bicbrno.cz/Aktuality/Do-Krtin-se-vali-prestizni-evropske-startupy-a-ino
http://www.bicbrno.cz/Aktuality/Prvni-rocnik-EKOinovacniho-fora-prinesl-predstaven
http://www.asio.cz/cz/756.cirkulacni-ekonomika-a-asio
http://ctt.mendelu.cz/29369n-konference-ekoinovacni-forum-udrzitelne-technologie-pro-budoucnost

- Identification of relevant stakeholders and multipliers and dissemination of the news through their channels
  Selected links: http://alies.cz/cesko-jako-klicovy-hrac-ve-vyvoji-nizkouhlikovych-technologii
  https://incien.org/milan-moravec-o-cirkularni-ekonomice-potencial-je-obrovsky-stejne-tak-jako-penize-ktere-se-kolem- toho-motaji/

Date of recommendation package

28. March 2019

Author

Entrepreneurs' Centre of Somogy County Public Foundation, Hungary

53. Recommendations for engaging farmers in sustainable agriculture in regional value chains

Recommendation on how to engage farmers in sustainable agriculture systems with the aim to establish entire regional value chains.

Keywords: Events, consultations and interactions
Agriculture, organic farming, biodiversity, sustainability

Aims of this recommendation

This document provides general recommendations on how to engage farmers in sustainable agriculture systems with the aim to establish entire regional value chains.

Target group of this recommendation package

- Farmers
- Companies in the agriculture and food sector

Background to this recommendation package

- The recommendation package presents a tool to create or otherwise support development of regional value chains.
- In cooperation with an associated research institution an information evening for farmers was organized (15 Nov 2018). With the overall topic "Biodiversity in agriculture" the event had two main purposes: knowledge transfer and stimulation of networking among farmers.

Summary of:

- party / parties: local farmers, members of the association for organic farming (BioAustria)
- eco-solutions/knowledge/technology: Awareness for climate change-related risks and the potential of sustainable agricultural practises
- proposed collaboration / proposed partnership and knowledge transfer: scientist-to-farmer knowledge transfer; farmer-to-crop processing collaboration; nutritional scientist-to-marketing collaboration

see full-text description for details

Summary background description

Austria and other European countries increasingly suffer from climate change-related weather extremes. For farmers, especially small-scale farmers, prolonged periods of heat, drought etc. are particularly threatening, thus driving rural exodus. Consequences are depopulation, causing further decline in infrastructure. Alternative strategies are needed to break this vicious circle. Such strategies rely on knowledge transfer (from science to field). Ideally, they go hand-in-hand with the development and marketing of innovative food products. The establishment of entire crop-based value chains seems a powerful instrument for depopulation-threatened regions to help themselves. Only with respective guidance/recommendations can such goal be achieved.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Description: for detailed description see annexI

- Knowledge description: Farmers recognize potential of innovative sustainable agricultural concepts; farmers exchange knowhow and explore options for sharing machines/devices
- Considerations: adaptation to national/regional situation needed
- Sector: agriculture & food industry
- Results aimed to be achieved: knowledge transfer as basis for creation of entire regional value chains

Options and scenarios

The here-communicated combination of two robust, healthy and versatile crops is just one possible example, from which a general strategy for generating regional value chains can be derived.

Summary of recommendation(s)

The general strategy for generating regional value chains involves 6 major steps. Steps 1&2 should be accomplished by the responsible/leading entity before engagement of contributing institutions (farmers, SMEs etc.)

1. Identify (e.g. from literature search) climate change-tolerant crops incl. cultivation periods
2. Assess their previous, current and predicted market value
3. Use above information to elaborate a tailor-made information event for farmers (or, alternatively, downstream partners in the value chain). Request external expertise if necessary.
4. Engage food research institutes and/or companies (preferably smaller ones, as these are generally more flexible to change/adapt production processes)
5. Outline benefits for farmers to cultivate given crop(s)
6. Produce, refine innovative food products and stimulate demand by adequate communication, marketing etc.

Given the potential ecologic and economic benefit resulting from strategy implementation it is worth checking EU-, national and regional funding sources for possible financial support.

Conclusions of recommendations

Creating entire value chains based on innovative food products is a powerful means to combat both rural depopulation and biodiversity decline. The relevant components in such value chain need to be identified, (and with respective knowledge transfer) be motivated and interconnected. Flexibility and mutual trust are a Must.

Date of recommendation package

20 Dec 2018

Author

Economica. Instititute for Economic Research, Austria

Annexes

Detailed description of the event and the derived recommendations:

In cooperation with an associated research institution an information evening for farmers was organized (15 Nov 2018). With the overall topic “Biodiversity in agriculture” the event had two main purposes: knowledge transfer and stimulation of networking among farmers.

We recommend the event to be reproduced – after respective adaptation to national/regional specifics and target audience - in EcoInn project partner countries. Presentations and subsequent discussions should be held by experts with adequate scientific background (ecology, agriculture, climate research, national situation). Presenters also need to be capable of “translating” complex scientific data into “plain language”.

The event revealed eco-friendly options to farmers how to avoid/spread/reduce the risk of climate change-related harvest loss. Reciprocally, the organizers got insight into the farmers´ main concerns and attitudes. This insight will be helpful to develop tailor-made projects. Subsequent networking among participants furthermore revealed which agricultural devices, machines

etc. exist, are needed or might be shared. Stronger exchange of devices and handling know-how can lower the barriers for farmers to enter and explore new cultivation strategies. The benefit or profit prospect must be evident.

Recommended event contents (template for adaptation)

Expert in ecology/agricultural sciences presents facts on biodiversity. The event can –optionally- involve a powerpoint presentation, but simple graphs on a flipchart and/or figurative language appear more appropriate (to minimize distance between presenters and audience). Questions to be addressed in a non-formal, interactive format may include:

- Gradual loss of biodiversity (in a given region/country) over time; including obvious (e.g. pollinator abundance) and latent (soil microbiome) symptoms.
- What are the reasons for biodiversity decline? (e.g. efficiency-driven agriculture, customer behaviour)
- Why are monocultures NOT a sustainable solution? Why is it important to maintain/restore genetic variety in a given crop species (evolutionary adaptation, genetic resource)? Provide economic facts on consequences of prolonged heat/drought periods, including predictions on future losses.

- How resilient are conventional agricultural systems to climate change-related weather extremes? Which strategies help to increase resilience? Here, the audience might be asked for input (helpful especially if some participants already have positive experience with alternative cultivation concepts.)

In the specific case of above-mentioned event the cultivation of drought- and heat-resistant crops was recommended. The organizers´ intention was to promote flaxseed cultivation among participants (members of the association of "organic farming" BioAustria). Flaxseed is a traditional crop that had been cultivated for thousands of years. The plant´s (meanwhile recognized) substantial health-promoting effects have driven growing demand for flaxseed-derived food products. This demand should not be covered from imports from foreign countries but from regional production. Ideally, an entire value chain is being created, whose key actors are: #1: farmers for organic flaxseed production, #2: companies for flaxseed processing into healthy (and optionally: innovative) foods, and #3: restaurants and regional shops for final sale to customers. As regards #2, F&E institutions in food biotech/nutritional science can be involved to strengthen the emerging value chain. Their roles would be two-sided: drive food innovations and provide scientifically-sound, clear arguments for purchasing agents and customers.

What makes flaxseed cultivation even more lucrative for farmers is its compatibility with another –(re-)emerging crop, i.e. buckwheat. Under climate conditions found in Danube region countries both species can be grown within one season; both exhibit good tolerance towards climatic adversities. Successive planting thus enables two harvests from the same field. Again, to drive the value chain by "pulling from the demand side", respective communication is needed to enhance customer´s recognition for health (and taste) benefits of buckwheat- and flaxseed-based foods; ideally combined within one food product.

Customer preferences will vary among Danube region countries. The here-communicated flaxseed / buckwheat – combination is just one possible example, from which a general strategy for generating regional value chains can be derived.

see above: 6-step-summary of recommendations

54. Recommendation for an academia/industry partnership to engage in collaborative refinement of a bioremediation-assisted heavy metal sorbent

Recommendation to establish a match between an academic partner (material science) and a microbiome-analysis-specialised company

Keywords: Partnership guidance / consultations

Bioremediation, heavy metals, pollution, microbiology

Aims of this recommendation

The recommendation package aims to establish a match between an academic partner (material science) and a microbiome-analysis-specialised company, with the aim to i) improve efficiency of a pollutant-scavenging innovative sorbent (already developed by the academic partner), ii) support university/industry interaction, iii) pave the way towards development of a marketable product and iv) generate original knowledge in microbial / environmental research.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions

In the fields of material research, microbiology, genetics, ecology

Background to this recommendation package

The document recommends collaboration between two institutions. It aims to encourage cooperative development of a high-capacity and effective composite sorbent for clearing heavy metal-contaminated water. The recommendation derives from our search among EcoInn Virtual Lab entries for possible matches. Though both partners completed forms in the “offer” and not the “demand” category, their profiles show a promising overlap; evident from a microbiologist´s point of view. Audience for this report are EcoInn partner consortium, the two institutions, but also any university or company working in the fields of material science and/or microbiology. Furthermore, the document shall rise interest among municipalities affected by heavy metal-pollution in lakes, ponds, etc.

Summary of party / parties

Partner1: Polymer Institute of the Slovak Academy of Sciences

(see also VL entry: http://ecoinnovative.eu/powerful-composite-sorbent-for-the-removal-of-contaminants-from-water/

Partner2: www.geneton.sk

(see also VL entry: http://ecoinnovative.eu/microbiome-analysis/

Optionally, Economica (Austria) can guide the partnership by providing microbiology-based input

Summary of eco-solutions/knowledge/technology

Ecoknowledge transfer between both partners, optionally assisted by a consulting third partner (Economica, Austria) is anticipated. Briefly, for partner 1 knowledge gain in microbiology and enhanced application potential of its original product (sorbent material) can be anticipated, whereas the main benefit for partner 2 will be expansion/exploration of its customer market. Furthermore, the suggested cross-disciplinary collaboration can boost knowledge gain in basic science. (see below for details)

Summary description

discuss the background of the problem, situation or opportunity that has led to this report

Partner 1 already developed a sorbent material for cleaning heavy metal-polluted water. In the recommended partnership there is the potential to make this sorbent more efficient and more flexible in its application, by employing a bioremediation-based strategy. Partner 2 has the knowhow and facilities to analyse qualitative and quantitative composition of microbial communities. A mutual benefit arises if partner1 “upgrades” its sorbent material with microbial consortia in order to facilitate pollutant uptake via a bioremediation-based strategy. (see below for details).

Needs and requirements:

Partner1: Polymer Institute of the Slovak Academy of Sciences

o Scientific reputation (publications)

o Increase visibility and facilitate market entry of its output from applied science

In-depth details / explanations of recommendations

Bouhajja E, Agathos SN, George IF. 2016. Metagenomics: Probing pollutant fate in natural and engineered ecosystems. Biotechnol Adv 34(8): 1413-1426

Edwards SJ, Kjellerup BV. 2013. Applications of biofilms in bioremediation and biotransformation of persistent organic pollutants, pharmaceuticals/personal care products, and heavy metals. Applied Microbiology and Biotechnology 97(23): 9909-9921.

Partner2: www.geneton.sk

o Expand customer market / Exploration of new fields of application

o Establishment in the field of ecoinnovation

Both

o Bridge basic and applied science; facilitate academia vs. industry interaction; generate profitable ecoinnovative products

Summary of status of knowledge transfer

Provide a background to the status of the knowledge transfer or the needs of the innovation.

A team member from Economica (Austria) with microbiology expertise pointed out the promising match between the two institutions to the EcoInn partner consortium (Feb 2019), and the responsible partner contacted GENETON accordingly. Interest provided, GENETON and the Slovak Institute of Science will be matched in order to establish a collaboration.

Options and scenarios

Discuss the options under consideration. Discuss the background associated with each option.

The anticipated collaboration can emerge as a “private” project between the two partners. Alternatively, a more open format would involve external consultation and interaction with additional scientists (e.g. from the Slovakian institute of Science, from environmental protection agencies). Economica offers input on demand. Should the precise match (i.e. between exactly these two partners) fail, the recommendation package might be adapted for a more general applicability.

see also Annex below

Date of recommendation package

28 Feb 2019

Author

Economica. Instititute for Economic Research

Annex: original file "Virtual Lab_Match proposition" sent to EcoInn partners

Virtual Lab_Match proposition_03 Feb 2019

Suggestion for match (though both entries are from the category „offer", their needs and competences show a promising overlap)

Partner1

Polymer Institute of the Slovak Academy of Sciences

Virtual Lab entry: http://ecoinnovative.eu/powerful-composite-sorbent-for-the-removal-of-contaminants-from-water/

Partner2

www.geneton.sk

Virtual Lab entry: http://ecoinnovative.eu/microbiome-analysis/

Possible cooperation and benefit

Partner1 has developed a cellulose-based composite material for removing heavy metal contaminants from water.

Partner2 offers a sequencing service for microbiome analysis

(explanation: large-scale DNA-sequencing and subsequent identification of bacterial species in a highly complex sample).

Background

The potential of certain bacteria to "detoxify" polluted environments (soil, water) is well-known. Some species can accumulate certain heavy metals, thus offering a "biological tool" for remediation purposes. Most of these desired species originate from analyses of respectively polluted areas (mostly China; old mining areas etc.). Whereas "normal/non-polluted" environmental samples from soil and water contain a wide variety of microorganisms, contaminant-rich environments only enable survival of few well-adapted species.

Collaboration

Partner1 is advised to collaborate with partner2 in a project that potentially leads to discovery and characterization of new bacterial species suitable for remediation of polluted areas. Benefit for basic science can also be expected.

Reasoning

Depending on pollutant exposure, nutrient availability and external factors (temperature, humidity etc.) naturally occurring microbial communities undergo substantial changes in their qualitative and quantitative composition. A selection process occurs in which those strains that are best adapted to a given environment will become more dominant. Partner 2 has the competence/facilities to analyse microbiome composition in samples. Partner1 has the material to be analysed. A collaboration is suggested in which partner1 provides test material (collected e.g. from cellulose devices floating on heavy metal-contaminated water; weekly collection) for subsequent microbiome analysis. With regular sample collection a progressive change in microbiome composition is expected (=publishable data). Long-term exposure, i.e. longer selection process, is expected to progressively enrich for cellulose-attached bacteria that have high resistance to heavy metals and that – ideally-have the ability to accumulate heavy metals.

In other/simple words, the innovative composite sorbent undergoes a natural-selection-based shaping whose outcome is an enhanced functional capacity. Thinking one step further, such "inhabited" composite materials could then be used in contaminant-remediation applications, speeding up the remediation process.

55. Recommendation for organizing eco-knowledge transfer events

Recommendation to institutions with hitherto limited experience on how to organize ecoknowledge transfer events for a young audience.

Keywords: Events, consultations and interactions
Ecoknowledge transfer, awareness raising, event planning

Aims of this recommendation

The recommendation package aims to provide guidance for organizing events in the fields of environmental awareness raising, innovation and networking among future eco-innovators.

Target group of this recommendation package

Any institution (authorities, NGOs, universities, SMEs) with limited experience in event planning, but with a clear desire to motivate, shape and train young people as future ecoinnovators and environmental awareness raiser.

Background to this recommendation package

Recommendations outline below are directly derived from our experiences made as organizers of the EcoInn Green Summer School (Vienna, Austria; 25-28 Sep 2018). They address issues on event planning (incl. financial and ecologic aspects), participants motivation and sustainable knowledge transfer.

This document provides guidance and encouragement to institutions with hitherto limited experience on how to organize eco-knowledge transfer events for a young audience.

Recommendations are based on actual experiences made during the EcoInn Green Summer School in Vienna.

Economica Institute, i.e. organizer of that event, here shares some detailed insight, which public/general event planning guides generally do not cover.

Summary of key parties

i)participants: students, young people with sincere interest in environmental protection and/or eco-innovations

ii)performers: motivation experts, university lecturers, start-ups, funding agency representatives, “creative minds”

Summary of eco-solutions/knowledge/technology

i)knowledge and skills to be transferred during the event:

- environmental impact of human behaviour
- strategies in ecoinnovation development
- concepts of circular economy
- commercialisation issues
- creative thinking. (specific contents and level can be adjusted to a given audience)

ii)knowledge and skills from “lessons learned” to future event organizers:

- financial and ecologic aspects
- participants motivation
- how to ensure sustainable positive impact on event participants

Summary description

Raising environmental awareness and stimulating entrepreneurship can substantially accelerate ecoinnovation development. Compared to most study curricula that teach a particular subject or skill over a longer time period, compact, dedicated events present an effective, time-saving format for transferring a wide spectrum of knowledge and skills. Hesitations among non-experienced institutions may exist on own abilities to hold such events. The current recommendation package aims to help overcome such hesitations.

Participants of Green summer schools want to improve ecological understanding and gain general entrepreneurial skills. Performers (start-ups, lecturers, workshop-leaders, funding agency representatives) want to communicate their interest and experience, stimulate ecoinnovation, increase their own networks, screen candidates for future employment in a relevant and direct way. For the organizing institution, needs comprise: increased visibility, network expansion (e.g. for cooperative projects/calls), employee candidate screening. Depending on its specific profile, the institution might discover/explore event organization as an additional business model.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

If relevant to the type of recommendation package: Provide a background summary to the eco-knowledge, eco-solution or eco-technology which will potentially be transferred /commercialised

- Description: recommendations for ecoknowledge transfer event organization to non-/less-experienced institutions
- Product or knowledge description: diverse organizational advice
- Purpose: encourage ecoknowledge transfer event organization
- Considerations: legal, financial, general considerations; resulting benefit for organizer

Summary of recommendation(s)

- Compact events with a multiple format program save time (for venue reservation, on-site-organization as well as for participants). An optionally 2- or 4-day program (bookable as day 1-2, 3-4 or 1-4 event) has both benefits and drawbacks. On the one hand, participants who can only spare 2 days do get an intensive attractive program. On the other hand, for participants attending the entire 4-day-event it is distracting to see attendees change in between.
- Participants with a sincere interest in environmental protection contribute significantly to the success of Green events. At the same time, they are the greatest beneficiaries and represent prime candidates for future employment (by event organizer or performers).
- A diverse program (in terms of type, e.g. workshop, lecture, excursion; and in terms of contents, e.g. ecology, marketing) ensures that participants stay motivated during the entire event.
- Having some parts of the program happening at different locations evades the impression of “being at school” and prevents one-sided views.
- Providing consistently “green” framework conditions and engaging naturally eco-oriented staff are effective and convincing tools for environmental awareness-raising among participants. The organizing institution must act as shining example.
- Start-ups are happy to make entries to EcoInn´s Virtual Lab portal if contacted directly, i.e. in the context of their Green Summer School contribution. Motivation outside such a direct contact is far more difficult.
- Return rate for evaluation forms is highest if participants are asked to fill in the documents on-site (rather than electronically).
- Financing: To keep event costs within budget constraints the program should encompass presenters charging no, low or a moderate fees (e.g. max. 600 € for half-day). If available, own staff (with relevant expertise) of the organizing institution should be engaged. In this way costs for external expertise can be saved, and the acquired experiences remains within the own institution (human capacity building).
- Event costs can either be covered by charging participant fees, or from respective project budgets. Successful accomplishment of an event is a good reference that might facilitate access of the organizing institution to hitherto inaccessible funding sources.

Conclusions of recommendations

Effective and sustainable transfer of ecoknowledge and entrepreneurial skills is a challenging undertaking. Just like evoinnovations that usually mature progressively, future ecoinnovators need to undergo a maturation process. This recommendation package helps organizers to guide candidates through parts of that process. By engaging adequate performers, lecturers, workshop leaders etc., even no/less-experiences institutions can tackle such challenge, i.e. organize respective events. Possibly needed minor ad-hoc adjustments (timing, materials) should not be considered as problem but as trigger of flexibility and driver for creativity; for all involved parties (organizers, contributors, participants). Only institutions and performers with a clear "green profile" (equipment, catering, waste management etc.) will be able to convincingly communicate ecoknowledge and environmental awareness.

Annexes

A list of documents supporting the recommendation.

Brief summary of the event (from which present recommendations were developed):

http://www.interreg-danube.eu/news-and-events/project-news/2824

http://www.interreg-danube.eu/news-and-events/newsletters/3143

Annexes below include:

- A template document for contracts (payment agreement with presenters). It covers legal aspects and enables budget control.
- An example of a participation certificate, meant to be of help to participants in future job applications. Rather than being a mere statement (X participated at … in…), the document contains detailed information on knowledge/skills acquired.
- A document related to collecting and handling of personal data, meant as adjustable tool for organizers not to infringe on personal data protection rights.

Date of recommendation package

27 January 2019

Author

Economica Institute for Economic Research, Austria

Organizing institution **Logo**

Declaration of consent for processing of personal data

Company: -- -	**Name:** **Participant name**
Address: ---	**Address:**
Contact person: Responsible person of organizing institution	

Pursuant to the Personal Data Protection Law I hereby express my consent to the processing of my personal data by Economica Institute for Economic Research, with its registered office [organizing institution address] (the "Company"), for the following purposes:

[Name of organizing institution] will store personal data, in particular: [name and surname, e-mail address, phone number, education; and for those attending the excursion to [example here: UNIDO] also passport/ID-scans displaying address, place of birth, date of birth, nationality] for the sole purposes of internal communication related to the „event name, place, date" and of conforming with UNIDO´s security requirements for visitors, respectively, for the duration of [date-date] (passport scan), respectively. The personal data will be deleted after that period.

I also give my consent for Economica Institute for Economica Research to transfer my personal data to UNIDO, Vienna.

The consent for the processing expressed above includes the following personal data: [name and surname, e-mail address, phone number, education; and for those attending the excursion to [example here: UNIDO] also passport/ID-scans displaying address, place of birth, date of birth, nationality].

I hereby represent that I have been informed about my right to:

- access and adjust my personal data;
- make a justified demand in writing for the blocking of the processing of my data due to particular situation;
- object to the processing of my personal data if the controller intends to process the data for marketing purposes;
- object to the transfer of the data to another controller; - as well as that providing my personal data is voluntary.

Please contact datenschutz@economica.at for any of the above.

Place, date Signature

nex 2

CERTIFICATE

of participation at the

GREEN SUMMER SCHOOL
Ecoinnovation –
Grasping the Future

Vienna, 25 – 28 Sep 2018

The participants acquired knowledge on ecological challenges, sustainability criteria and entrepreneurial opportunities emerging therefrom. Under professional guidance they explored different concepts and ideas on Green Entrepreneurship in theory and practice. Participants worked in small teams to exchange and develop ideas. The Green Summer School involved an excursion to UNIDO, sessions with young start-ups sharing their experience, workshops on idea development and rhetorics, and it culminated in a pitching session in front of a jury.

Participant: _____

Vienna, 28Sep 2018

_____

PD Dr. Andrea Pitzschke
Economica Institute for Economic Research

The Green Summer School was organized by the Entrepreneurship Center Network of BOKU and Economica Insitute of Economic Research. It took place in the framework of the transnational EU-project

EcoInn Danube– Ecoinnovatively connected Danube Region. EcoInn´s overall aim is to boost ecoinnovation development by supporting cooperation between innovators, scientists and enterprises.

Project co-funded by the European Union funds (ERDF and IPA) www.interreg-danube.eu/ecoinn-danube

organizing institution **Logo**

Annex 3

(heading line:

Organizing institution name, address

Contract
CONTRACTING PARTIES:

Client: Name of organizing institution
here after referred to as “the client”

Contractor: Name of performer (e.g. name of lecturer)
ADRESS

here after referred to as “the contractor”

Contract concluded on: **date of contract**

The contractual obligations concern date/duration of performance during event

and shall comprise all related activities, performed independently and under the contractor’s own authority, in connection with the didactic planning, preparation, execution, and follow-up work of the performance below:

description of activities/duties, e.g.:
Teaching, demonstration and mentoring activities for participants in the following project:

Project name, place, date

with the content which has been agreed upon with the coordinator

comprising a half-day workshop aimed at motivating young participants, potential founders of start-ups, students etc, with a focus on the field of energy-/resource saving.

For these activities, the contractor shall receive remuneration in the amount of **€ ___**.

As an integral part of this contract, the items set forth in Annex shall be agreed upon in their entirety as the general terms and conditions for the contractor’s activities.

_____ _____
Signature of the Contractor Signature of the Client

organizing institution **Logo**

Annex to the contract

§ 1 Autonomy:
The contractor is not subject to any personal directives from the client whatsoever. Agreements on subjects (and content) shall be accomplished in coordination with the coordinator of the EcoInn Danube Green Summer School in accordance with the principles of program design set out in the current version of the Danube Transnational Program. In other respects, the contractor, save in duly substantiated exceptional cases, shall not be bound by any directives whatsoever in respect to their work-related activities.

§ 2 Place of Work:
The contractor is free to perform their work wherever they deem fit, in particular the didactic planning, preparation, and any related follow-up work. Courses are to be held in the client's premises unless other arrangements have been agreed upon.

§ 3 Obligations of the Contractor:
The activities stipulated in the contract shall be carried out in accordance with the high standards of the Danube Transnational Program with respect to both content and teaching.

The mutually agreed date is considered binding for both parties and may be amended only under extenuating circumstances.

The mutually agreed upon activities and dates shall be reliably and punctually adhered to.

The contractor shall provide the event coordinator with a syllabus or shall coordinate the content of the syllabus with the coordinator no later than 5 days before the scheduled event. This data shall be legally binding for the entire contract and may only be amended in exceptional cases following an agreement with the event coordinator. The contractor shall also inform the respective office administrator of all teaching facilities and aids they require (classroom size, projector, media kit, etc.).

Should the contractor create and/or provide a course handout or other teaching and learning materials, they shall be responsible for respecting all copyrights. The client shall not be liable for copyright infringements. No supplementary remuneration shall be provided for the production of course handouts or other teaching and learning materials.

In the course of teaching activities, only original software and/or software authorized by the client may be used. In the course of study or practice activities, no copies may be produced for commercial or private purposes. In the event that a claim is lodged against the client concerning the aforementioned points, the contractor shall be obliged to indemnify the client.

When using the client facilities, the contractor shall be obliged to abide by the house rules and fire safety regulations. Moreover, loaned equipment (in particular projectors, computers, etc.) shall be treated with care and returned whole and intact immediately after use. Defective equipment shall be reported immediately. Assuming possession of the classroom key/campus card marks the transfer of responsibility for the equipment available in the classroom to the contractor. Costs

Organizing institution
address

Telefon:
E-Mail: ---@---
Internet: www.---

organizing institution **Logo**

incurred by loss or damage due to inadequate supervision or negligence on the part of the contractor shall be borne by the contractor.

The contractor shall immediately inform the client of any changes to data relevant to the contract.

§ 4 Invoicing and Fees:
Invoicing of fees (billing) shall be carried out by the contractor after completion of the contract at the end of the Green Summer School based on the fee agreement.

§ 5 Formal Obligations regarding Data Protection:
As part of his/ her professional duties the contractor is likely to come into contact with personal data. This data should be treated confidentially and is subject to the provisions of Austrian and European data protection law.

By signing this contract, the contractor is committing to comply with data protection legislation, in particular Section 6 Federal Act concerning the Protection of Personal Data in the Federal Law Gazette part | No. 120/2017 (Datenschutzgesetz – DSG).

The contractor is aware that

- personal data is subject to special protection and that using such data in only permissible in certain circumstances;
- personal data which the contractor may come across or is given access to as part of his/her professional duties may only be communicated after explicit instructions from the client;
- it is not permissible to send or make data accessible to unauthorized persons within or outside of the company;
- it is not permissible to procure or edit data unless the contractor has authorization;
- it is not permissible to use personal data for any other purpose than to complete legitimate relevant tasks;
- passwords and any access permissions entrusted to the contractor must be stored carefully and kept secret;
- all possible other regulations about confidentiality must be observed;
- this is valid even after the contractor stops working for the client;
- infringements of these obligations regarding data protection can have criminal consequences and the contractor could be liable for damages;

§ 6 Miscellaneous:
The contractor shall treat any trade and company secrets entrusted to them or otherwise made known to them for the duration of the contract as strictly confidential and shall refrain from any activities which could harm the client in any way. In the event of violation of such, the client reserves the right to claim damages.

Organizing institution
address

Telefon:
E-Mail: ---@---
Internet: www.---

56. Greening up cities_a starting kit

Recommendation to address general improvement of the environmental situation and energy saving in cities.

Keywords: Events, consultations and interactions

Urban greening, biodiversity, climate change, green architecture

Aims of this recommendation

The aim of this recommendation is to encourage urban greening initiatives in order to combat climate change- and pollution-related challenges for human health and life quality.

Target group of this recommendation package

- municipalities
- architects
- district administrations
- house owners

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Background to this recommendation package

Following team discussions with a plant scientist, desktop search and site visits, possibilities for increasing urban greening were explored with the chair of (6th) district of Vienna. Relevant stakeholders were contacted, and first steps towards project implementation initiated. From experiences made therefrom a recommendation package was elaborated; with the aim to stimulate and to provide first support for urban greening initiatives in partner countries.

Recommendations address general improvement of the environmental situation and energy saving in cities. More precisely, this report gives insight into a recently initialized case example.

Urban heating and traffic emissions adversely affect life quality. Efforts within the transnational project EcoInn Danube concentrate on innovative concepts, projects and initiatives that help reducing greenhouse gas emissions and resource consumption. Introducing more “green islands” in cities is one strategy to combat urban problems in a sustainable and resource-efficient way.

Successful implementation takes many steps. This report/recommendation package represents a summary of steps taken towards introducing more vegetation in urban environments. Therein we share arguments and considerations with the aim to facilitate greening-up initiatives in other regions.

Summary of parties involved:

Scientists, a network of stakeholders engaged in greening-up solutions, district administration (or mayor), architect

Summary of eco-solutions/knowledge/technology:

Implementation of urban greening including positive side-effects (on biodiversity, energy saving due to plant-based insulation, visual attractiveness, air quality, tourism)

Summary of proposed collaboration:

between above-mentioned parties, whose input and action is needed at specific stages of project planning and implementation.

Summary description

Urban heating and traffic emissions pose a health thread and adversely affect life quality. As part of our EcoInn project work, stimulated by a plant scientist team member, we recognized the potential of plant-based solutions. We

assessed the potential for urban greening in a selected district in Vienna, gathered convincing arguments, contacted relevant stakeholders (city authorities, stakeholders), and started collaboration with a professional institution which represents a "green hub" for relevant companies and competences.(www.gruenstattgrau.at)

Discuss the needs and requirements of the parties featured in the recommendation package

The chair of district emphasized the growing problem of urban heat islands and the resultant need for sustainable eco-friendly solutions, which – ideally- should bring additional benefits to district habitants.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Main tools provided in this document comprise:

- List of benefits resulting from urban greening, to be used as persuasive arguments
- List of steps to take in the starting phase

Summary of status of knowledge transfer

A team member (plant scientist) from Economica Institute for Economic Research (Austria) pointed out the potential of plant-based solutions to improve the environmental situation in cities. Stimulated by a recent call "Stadt der Zukunft; City of the Future", end 2018, the team discussed where and how more vegetation might be introduced into "grey/deserted" urban problem spots. We participated in a network meeting, organised by "GruenStattGrau" (association of key institutions engaged in greening up projects), and subsequently had a consultation meeting with/for the chair of 6th Viennese district. The "knowledge transfer" was bidirectional, i.e. we shared biological and technical knowhow, and received knowledge about urban problem areas, previous initiatives (incl. reasons for failure), and potential collaborators/contacts/institutions for implementing greening-up projects.

Summary of recommendation(s)

To combat the problems of urban heating and/or car pollution, introduction of vegetation is recommended. Solutions shall be adapted to the specific local situation and (space, budget) resources. For instance, vertical greening for space-limited areas; plants species with hairy leaf surfaces for car emission-exposed areas etc. Schools and/or local residents shall be engaged in plant care, enabling cost reduction and environmental awareness raising. Parties (e.g. city district authorities) that implement greening-up projects can expect diverse and lasting improvements. These include: improved optics (green vs. grey walls), reduced urban heating, improved air quality, strengthened community stability, higher environmental awareness, stimulate imitations (by self-financed private persons) that accelerate the greening-up process.

In-depth details / explanations of recommendations

Arguments to convince stakeholders/decision makers to engage/invest into greening-up projects:

Overall higher life quality

- Opportunity to demonstrate own eco-attitude/image
- Cost reduction for building insulation and air conditioning
- Higher community stability
- Tourist attraction

Recommendations how to identify suitable locations

- Obvious demand for improvement (e.g. optics, pollution, urban heat island)
- Proximity to school, kindergarten, or other institution(engage people in plant care)
- Adequate space availability (note: availability might be "hidden", cellars with windows facing streetwards can serve as plant anchoring point for vertical vegetation)

Recommendations on financing

- Potential investors: Search companies in a given area (e.g. district) and explain potential of improving eco-image
- District authorities: explore possible budget availabilities
- Look for relevant calls (many cities need to re-orient towards climate strategies; budget dedicated to citizen science projects)

Recommendations on "who to engage"

- (if available) contact hub institutions that have a wide network of relevant companies (gardeners, suppliers of substrates, pots etc.)
- Applied science institutions (advising on optimal plant species choice)

- Schools, kindergartens etc. for regular plant care

Costs for greening-up implementations will vary greatly, depending on multiple factors such as area, type (vertical, horizontal), professional or citizen-based plant care. A general recommendation is to “start small and try to grow”.

Conclusions of recommendations

Greening up of cities brings diverse improvements, at comparatively low costs. Considerations on key factors for implementation of urban greening are provided, for adaptation to respective local situations.

Useful documents

Haaland C, Konijnendijk van den Bosch C. 2015. Challenges and strategies for urban green-space planning in cities undergoing densification: A review.

Sturiale L, Scuderi A. 2018. The Evaluation of Green Investments in Urban Areas: A Proposal of an eco-social-green Model of the City. Sustainability 10(12): 4541.

Date of recommendation package

20 Feb 2019

Author

Economica Institute for Economic Research

57. Recommendation for knowledge transfer in the area of improving wastewater treatment efficiency

Recommendation to support the transfer of knowledge between a given party (the developer of the solution) and organisations searching for solutions in the specific field of technology (wastewater treatment).

Keywords: Pitch, wastewater treatment, waste management, wastewater treatment, environmental pollution, microbiology, biofilm, biodegradation, enzymes, applied biosciences, EcoInn, knowledge transfer

Aims of this recommendation

This recommendation package aims to support the transfer of knowledge between a given party (the developer of the solution) and organisations searching for solutions in the specific field of technology (wastewater treatment).

Purpose: provide an eco-oriented company with unique biological materials and know-how in order to improve wastewater treatment efficiency

Target group of this recommendation package

This report addresses institutions in the fields of wastewater treatment/management, water pollution, microbiology-based cleaning strategies.

- Small and medium sized enterprises (SMEs)

Background to this recommendation package

The organisation featured in this recommendation packages has developed a solution that improves wastewater treatment efficiency through use of specific microbial consortia bacterial communities.

A successful technology transfer would result in increasing the efficiency of wastewater treatment facilities using unique microbial communities for pollutant biodegradation.

Initially, a Hungarian wastewater treatment company had deposited a demand for improving wastewater treatment efficiency, communicated via the EcoInn Virtual Lab interconnection platform

(see: http://ecoinnovative.eu/looking-for-a-number-of-eco-technology-solutions-and-component-parts-that-can-complement-its-business-and-solutions-technology-in-the-area-of-waste-management/).

The Austrian EcoInn partner Economica, together with an associated research institute developed a respective collaboration offer.

The Hungarian EcoInn project partner has been acting as negotiating entity to help establishing the anticipated collaboration between our research department and the wastewater treatment company.

Summary of party / parties

Research department (offer) and wastewater treatment company (demand)

Summary of eco-solutions/knowledge/technology

Application of unique bacterial consortia in wastewater treatment facilities is recommended. The biological material as well as relevant guidance for application can be provided by the offering entity.

Use of bacteria with diverse properties (biofilm formation, certain enzymes etc.) is recommended because of their

potential benefit (accelerating waste compound decomposition/detoxification) for wastewater treatment.

Interested parties expect reduction of costs, materials, energy input and an overall “green shift” of their company´s performance. They are aware that the offer is not a ready-to-use solution but the first key component of an empirically developed solution adapted to individual conditions of company facilities.

The “solution” package comprises all required materials; both “hardware”, i.e. bacterial cultures, and “software”, i.e. microbiological knowhow and guidance to establish the ecoinnovative solution.

Summary of proposed collaboration / proposed partnership and knowledge transfer

The proposed collaboration offer comprises supply of unique microbial material, interactive planning, accompanying set-up and testing on existing wastewater treatment facilities, based on long-standing expertise in microbiology, biochemistry, and plant-microbe interactions.

Summary description

- Description: technology for improving wastewater treatment efficiency.
- Product or knowledge description: supply of unique biological material and diverse relevant knowhow
- Purpose: establish collaboration, match a demand, reduce environmental pollution, provide case study
- Considerations: The proposal can be adapted to match the need of any wastewater treatment companies. So far, despite efforts made by EcoInn partner as mediator, the “match” for a collaborative project still awaits feedback/approval/agreement from the company.
- Sector: waste management, wastewater treatment, environmental pollution
- Results aimed to be achieved: ecoknowledge /ecomaterials transfer and implementation of R&D results. Long-term aim: cleaner water.

Summary of status of knowledge transfer

The trigger for pitch was an entry (category: demands) by a Hungarian wastewater treatment company on the Virtual Lab Interconnection platform. Economica contacted the EcoInn partner in Hungary, expressing interest and respective potential to match the demand. The Austrian partner was encouraged to elaborate a structured document with technical details etc; and offered to act as mediator/negotiator. The document was forwarded to the wastewater treatment company.

Status: awaiting response.

Options and scenarios

Since the request for improving wastewater treatment efficiency is not a company-specific one, the collaboration offer incl. transfer of biomaterials and knowhow is open to a wider target group.

Summary of recommendation(s)

Conclusions of recommendations

A wastewater treatment company willing to take up that solution needs to have a serious interest in science, innovative concepts and willingness to invest efforts into empirical optimization. Opportunities resulting therefrom are: entering a niche position, gaining market advantage

Annexes

Provide a list of documents supporting the recommendation.

The actual collaboration proposal, including scientific background, is provided as part of this RP in a separate document.

Date of recommendation package

28 Feb 2019

Author

Economica Institute for Economic Research

Annex

Microbial Communities for Waste Water Treatment

Summary

Fixed bed biofilm-activated sludge (FBAS) technology is a comparatively young technology. Unlike conventional waste water treatment employing microbial suspensions for biodegradation, FBAS technology employs biofilm-forming microorganisms which can e.g. be attached to plant roots reaching into the reactor solution. Microorganism robustness, adaptiveness, metabolic activity, enzymatic setup, biofilm growth characteristics and plant-colonizing behavior are key parameters for further optimizing FBAS-based biodegradation in terms of costs and time efficiency, and accessibility of hitherto ´non-degradable´ substances. Our research efforts yielded naturally-evolved microbial communities exhibiting diverse morphological and metabolic characteristics clearly desirable for FBASbased waste water treatment. Microbial cell material as initial input can be generated within few days, and experimental data suggest direct compatibility with existing facilities, thus enabling set-up of pilot trials.

Though ORGANICA WATER successfully uses own microbial communities already, we see potential to further enhance the treatment process. Our contribution in a proposed collaboration encompasses supply of the microbial material, interactive planning, accompanying set-up and testing on ORGANICA WATER facilities, providing long-standing expertise in microbiology, biochemistry, plant physiology and plant-microbe interactions.

Background

Waste water usually contains a heterogenous mix of environmentally harmless and potentially harmful substances. Small particles and dissolved components escaping the filtering process ideally undergo decomposition under ecologically and economically sound conditions.

Efficient treatment of waste water -with frequently changing quantitative and qualitative composition- requires microorganisms with strong adaptiveness, diverse metabolic specifics and enzymatic capabilities. Reports exist on individual bacterial and fungal species that can e.g. degrade aliphatic hydrocarbons, secrete enzymes for breakdown of aromatic hydrocarbons or plastics materials. Reported performance tests were usually conducted on strain isolates and in clearly-defined media; far less complex than waste water. However, because single strains/species normally lack the enzyme portfolio needed for breakdown of complex polymer mixtures, degradation in teamwork engaging different strains is advisable. Incompatibility (e.g. mutual growth inhibition; diverging pH requirements) prohibits a simple mixing of selected microorganisms.

Efficient cleaning of waste water relies on concerted action of microorganism communities whose members tolerate each other, communicate, and flexibly respond (relative number of strains, enzyme profiles) to external conditions.

Invention

The invention relates to improving *fixed bed biofilm-activated sludge* (FBAS) technology-based waste water treatment. Naturally established microbial communities are employed for sustainable production of degradative enzymes and – simultaneously, for building high-surface biofilms. Rather than assembling selected microorganisms with diverse enzymatic capabilities into an artificial community, the approach engages an evolutionary-evolved naturally compatible microbial community. Members show desired degradative enzyme activities. The ability of these non-pathogenic microorganisms to colonize plant surfaces makes them particularly suitable for vegetation-equipped FBAS facilities. Their ability to colonize the plant Interior, to migrate in and between plant cells can facilitate swift establishment of functional FBAS ecosystems in newly constructed facilities. Secreted biosurfactants represent valuable by-products.

Features & Benefits o technology differentiation compared to existing ones

1. Communities consist of non-GMO microorganisms that pose no harm to environment or human health. Based on DNA sequence data, members are phylogenetically related to beneficial species incl. probiotic bacteria, plant growth-promoting bacteria, microorganisms used for phytoremediation.

2. Community relative composition, enzyme activities and protein profiles flexibly change according to external conditions and nutrient availability. Tailor-made consortia can establish themselves.
3. Communities show rapid growth on/in diverse media (indicative of high metabolic activity) and biofilm formation on diverse materials, rendering them suitable for FBAS technology. The foldlike biofilm development yields biofilms with large surfaces; supporting waste compounds access to immobilized bacteria.
4. Microorganisms are highly robust, can cope with extreme pH conditions and other challenges such as hyper-/hypo-osmotic or heavy metal stress, high temperatures. These characteristics will enable fast recovery after e.g. temporary shut-down of TBAS facilities. Set-up of TBAS facilities exclusively for particular problem-waste-generating sectors might become feasible.
5. Experimental evidence exists for microbial degradation of e.g. paraffin, xylene, polyethylene glycol; there are also indications for polyethylene breakdown.
6. Microorganisms produce biosurfactants; compounds known to enhance waste water treatment efficiency. Collecting those biosurfactants as valuable by-product might further enhance economic efficiency of the FBAS-facility.
7. The microorganisms are able to colonize plants incl. plant roots. Neither diffusion-based colonization nor enforced (syringe) infiltration causes plant disease symptoms. There are indications of plant growth-promoting and resistance-supporting effects (plant immunity system is stimulated). There is evidence of microbial entering into and moving between plant cells. Such sustainable colonization of the plant interior can facilitate swift establishment of functional FBAS ecosystems in newly constructed facilities.
8. Long-term storage is possible (dried or frozen), enabling worldwide transport. Re-culturing requires no specific media or lag times.

Fields of Application

Above-described microorganisms have potential for application in waste water treatment; especially in facilities employing *fixed bed biofilm-activated sludge* (FBAS) technology. Given the extremely robust and adaptive features of the microbial community, potential exists for application in TBAS facilities dedicated to problematic types of waste water that so far have been inaccessible to biodegradation.

Principally, there are no restrictions in terms of geographic position, facility size, plant species selected for vegetation. Parallel use for biosurfactant production might further enhance economic efficiency of the FBAS-facility.

Development Status, Tech Readiness Level

Microbial communities have been isolated from natural material. Genetic and phylogenetic data exist, as well as evidence for protein profile adaptiveness and breakdown of diverse chemical substances, as well as for biofilm and biosurfactant production. Growth conditions for rapid generation of large biomass of microbial cells are known. From frozen culture aliquots it is possible to yield bacteria at the kilogram-scale within 2 weeks. The non-pathogenicity for and colonization of diverse plant species is verified, enabling first direct tests on FBAS facilities.

Proposal for Collaboration

Though ORGANICA WATER successfully uses own microbial communities already, we see potential to further enhance the treatment process. Our contribution in a proposed collaboration encompasses supply of the microbial material, interactive planning, accompanying set-up and testing on ORGANICA WATER facilities, providing long-standing expertise in microbiology, biochemistry, plant physiology and plant-microbe interactions. Detailed modalities of the envisaged collaboration may be discussed in a personal meeting.

58. Recommendations to cities and municipalities on introducing mobile software solutions to reduce hard copy communication material and improve their services

Supporting the cities and municipalities in Republika Srpska in using solutions developed by the Company "DVC Solutions" on reducing hard copy communication material and improvement of their relationship with clients/citizens.

Keywords: Mobile application, improvement of services, municipality, ministry, ecology, paperless economy.

Aim of this recommendation package

This recommendation package aims to establish a partnership relation between a company "DVC Solutions" from Banja Luka and national and local authorities in Republika Srpska with the aim to use solutions for reduction of hard copy communication material thus reduction of costs of the face to face interaction with citizens.

Target group of this recommendation package

- National and local authorities in Republika Srpska
- Ministry of scientific – technological development, high education and informational society
- Other actors involved in the process of digitalisation
- General public

Background to the recommendation(s)

Company "DVC Solutions" offered to the City of Banja Luka their software solution in 2017, free of charge, which is intended for the citizens to report different kind of observation, facts and other issues in the city which demand the action from the City itself, whether the reaction of municipal police, reparation teams etc.

By direct communication with officials, the citizens can improve the quality of life in the city, engage quick reaction and be proactive in solving cities problems and issues. Also, the citizens do not have to go directly to the city or municipality premises, engage their time or resources, use energy to travel, papers or any other means to report the issues.

This document recommends collaboration between a company "DVC Solutions" and all cities and municipalities in Republika Srpska, with an exemption of Banja Luka, which

has already implemented the solution. It aims to encourage the use of new practices in activities in cities and municipalities. The recommendation derives from one of the activities of Chamber of Commerce and Industry of Banja Luka Region, which aims at raising the level of cooperation between the Chamber and local communities.

This document aims to assist the organisation and departments in local communities in recognizing the environmental aspects of such actions and have sustainability in mind.

The document describes the idea of duplication of implemented service in one city in Republika Srpska – Banja Luka to other cities and municipalities in order to improve their function and to raise the level of internal organization as well as cooperation between cities and municipalities with government at national level, through use of eco-friendly software solution.

Audience for this report are EcoInn partner consortium, municipalities and cities in Republika Srpska. Furthermore, the document intended to recommend the collaboration with the Ministry of scientific – technological development, high education and informational society.

Main idea behind this recommendation package is to use the infrastructure of Ministry of scientific – technological development, high education and informational society i.e. servers, domains, etc. in order to facilitate the software for each municipality or city interested in using it. Thus, the software, which is free of charge due to intention of the company to give the software as a part of socially responsible activities towards the society, and free of charge servers would consist complete free of charge environment for all interested local communities.

Summary of recommendation(s)

The document recommends collaboration between national and local authorities, business association and an SME. It aims to encourage the use of new solutions in every day activity of local authorities. The recommendation derives from communication with the members organized by EcoInn Danube partner - CCI BL.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

CCI BL has been involved in activities of promoting and developing new solutions and services, whether in their own organisation or in their members organisations. Having in mind all good aspects of using software solutions to improve organisations and to reduce the usage of energy and other resources, as well as mission of CCI BL, which is, among many others, connection between companies and authorities at local and national level, CCI BL feels responsibility to make action in connecting all actors, promoting and giving expertise in order to realise the general idea.

Summary of status of knowledge transfer

CCI BL organised a meeting with company “DVC Solution” in order to analyse the potential good practises and ideas to implement in Chamber activities focused toward local authorities. In last 5 years, the Chamber has intensified the cooperation with local authorities. Through monthly meetings with mayors, constant education, cooperation in different kinds of international and national projects etc. cooperation between CCI BL and local authorities has been raised to a much higher level.

The intention of the meeting with “DVC Solutions” was to find the way to present software developed to local authorities in order to upgrade their business processes and relationship with citizens in general.

During the meeting, an idea was brought to the table – connection of all players – the Chamber, the Company, Local Authorities, National Authority.

At this moment, communication is planned with national and local authorities to present the idea and get their feedback. After the agreement from all parties, the software could be installed in servers and available to all parties in a week after the installation.

CCI BL is organising additional meeting with the representatives of the Ministry of scientific – technological development, high education and informational society. All the local authorities interested in implementation of software solution, shall receive CCI BL’s assistance.

In-depth details / explanations of recommendation(s)

Local authorities are in a process of getting more connected with the citizens in order to encourage the communication with authorities, to receive feedback and to raise the level of cooperation in general. On the other hand, companies involved in development of different kinds of software solutions, are becoming more and more organized, recognized and connected with other countries and companies, thus getting more job offers, opportunities and higher incomes. Many of them feel responsible to return the favour to the community which allowed progress and many other chances in their beginning.

One of those, socially responsible activities is development and donation of the software called “Citizens patrol” to the city of Banja Luka in 2018 by “DVC Solutions”. According to the records, more than 9000 comms were done in 2018 between citizens and local authority through the software.

As pointed, the idea is to adapt the software to all interested local authorities in Republika Srpska, as first step and after that to raise the activity to the Bosnia and Herzegovina level.

Before the process of adaptation, the opinion from the national and local authorities, general public, business support organisation and other players involved need to be gathered and analysed. Having that in mind, CCI BL will organize a conference with panel discussion at the subject of improvement of activities on the level of local authorities, raising the level of cooperation between national and local authorities, SMEs represented through business improvement organisations and all that through ecological innovation in a form of software solution.

The conference with panel discussion is planned for the second part of 2019, and implementation of software solution for local authorities is planned for the end of 2019.

The conference itself could be used as an opportunity for all levels of the authorities, support organisation and SMEs to discuss on all potential interested topics.

At this moment, company “DVC Solutions” is advised to donate the software for local authorities for communication with general public in Republika Srpska. Also, the Company, national and local authorities together with all chambers covering Republika Srpska will be a part of a conference which will have main idea- to connect and to develop.

The Ministry of scientific – technological development, high education and informational society and other actors involved in the process of digitalisation are advised to use the recommendation package in order to explore possibilities of transfer of knowledge to the whole area of Republika Srpska.

List of annexes

Annex 1: Screenshot of application

Further reading

https://www.banjaluka.rs.ba/gradjanska-patrola/

https://dvcsolutions.com/

https://play.google.com/store/apps/details?id=com.dvcsolutions.gp&hl=sr

Date of recommendation package

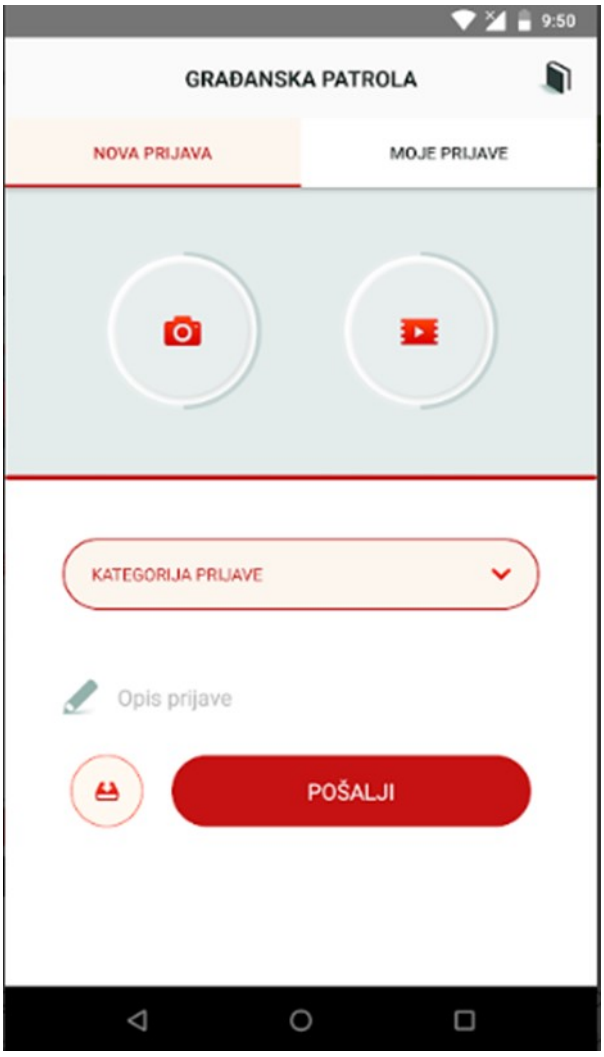
April 18, 2019

Author

Chamber of Commerce and Industry of Banja Luka Region (CCI BL)

Annex 1

Screenshot of application



59. Recommendations to support municipalities in installing visual equipment in elementary schools

The recommendations in this document are aimed at supporting the Laktaši Municipality in using solutions of German city (Frankfurt am Oder) in reducing hard copy promotional material and reducing organisation of promo events by installing visual equipment in elementary schools

Keywords: visual equipment, promotional campaigns, Laktaši Municipality, Republika Srpska, municipalities, elementary schools, sustainability, eco-awareness, awareness raising

Aim of this recommendation package

The recommendation package aims to establish a match between two local authorities with the aim to use solutions for reduction of hard copy promotional material, reduction of organisation of promo events and reduction of costs of the promotional campaign (already developed by the German partner), as well as to pave the way for international municipal interaction in other areas of life.

Target group of this recommendation package

- Municipalities
- Elementary schools
- Ministry of Education and Culture

Background to the recommendation(s)

Republika Srpska secondary schools are introducing the new methods; practical teaching in companies will be introduced. Elementary school students need to be informed on the process and the offer of secondary schools regarding the available educational programs. Local authorities are facing the issue of promotion costs and the consequences of large circulation of printed promo material.

Laktaši Municipality representatives were participants in a study visit to Frankfurt Oder, organized by the CCI BL and expressed interest in the solution of German schools - large screen is installed in elementary schools and contents is being delivered in a specific way. In order to transfer the solution, CCI BL will support Laktaši municipality in communication with the German side.

The document recommends collaboration between two municipalities. It aims to encourage the use of new energy saving practices in public campaigning. The recommendation derives from one of the study visits organized by EcoInn Danube partner - CCI BL. Study visit was organized in order to transfer knowledge in the area of education. One of the areas was the encouraging students for special programs of education through promotional campaign. Increasingly important quality feature and criteria when it comes to promotional campaigning is the impact of promotional

actions on the environment, mainly printing hard copy material and organisation of promotional events.

This document aims to assist the organisation and planners of promotional campaigns in recognizing the environmental aspects of such actions and have sustainability in mind.

CCI BL recommends green, sustainable and responsible promotional campaigns to municipalities in Banja Luka region and wider, especially in the area of promoting special programs of secondary education in primary schools.

The document describes one special promotional channel for the campaign of encouraging students for special programs of education. This recommendation can additionally be complemented with Bwcon GmbH package "Recommendations on the sustainable organization of events: 'Green Events' providing guidelines in order to ensure that no major criteria regarding the sustainable organisation of events are ignored.

Audience for this report are EcoInn partner consortium, Municipality of Laktaši but also 64 other municipalities facing the same challenge in the process of reform of educational system in Republika Srpska. Furthermore, the document intended to recommend the practise to the Ministry of Education and Culture for their future projects.

Summary of recommendation(s)

The document recommends collaboration between two municipalities. It aims to encourage the use of new energy saving practices in public campaigning. The recommendation derives from one of the study visits organized by EcoInn Danube partner - CCI BL. Study visit was organized in order to transfer knowledge in the area of education. One of the areas was the encouraging students for special programs of education through promotional campaign.

CCI BL is organising additional meeting with the German partner in Banja Luka in order to have the details necessary to create detailed guidebook for Laktaši Municipality. Laktaši shall receive CCI BL's assistance.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

CCI BL initiated the process of reforming the vocational school programs in Republika Srpska. This complex process was prepared for several years and started in 2018. Chamber system of Republika Srpska is one of the key actors of the process and shall play important role in the new system of education. CCI BL feels responsibility for making all segments of reformed education better. Following that, CCI BL organised a study visit for representatives of three local authorities to German city Frankfurt am Oder, in order to transfer knowledge in the area of education.

Summary of status of knowledge transfer

CCI BL organised a study visit for representatives of three local authorities to German city Frankfurt am Oder, in order to transfer knowledge in the area of education. One of the practices in vocational school programs – an innovative way of promoting the offer of vocational schools – was recognised as potentially very useful by Municipality of Laktaši.

Instead of using large circulation printed material or organising events in each elementary school, German chamber of commerce installed wide screen TV in elementary schools and is using specially designed video material for promotional purposes. There are several aspects of this solution which need to be detailed with the German partner and then delivered to Municipality of Laktaši and further.

CCI BL shall discus and clarify all aspects of innovative approach to promotion with a German partner such as:

- methods of gathering input data for campaign design,

- involving stakeholders and partners and roles,

- specification of equipment (hardware and software),

- methods of creation of promotional campaign (type of video material, distribution, timing etc.),

- design of video material, specifics,

- analysing results,

- etc.

In order to create a kind of a guidebook for Republika Srpska, CCI BL is organising additional meeting with the German partner in Banja Luka. During the visit, CCI BL expects to have most of the details necessary to create detailed guidebook for Laktaši Municipality. These instructions shall be passed to Laktaši Municipality and additionally discussed on the meeting with local companies in order to obtain their final suggestions for an action.

Following that, equipment can be procured and video material produces. Installation of the equipment and publishing of promotional content can be planed for the following school year.

In-depth details / explanations of recommendation(s)

Republika Srpska vocational education is being reformed - practical teaching in companies will be introduced. Elementary school students need to be informed on the process and the offer of secondary schools regarding the available educational programs. Local authorities are facing the issue of promotion costs and the consequences of large circulation of printed promo material.

Encouraging students for special programs of education through promotional campaign need to be done in a green, sustainable and responsible way in elementary schools in Banja Luka region and wider. Increasingly important quality feature and criteria when it comes to promotional campaigning is the impact of promotional actions on the environment, mainly printing hard copy material and organisation of promotional events.

One of the innovative and practical solutions, developed by German chambers of commerce has been evaluated as potentially useful by Laktaši Municipality in all four elementary schools on the territory.

* In order to determine all necessary details of innovation, CCI BL is organizing meeting with the German partner. CCI BL shall discus and clarify all aspects of innovative approach to promotion with a German partner such as:

- which data are necessary for the planning of promotional campaign, what sources shall be used, and what are the best methods of gathering input data for campaign design,

- how to involve other stakeholders which are needed for the success of the campaign and what are their exact roles,

- which hardware is the best to choose and where to position it,

- is the software used by a German partner available for free of charge use, if not, what is the price of it and what is the price of software development,

- which video materials can be used, and are there any already made by other projects or stakeholders, how to make new videos, who is making them and at what cost,

- what is the time plan of publishing videos in schools,

- methods of collecting feedback from students and schools and analysing the results of campaign,

- etc.

* Afterwards, CCI BL shall assist the Municipality of Laktaši during the implementation of innovation in four elementary schools in Laktaši.

* Ministry of Education and Culture is the leader of vocational education reform. The guidelines for implementing innovative promotional solutions in elementary schools shall be delivered to the Ministry in order to multiply the best practices all over Republika Srpska.

Date of recommendation package

April 22, 2019

Author

Chamber of Commerce and Industry of Banja Luka Region (CCI BL)

List of annexes

Annex 1: An example.

Further reading

www.bl.komorars.ba

https://www.youtube.com/playlist?list=PLUhrvmqIVOuZoRCnmxlE0gLjA7nuxSZz4

Annex 1

An example:

60. Recommendations to support companies in reducing resources for promotional material by use of digital solutions support

The recommendations in this document are aimed at supporting the company "EldaLux" in reducing resources for promotional material by use and development of digital solutions.

Keywords: Newsletter, web shop, optimisation, eco – friendly, responsive website, digitalisation, digital transformation.

Aims of this recommendation package

The recommendation package aims to present all the digital solutions to the company representatives in order to develop services which will be used to reduce use of hard copy and other non-environmental activities to the lowest level possible.

Target group of this recommendation package

- Company "EldaLux"
- Companies in Bosnia and Herzegovina
- General public

Background to the recommendation(s)

The document recommends use of the digital solutions in all day business to the company "EldaLux" from Banja Luka, Bosnia and Herzegovina. This recommendation is based on experience gain through many projects which tackled digitalisation and digitalisation processes, especially optimization of business processes, whether in production or business administration. Also, in experience gain through different kind of meetings during the EcoInn Danube project, CCI BL got an insight on many services which could be useful and practical for SMEs use in order to make them "Green" and ecologically friendly.

This document aims to assist the organisation of promotional campaigns in recognizing the environmental aspects of actions and to facilitate the use of digital technologies.

Audience for this report is EcoInn partner consortium, company "EldaLux" but all the companies in Bosnia and Herzegovina. Furthermore, the document intended to recommend the practice to the Ministry of scientific – technological development, high education and informational society for their future projects.

Company "EldaLux" is active in the area of home appliances. They are the official representatives and resellers of many brands. One of the most important activities in their business is promotion of their activities and offer.

In this light, the representatives of the company approached CCI BL as their business association in order the improve the activity of promotion and related activities. Since CCI BL has experience in promotion of usage of clean, digital technologies gain through implementation, whether as lead or regular partner in many projects, of which the latest is EcoInn, representatives of the company concluded that CCI BL would be a good partner in consulting in the matter.

Summary of recommendation(s)

The document recommends use of new digital technologies and it aims to encourage the use of new energy saving practices business processes. The recommendation derives from many activities and educations organized by EcoInn Danube partner - CCI BL.

This recommendation is aimed at improvement and optimization of business processes whether inside the company or to third parties, in this case, customers.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

During many projects and educations, representatives of CCI BL were introduced to digital tools which could decrease the use of paper on other materials in order to make not only higher business effects but also to be more ecological and to reduce carbon footprint of all players involved.

By analysing the information provided by the representatives of the company, CCIBL stuff concluded that use of newsletter tools, completely new and user friendly website, especially in communication part with consumers as well as new visual design for the company are much needed in order to fulfil the request, not only for ecologically friendly business but also for user oriented operations as well.

It is recommended for companies' personnel in charge of promotion, to get educated on newsletter software/services and the list of proven companies in field of creation of website and visual identity was provided by CCI BL.

Summary of status of knowledge transfer

During the meeting with the CEO of the company "EldaLux" on 20th September 2018, the representatives of CCI BL were introduced with the demand on improvement company's business processes. By analysing the demand, it is concluded that mentioned services and activities needed to be implemented in next 12 months in order to fulfil the demand end expectations form the representatives of the company.

First step is to educate employees on services and tools used for newsletter, second step is the creation of completely new website with new visual identity.

During the meeting, CCI BL offered expertise for digital services as first step and timetable for this activity, which projected realisation of the activity till the end of 2018. Next step is projected for early 2019.

One of the conclusions is that special consideration should be given to the gathering of all contact information to final beneficiaries in order for newsletter with all information could reach target group.

In October 2018, member stuff from CCI BL educated personnel from the company in usage of MailChimp services used for the creation of Newsletter, and meetings were organized with companies active in the field of creation of websites and graphical visual identity.

New website was created and new visual identity became active at the beginning of 2019.

In-depth details / explanations of recommendation(s)

Newsletter, responsive and two way communicated website as well as appealing visual identity is crucial for success of the company, especially when company is in technology products activities. By combining new tools, techniques and technologies in order not only to decrease expenses but also to be more eco friendly and to have easier communication with customers, company is in win-win situation.

Newsletter with template and corresponding contact list, created in cooperation with CCI BL, was prepared in MailChimp newsletter service. In addition, the new technology of creation of the websites enabled the company not only to present their offer but also to develop online shop which is active from 2019.

New visual design is also crucial for the activities of the company. All new visual design details are actively implemented in digital services and it is expected that will be implemented in hard visuals (logo on the building etc.) in next 6 months.

Date of recommendation package

April 29, 2019

Author

Chamber of Commerce and Industry of Banja Luka Region (CCI BL)

List of annexes

Annex 1: Visual design – old and new logo

Further reading

www.bl.komorars.ba

Annex 1

www.eldalux.com
Visual design – old and new logo

61. Recommendation for Galenfarm Ltd. on use of alternative financing source for innovative actions

Keywords: CO2 emission, innovative company, herbal-medicinal products, guidelines, funding for SME's, BSO.

Target group of this recommendation package

Recommendation package summarises the consulting the innovative company Galenfarm Ltd. following info session in the Chamber of Commerce and Industry of Banja Luka Region regarding the alternative sources of financing the development of a new product by implementing energy-saving technology which also reduces CO2 emissions

Target group of this recommendation package

- Company "Galenfarm"
- General public
- Business support organisations
- National authorities
- Local authorities

Background to the recommendation package

The document recommends the best solutions for identification of alternative sources of financing the implementation of eco-innovative technology or development of an eco-innovative product focusing on innovative ideas competition programmes financed by foreign governments.

The main idea is to share a well evaluated process of guiding a company through the process of creating a project proposal and submitting in accordance to the rules of a support programme.

This recommendation package aims to aid successful eco-knowledge transfer by focusing on interactions of EcoInn Danube project partner, CCI BL with SMEs.

CCI BL is a leading institution in Banja Luka Region in the area of advocating the interests of 5.500 companies, promoting and linking the economy, conducting business education, as well as rendering information and advisory services. Possibilities of financing business ideas trough grant schemes of various support programmes are developing each year. Innovative companies are the main target group and final users of these programmes but they mostly lack in capacities for project management (identifying an adequate support programme and idea development). Long lasting experience of chambers of commerce in consulting companies regarding the issue is transformed into recommendation package for SMEs as well as other BSOs.

Package can serve innovative and environmentally conscious SMEs which strive to grow and develop their business as an information source regarding alternative financing options and project management services. Local development agencies, associations of innovators and business support organizations, but also local authorities can implement new consulting services based on this recommendation package contents.

In order to support the development of an innovative business idea, SMEs may address CCI BL as an information point regarding the opportunities of project financing. Based on business idea potential CCI BL shall suggest the support programme and assist the SME in application process. Often the process also requires an education of SME staff in project management and after care programme or mentoring during the project implementation.

The stakeholder is a small pharmaceutical company developing in the area of natural cosmetics. Galenfarm approached the CCI BL during an open call of one of the support programmes offering financial support to innovative projects in Bosnia and Herzegovina. Galenfarm is a member of the Chamber of commerce and the user of various CCI BL services. Knowing the CCI BL has previously implemented EU funded projects, Galenfarm approached the CCI BL requesting consultancy regarding the design of project proposal and an application process. CCI BL is offering education and consultancy for the member companies in project cycle management.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Galenfarm is a manufacturing company of dietary products, cosmetics and high-quality herbal-medicinal products which contain the required quantity of active ingredients and they are safety tested. Galenfarm wanted to develop a new line of products - essential oils obtained by CO2 extraction.

The advantage of CO2 extraction with respect to other methods is the best use of active ingredients from medicinal herbs. During the process carbon dioxide is not released into the atmosphere at all, but it is permanently used in a closed system by the principle of high and low pressure. Energy consumption is minimal, and from an ecological point of view, the method is incomparably better than all others.

At present, there is no production of essential oils in this method. Also, the production of essential oils is mostly done in an extensive way, and there is demand in the country and abroad.

Summary of status of knowledge transfer

Chamber members are constantly informed on current opportunities for alternative financing options. After one of such information (on Challenge to Change program supporting innovative businesses) Galenfarm recognized the opportunity to implement the innovative technology and develop a new range of products. Galenfarm has capacities for the implementation of equipment and development of product while lacking in financing. But the use of a programme (financial instrument) requested project proposal design and an application on an on-line platform.

Given the limited Chamber capacities for rendering the service, we recommend other actors with available knowledge (BSO, local authorities…) to implement same service.

Summary of recommendation(s)

Package contains guidelines for BSO and authorities dealing with local economic development to implement new service: informing and PCM consulting.

Package is offering a list of information for SMEs/beneficiaries – innovative companies in need for financial support in growth and development.

In-depth details / explanations of recommendations with links

CCI BL is experienced in project cycle management, designing and implementation of projects financed by external aid, mostly European Union funds but also various international and national programmes, such as EBRD, WB and programmes of German, American, Swiss or other national governments. CCI BL team for project is constantly being educated in the area. For over a decade Chamber member companies can use free of charge consultancy service regarding PCM.

This service includes:

- regular research on available funding for SME's in Banja Luka Region (desk research: europa.ba, undp.org, sida.se, dei.gov.ba, ebrd.com/ebrd-in-bosnia-and-herzegovina.html, ada.gv.at, eda.admin.ch, sdc.net, giz.de, norveska.ba, sx.mofa.go.jp, usaid.gov, ambafrance-ba.org, eib.org, acdi-cida.gc.ca, utlsarajevo.org, aecid.ba, minbuza.nl and other ad hoc programs)

- informing of potential beneficiaries among Chamber membership (direct contact, e-mail, web site), which requires making a contact list in advance or requesting a Chamber's

- contacting the programme infrastructure and delivering background information to decision makers (usually such meeting is of mutual benefit)

- introducing with the details of the programme criteria and process through public call documents always published on line

- organizing an educative event or info day (optional) or just meetings or telephone calls with potential candidates if they are not numerous

- meeting with the interested companies/Chamber members in order to discuss details of the project idea and deliver information and aid kid needed for project proposal design

- checking the project proposal during design and suggesting improvements while consulting with external experts or partners regarding technical aspects of the project (if necessary)

- after care programme: contacting the client after the programme closure and offering consulting during the project implementation (if the project is positively evaluated) or advising a client on other available programmes and starting the process from the beginning.

Galenfarm received information on Challenge to Change programme (http://c2c.ba/en/calls) via e-mail from CCI BL. When decided to apply, an expert associate visited CCI BL and was offered with the service which Galenfarm accepted. Client consulted the CCI BL team during the development of application for four times and received suggestions for the improvement of project proposal. There was no need of external expertise regarding the technology suggested in the project given Galenfarm employees have capacities to implement the technology and develop the product line. Programme infrastructure of Challenge to Change was informed that CCI BL is consulting the companies of Banja Luka region for participation in the public call. Challenge to Change received 700 and more applications and supported 28 of them. Galenfarm was not supported. CCI BL contacted Galenfarm, among other clients, and advised the client to evaluate other forms of business development from CCI BL portfolio.

Conclusions of recommendations

BSO and authorities dealing with local economic development are advised to implement new service for raising innovation capacities of SMEs: informing and PCM consulting. Chamber can offer transfer of knowledge since it has the service for over a decade.

SMEs/beneficiaries with innovative ideas are advised to use the recommendation package in order to explore alternative sources of financial support for their growth and development.

Date of recommendation package

April 18, 2019

Author

Chamber of Commerce and Industry of Banja Luka Region (CCI BL)

Further reading

www.bl.komorars.ba

www.business-rs.ba

http://c2c.ba/en

europa.ba, undp.org, sida.se, dei.gov.ba, ebrd.com/ebrd-in-bosnia-and-herzegovina.html, ada.gv.at, eda.admin.ch, sdc.net, giz.de, norveska.ba, sx.mofa.go.jp, usaid.gov, ambafrance-ba.org, eib.org, acdi-cida.gc.ca, utlsarajevo.org, aecid.ba, minbuza.nl

62. Recommendations for toy companies and entrepreneurial ventures in production of eco-friendly products

This recommendation package supports the company “Sklopy Toys” in entrepreneurial venture in production of eco-friendly product

Keywords: Eco-friendly toys, strategy, visual identity, fair, museum, acquiring new markets

Aims of this recommendation

The recommendation package aims to help to the company representatives in order to develop strategy for business which will be used to brand the eco-friendly product, to explore new opportunities and to be as much as visible in order to expand the business to other markets.

Target group of this recommendation package

- “Sklopy Toys” entrepreneurial venture
- Companies in Bosnia and Herzegovina
- Exhibition fairs
- Museums
- Local authorities
- National authorities

Background to the recommendation package

The document recommends the use of findings on different kind of macroeconomic analysis, experience based on visual design presentations as well as findings on the best fairs for promotion of the products of the company “Sklopy Toys”. This recommendation is based on experience gain through many projects which tackled digitalisation and digitalisation services and based on the experience that the Chamber gain through different kinds of business fairs and through involvement in business environment in global. Also, in experience gain through different kind of meetings during the EcoInn Danube project, CCI BL got an insight on many services and opportunities which could be useful and practical for SME use in order to make their ecologically friendly product more visible on the market.

This document aims to assist the organisation of promotional campaigns in recognizing the environmental aspects of actions and to facilitate the use of digital technologies.

Audience for this report is EcoInn partner consortium, company “Sklopy Toys” but all the companies in Bosnia and Herzegovina. Furthermore, the document intended to recommend the practice to the Ministry of Spatial Planning, Construction and Ecology for their future practise and projects.

Summary description

The production of eco-friendly products is main activity of the company “Sklopy Toys”. The company produces wooden toys for children, from small cars, over fruit like toys to different kind of figures and many other types and shapes. A part of the production is also a small house for children which can be used for playgrounds.

In this light, the representatives of the company approached CCI BL as their business association in order the improve the activity of market research, promotion and related activities.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

One of the activities of CCI BL is consultant activities towards the members. The consultant team is constantly engaged in education on market research on trade fairs, digital solutions, funds and many other types of education.

By analysing the information provided by the representatives of the company, CCIBL stuff concluded that promotional plan for the products of the Company has to be expanded on participation to domestic and international fairs, cooperation with Ministry of Spatial Planning, Construction and Ecology, cooperation with exhibition institutions and use of digital solutions - use of newsletter tools, user friendly website, especially in communication with consumers.

It is recommended for companies' personnel in charge of promotion, to get educated on newsletter software/services and the list of proven companies in field of creation of website was provided by CCI BL.

Summary of status of knowledge transfer

Within the activity Stakeholders in work package Strategy for Eco knowledge of EcoInn project, national stakeholder meeting was organized in June 2017. At the meeting, company "Sklopy Toys" was introduced. At that meeting, the representatives of CCI BL were introduced with the intention of the company and the meeting was arranged for the beginning of 2018. During the meeting with the representatives of the company "Sklopy Toys" on 20th February 2018, the representatives of CCI BL were introduced with the demand on improvement company's business processes. By analysing the demand, it is concluded that new market approach needed to be analysed and implemented, new markets needed to be acquired and connection with Ministry covering eco products must be established. Also, digital solutions in form of a responsive, two way communicated website and social media page needed to be created.

During the first part of 2018, experts form the Chamber of Commerce and Industry of Banja Luka Region investigated best markets for the company's products. It is concluded that markets in EU, especially in parts of EU which are more ecologically aware, are best market for export of their product, given the fact that the price of the products is slightly higher than the products made from plastic and that the market is ecologically aware of the benefits for all the players involved.

Summary of recommendation(s)

The document recommends use of new digital technologies and encourage the company to export to international markets, especially EU. CCI BL also provides full assistance in connecting to the chambers in targeted market and consultancy in exploring the legal and all other aspects for export.

In-depth details / explanations of recommendations with links

Apart of the consultant activities on digital solutions, exploring additional markets, a list of fairs has been generated in order to promote the products of the Company:

Austria:

https://www.baby-messe.freiburg.de/

Baby & Kind - Expo for kids from 0 to 6 years. Toys, Wooden Toys, baby and infant food, clothing…

https://www.messedornbirn.at/veranstaltungen/babywelt/

The BABYWELT Expo gathers international and national players, regional dealers and individual providers from all sectors around the topics of pregnancy, baby and child

https://www.interpaedagogica.at/

Trade Fair for Teaching Aids, School Equipment, Kindergarten, Fitness and Sports Equipment

https://www.kaerntnermessen.at/de/messen/familienmesse.html

Trade fair for the whole family

Bosnia and Herzegovina:

https://www.facebook.com/ekobis.mse/

Ekobis – Ecology fair in Bihać, BiH

Czech Republic:

https://www.eventseye.com/fairs/f-christmas-market-439-1.html

Consumer Good, Gifts & Toys Fair

https://www.bvv.cz/en/prodite/

International Fair of Children's Products

https://www.eventseye.com/fairs/f-for-toys-15532-1.html

Trade Fair of Toys and Games

Germany:

https://www.babywelt-rhein-ruhr.de/de/Home.html

The BABYWELT Expo gathers international and national players, regional dealers and individual providers from all sectors around the topics of pregnancy, baby and child

https://www.eventseye.com/fairs/f-handwerk-holz-mehr-11158-1.html

The Leading Trade Show for the Woodworking Trades. (Woodworking and Processing Machinery)

https://www.babywelt-berlin.de/de/Home.html

The BABYWELT Expo gathers international and national players, regional dealers and individual providers from all sectors around the topics of pregnancy, baby and child

https://www.kindundjugend.com/

International Baby to Teenager Fair

https://www.spielwiesn.de/sw

Games Trade Fair

https://www.spielwarenmesse.de/fair/fair-profile/language/1/

International Toy Industry Fair & Forum

https://www.babywelt-stuttgart.de/de/Home.html

The BABYWELT Expo gathers international and national players, regional dealers and individual providers from all sectors around the topics of pregnancy, baby and child

https://www.messen.de/de/121/stuttgart/spielemesse/info

South German Trade Fair for Games and Toys

A contact with partners chambers covering the countries and the areas where the fairs are organized is also offered for any kind of help to the Company.

Also, the Company has been connected with the Museum of Republika Srpska in order to promote the wooden toys within the exhibition – Unlock the world of illusion and science, which has been implemented from April till November 2018.

https://www.glassrpske.com/kultura/vijesti/Iluzije-u-Muzeju-Republike-Srpske-vidjelo-vise-od-16000-posjetilaca/lat/269077.html

Conclusions of recommendations

Company “Sklopy Toys” has been active participant in the project EcoInn, beginning from the stakeholder meeting held in Banja Luka in 2017. At that initial meeting, CCI BL recognized the potential of the company and has provided the company help in investigating the markets for their products, advised which technologies to use in promotion and connected to other institutions which can offer complement activities.

Main conclusion of this activity that, as for the specific product as wooden toys are in this case, specific markets need to explored. The finding is that markets like Austria, Czech Republic and Germany, which are the closest developed EU markets are best markets for this kind of products. Level of income of end users as well as their ecological awareness are crucial factors in creating good clients.

Date of recommendation package

February 20, 2019

Author

Chamber of Commerce and Industry of Banja Luka Region (CCI BL)

List of annexes

Annex 1:

Further reading

www.bl.komorars.ba

http://sklopy.com/

63. Recommendation for non-EU public utility company to partner with an EU R&D institution to deal with air pollution issue

This recommendation refers to strategic air mapping related to mobility and transport infrastructure and services and is directed to the new approach in using eco-innovative solutions.

Keywords: Partnership guidance ecoinnovation, air pollution, mobile lab, mapping

Aims of this recommendation

The Recommendation will help advocating in favour of conducting sustainable and environmentally friendly road construction for the future, intending to reduce and manage air pollution in the Romania – Serbia cross-border region in the benefit of health and life quality of the inhabitants.

Target group of this recommendation package

- Small and medium sized enterprises (SMEs)
- Research and development (R&D) institutions
- Audience of this report could be other Transport Public Utility Companies, local / regional / national authorities and R&D institution facing the same or similar challenges.

Background to this recommendation package

As the general objective of the EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region, this recommendation represent useful suggestions and proposals to the target audience on this case how to resolve specific problem through forms of knowledge transfer.

The situation that has led to this recommendation report has occurred since January 2018, when the RDA Banat was informed of the problem faced by one Public Utility Company (hereinafter: PUC) dealing with mobility and transport infrastructure and services on national level -

Quick read

- This recommendation package is about collaboration between research and development institution and public utility company in the area of strategic air mapping.
- The recommendation package explains new approach and solution in the planning of mobility and transport infrastructure, using ecoinnovative technology.

maintenance, protection, usage, development and management of state roads. Due to the increase in transportation and industry sectors, they are directed to development of new transport infrastructure in line with EU policies and regulations, while at the same time they do not have adequate data, neither human nor technical capacity necessary to quantify the current status of air contamination.

In the long-standing cooperation we have with Romania, we were introduced to the fact that Romania, as EU member state, also faces similar problems, but that they have built institutional capacities which could help in resolving common challenges.

Summary of the parties

1. Transport PUC from Serbia established by the Government of the Republic of Serbia with the basic goal of performing the activities of state roads and highways – construction, maintenance, protection, usage, development and management of state roads and highways.
2. Specialized National Institute of Research & Development from Romania, governed by the Romanian government, with over 80 employees working in 3 main areas of competence: Chemistry and Environmental Protection, Physics and Nano-Materials and Renewable Energy, with competent workforce comprising of scientists acting in all related fields.

Summary of eco-solutions/knowledge/technology

Beside the understandable need for a developed transport system and infrastructure, an increased attention must also be raised towards the environmental issues. The main challenge to be addressed is the lack of mechanism to adequately tackle air pollution issues according to EU standards, policies and regulations. In order to property prepare and implement construction and reconstruction of roads, feasibility studies and environmental analyses are needed. Lack of data regarding air pollution level affects the quality of the above mentioned documents, and new technology (Mobile environmental laboratory operating on green energy, avoiding contaminating of monitored environment) will expand measurement capability, building on the knowledge and expertise of involved parties.

Summary of proposed collaboration / proposed partnership and knowledge transfer

After several consultative meetings on both sides, a direct contact was proposed, on which the possibilities of cooperation would be dissolved. Partnership was proposed in terms of exchange of methodology in air measurement practises, joint development of new technology unit and adoption of the most efficient innovative research models for air pollution mapping.

The background of the problem, situation or opportunity that has led to this report

Infrastructure development and increased mobility will negatively impact the environment due to increase in air pollution generated by vehicles and represented by chemical emissions like gases (CO, NOx, SO2, O3, etc.) and carbon based particulate matter enriched with heavy metals (PM10 and PM2.5). To address environmental concerns there is a need for data and processed information provided by specialized laboratories connected to the EU R&D infrastructure.

The stakeholder is Public Utility Company from Serbia in the area of mobility and transport infrastructure and services and approach us in the area of eco-innovation for help in acquiring a technology in a specific area of their field.

Partner is specialized R&D institution from Romania with valuable experience in addressing the problems related to air quality and this experience could contribute to filling this lack of data by sharing experience on a legal, measurement and management level.

Both partner countries support 2008/50/EC Directive on ambient air quality and cleaner air for Europe (CAFÉ), and this partnership will allow creating a conditions for air pollution measuring methods in the partner countries in line with CEFE. With regard to the specific focus on the research on traffic as a polluting factor, the recommendation will help advocating in favour of conducting sustainable and environmentally friendly road construction for the future.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Partnership brings together the knowledge and expertise of partner environmental R&D, and knowledge and expertise of stakeholder in transportation control, planning and development to generate a scientific set of solutions in order to mitigate the environmental impact of growing transportation activity between the two regions.

A new mobile environmental laboratory will use state-of-the-art equipment to detect and quantify air quality on both sides of the border. The monitored parameters will go beyond the current list of only 4 parameters monitored for example by the Romanian EPA (SO2, NOx, CO, PM10) and will include also information on O3, PM10 and PM2.5, which are the most harmful PM10 components. The lab will be mobile and have the capability to circle the area, while the readings of lab will be connected to EU online air-index maps. High performance new technology will be used for the measurements of environmental air pollution and will help advocating in favour of sustainable and environmentally friendly road construction plans for the future. Mobile lab will consist of following parts:

- Utility vehicle
- Energy supply for measuring equipment – 2 x 5 kWh electric energy storage banks with 3kW peak power inverter + charger
- High Efficiency Heating and Cooling unit for equipment with dedicated solar PV power + gas calibration tanks + insulated and secured utility trailer
- Laptop + 360 degree HD photo and video camera
- Particulate matter Analyser for PM10, PM2.5, Total Particulate (PM), measured at the same time.
- Continuous Analyzer Sulphur dioxide (SO2)
- Continuous Analyser Nitrogen Oxides (NO, NO2, NOx)
- Continuous analyser for carbon monoxide (CO)
- Continuous Analyser for ozone (O3)
- Continuous analyser of volatile organic compounds
- Weather Station for measuring temperature, humidity and pressure
- Calibration unit
- Hydrogen Generator for VOC analyser
- Cylinder with NO, CO, SO2 mixture
- Cylinder with propane mixture in nitrogen
- Cylinder with Sinteyc Air de 10 L
- Pressure regulator tow stages brass
- Pressure regulator two stages SS
- Probe sampling of ambient air analysers
- 19" Rack for installation in a Container and the dilution unit – 2 rack per each part of equipment
- Data logger IOX
- Software visualization for IOX datalogger / IOVIS from imission analyzers

Summary of status of knowledge transfer

During the permanent contact with stakeholder, Serbian transport utility company expressed interest in technology which will enable them to obtain valid data on air pollution. After initial discussions via telephone and e-mail and several consultative meetings with stakeholder and partner, the first joint meeting was organized in RDA Banat premises in January 2018, when the general issue was debated. Both sides agreed that the best way to solve the common cross-border challenges and problems would be formalized partnership and securing external sources of funding for proposed activities. In that sense, RDA Banat proposed development of project idea within cross-border cooperation programme Romania – Serbia and offered help in preparing the application. Following a brainstorm session, both partners conceived and agreed on the project's title and acronym – AIRPOL. Also, the geographical coverage of the project is defined and the main activities have been sketched (traffic assessment, noise and air data collection, noise and air pollution mapping and measurement, action and strategic planning, capacity building activities). In light of its extensive experience in managing research contracts, the Romanian partner was appointed Lead beneficiary. During the February and March 2018, several meetings took place between the partners with the purpose of jointly developing the project design, when discussions were focused on project objectives, activities, documents needed for the submission and deadlines. Both partners evaluated their resources (equipment and personnel) and the project team was decided, considering the tasks and the competencies of the available personnel. Discussions on the outputs of the project were carried, in correlation with the objectives of the Programme and the Application were completed during the months of April 2018. Partnership is formalized in form of Partnership Declarations by both side on 20th of April, and application was submitted on the April 24th 2018.

Project application passed administrative and eligibility check and qualify for the next step of the evaluation, with good chances for success.

Summary of recommendations

Although partnership brings together experts in different areas of specialization from complementary fields, interested parties have similar expectation when they use the recommendation - to find solution for significant common environmental challenges due to traffic increase. Public Utility Company expect to obtain data necessary for planning and development of mobility and transport infrastructure in the future, according to EU regulations and directives.

R&D institution expect to develop new institutional capacity in the field of environmental protection, expand its in-situ measurement capability to become mobile and to employ the highly specialized human capacity to become a full service provider to public administration and governmental institutions acting in the field of environmental protection

List of recommendations

- Recommend establishing formal partnership between interested parties
- Recommend signing partnership declaration – annex to recommendation
- Recommend developing a joint project application as a means of securing funds for eco-technology
- Recommend potential supplier of eco-technology
- Recommend involvement of RDA Banat in formulating project application, as institution with valuable experience in project management
- Recommend and provide financial construction of the project
- Recommend and provide support in elaboration of project proposal
- Recommend development of Joint cross border strategies regarding noise and air pollution

Conclusions

The recommendation has the potential to achieve a much wider impact in relation to partners directly involved in the recommendation. With a mobile laboratory and obtaining reliable information regarding the contamination in the air deriving mainly from transportation activities, but also from industrial and activities of populations, it would contribute to the improvement of quality standards and development of sustainable and environmentally friendly transport infrastructure, complying with EU environmental legislation and sustainability principles, and at the same time facilitating experience and know-how transfer between interested parties and partner countries and promoting professional co-operation in the field of air pollution management, and environmental management generally. AIRPOL brings a scientific approach and offers new solutions to air pollution, by using tools and delivering services for a specific area, but with the possibility to extend the accessibility to all other interested regions or countries.

Date of recommendation package

4 March 2019

Author

RDA Banat, Serbia

64. "Guidance for promotion of eco-technologies in academia and R&D community

The Recommendation refers to strategic approach in introducing eco-innovative approach to the academia and R&D community as well as to the business sector. By implementing this approach decision makers could increase their awareness on relevant topic and take it under the consideration in their future decisions.

Keywords: Partnership guidance, Eco-innovation, Scientific Conference, Conference Proceedings, Academia community, R&D community.

Aims of this recommendation

The recommendation of this document is about the way of establishing concrete cooperation in field of both promotion of eco-innovation concept in businesses as well as introducing eco-innovation topics in regular high education curriculums in field of engineering with an emphasis on switching from traditional to new technologies by introducing enviro-technologies

Target group of this recommendation package

The audience of this report could be:

- Universities and higher educational institutions,
- Research and development (R&D) institutions,
- SMEs with eco-innovative technologies (in different phases of development), and
- Regional development agencies (RDAs).

Background to this recommendation package

The recommendation of this document is about the way of establishing concrete cooperation in field of both promotion of eco-innovation concept in businesses as well as introducing eco-innovation topics in regular high education curriculums in field of engineering with an emphasis on switching from traditional to new technologies by introducing enviro-technologies.

As the general objective of the EcoInn Danube project is to increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region, this recommendation represents useful suggestions and proposals to the target audience on this case how to initiate and develop cooperation between two parties in order to involve SME sector as a third one. The recommendation is in line with the EcoInn Danube general objective which is increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region.

The situation that has led to this recommendation report has occurred since October 2017, when the RDA Banat was informed about the intentions about organisation of the scientific conference organisation by a Technical College of Applied Sciences (TCAS). That would be for the 7th time that TCAS has organising scientific conference in area of Entrepreneurship-Engineering-Management, but every time on different topic. Every time when conferences has been held, the topic was formulated to an nationally or

internationally recognisable and interesting one (i.e. engineering and sustainable development, chance for the progress, by innovation into the future, …) followed by related subtopics. That time RDA Banat has implementing the EcoInn project conducting different researches in eco-innovation area and started generating first interesting and provocative results.

Summary of party / parties

- TCAS is operational since 1960 in field of education of mechanical engineers (i.e. process mechanical engineering, energy efficiency and renewable energy sources,…) and technologists as well (i.e. food processing & biotechnology, environment protection, (petro)chemistry, pharmacology,…). It has numerous laboratories with modern but also with obsolete equipment within. Its professors and assistants have expertise in various fields of technics and technology as well they have industry and business experience. In relation with that they conduct relevant researches and publish its results domestically and abroad as well. TCAS graduated students are employed mostly in industry entities located in Vojvodina province but also Serbia wide as well as abroad.
- RDA Banat is a regional development agency which deals with wide range of regional development issues, such as: strategic development, SMEs and entrepreneurship, foreign direct investments, energy efficiency, ecology, etc.

Summary of eco-solutions/knowledge/technology

Taking into the account new manufacturing paradigms, business natural environment and efficient use of its resources, eco-innovations become the logical answer in order to enable competitiveness and long-term perspective. As a main challenge that should be addressed is the lack of awareness that eco-innovative technological approach is rather a necessity than just another expensive investment in trendy technology with eco-friendly products as results of its implementation. In order to raise this awareness it is necessary to start from the roots, from the students who should be introduced themselves with the new, enviro-technologies as well as to be enabled for researches in eco-innovative area. TCAS in engineering field is interrelated with eco-innovative SMEs and other eco-innovative subjects are the logical place where eco-knowledge could be generated and obtained as well as promote this kind of business and life concept as well.

Summary of proposed collaboration / proposed partnership and knowledge transfer

Informal meetings between TCAS and RDA Banat remained as a “heritage” of a few previously implemented mutual projects. When both sides introduced themselves on what is going on about activities in the future (October 2017) an idea has arisen in order to include the eco-innovation subject into the forthcoming scientific conference planned for late April 2018.

On the meetings that followed in next few months both sides contributed with concrete ideas on possible collaboration. Beside the eco-innovation as a subtopic, it is agreed that at least one eco-innovative SME should present itself at the Conference as well that EcoInn project will have its promotion too. Searching for other area of collaboration it is decided that some mutual theoretical research in eco-innovation filed should be conducted, presented and published in the Conference Proceedings.

Summary description

As a major problem in uptake and then support eco-innovation is lack of awareness what eco-innovation really is, in various social sectors such as: governmental, business and households as well. Generally speaking, eco-innovation issue in Serbia is in so called “shady” area. It is necessary to put it on different agendas of various social area such as: education, business and government as well. In order to achieve this goal it is important to promote eco-innovation as a wide social concept.

As an opportunity to make a step forward at local and regional level, has been seen the joint effort of two different type of institutions, one educational and another one qualified as developmental. Each of these two institutions had previous activities in eco-innovation field. TCAS recently involved different eco subjects in its curricula’s as well as made some researches in relevant field. On the other side, RDA Banat provided different kind of support for some SMEs related to eco-innovations such as: promotion, partner search.

Among numerous transitional challenges that facing Serbia one of the most relevant for this recommendation package is lost and insufficiently connected educational and R&D

sector with businesses. In that circumstances both parties need to complete and widen their services/support to business sector. RDA Banat is well connected with it, but needs "harder" kind of services and on the other side TCAS needs connections with concrete businesses with concrete problems in relevant field.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

This partnership brought together the knowledge and expertise of TCAS's environmental R&D as well as knowledge and expertise in (business) promotion and matchmaking.

After defining the topic of the Conference (Innovation: The New Knowledge Generator) with its thematic fields where one of them was eco-innovation, TCAS started to mobilise R&D community as well as its own resources in order to initiate and conduct researches in relevant fields. On the other side, RDA Banat disseminate information about the Conference in Business community and took part in one of the researches in eco-innovation filed.

As results of this partnership relevant for this recommendation package are at least follows:

- 6 research papers on eco-innovations and enviro-technologies published in the Conference Proceedings:
  - Eco-innovations: Running a Competitive Business in a Friendship With the Nature
  - Environmentally Friendly Combustion System for Sawdust In Function of Space Heating – ECO FLAME 3
  - Fruit drying by lyophilisation
  - The migration of hydrogeological arsenic pollutant in city waste waters
  - Recycling as a form of creative expression
  - The tendency of application of renewable energy sources in the world – Creating new job opportunities
- 2 eco-innovators' exhibition on the Conference day
- 1 partnership between eco-innovator and TCAS in development of the next generation of the "Environmentally Friendly Combustion System for Sawdust In Function of Space Heating"
- Promotion of eco-innovation concept as a part of innovation approach in general in media.

Summary of status of knowledge transfer

During the permanent contacts between two parties TCAS expressed its expectations from RDA Banat side and it is connection and possible partnership establishment with eco-innovative companies. On the other side, RDA Banat expressed their expectations too, and it is promotion of eco-innovative concept in sense of put the issue on the regular agenda in both academia and R&D community.

After initial discussions via telephone and e-mail the first joint meeting took place in RDA Banat premises in October 2018., when the general issue was debated. Both sides agreed that the best way to put the eco-innovation issue on public agendas (because of very low level of awareness has been detected) is to promote the issue/concept in academia and R&D community with presence of concrete results achieved in SME sector. In that sense, TCAS proposed possibility to put the eco-innovation as a topic or at least as a sub-topic on forthcoming scientific conference. It was the initial idea that helped generation of other ones that arisen in the next few weeks. After consultation inside of institutions (TCAS and RDA Banat) and with their stakeholders and partners as well for the next meeting (early November 2018), a couple of ideas were presented. First of all, RDA Banat proposed an exhibition of eco-innovative SME on the Conference day. On the other side, TCAS proposed a joint research on the concept of eco-innovation in business and its implication to sustainable development in order to present and publish it in the Conference Proceedings. Both ideas were warmly accepted and parties agreed to start with necessary activities on what was agreed. Initial activity plan has been developed in a week so, parties started with their realisation. Till the end of November 2018 TCAS defined the research paper title and RDA Banat identified 2 potential SMEs that would be ready made an exhibition on the Conference day. During the December 2018, preliminary abstract on the research has been written and it is agreed with an SME that it will made exhibition on the Conference day.

In the following months (January till April 2018) parties made in-depth research in eco-innovation field with intention to prepare a paper which will be mostly directed to wider academia audience as well as decision makers in order to better understanding what really an eco-innovation is. During that period strong campaign on Conference main topic as well as its sub-topic eco-innovation has been performed what resulted with additional 10 research papers in eco-innovation field out of what 6 has been published in the Conference Proceedings.

On the other side, meanwhile another eco-innovation innovator expressed interest to make exhibition on Conference day what has been realised as well. Beside all of these EcoInn project has had the room in the Conference venue, so the project has been presented as well.

Summary of recommendation(s)

This kind of partnership has brought together experts in different areas with at first sight had different expectations. But during the period of intensive collaboration both parties realised that their expectations are not divergent so much. Out of expectations from the both parties side, as beneficiaries of this partnership are SMEs who has been involved and contributed to it, but also the academia community which recognised the initial message defined in the Conference sub-topic as eco-innovation and contributed with own researches in relevant area.

By establishing this kind of partnership could strengthen the institutional position of both parties as well as contribute to capacity building of both of them. On the other side SMEs are introduced with capacities of both of these institutions and clarify their expectations in order to define their requests for possible future services that could be provided.

Finally, this kind of partnership strongly demonstrated the way how a neglected business and social issue/concept could be approached in order to put in on the social agenda and delivered to relevant communities as well as to the decision makers.

In-depth details / explanations of recommendations with links

- Recommend to formalise cooperation between interested parties (education and R&D institution, Business entities and Development agencies) by signing an MoU or any other form of documents, nevertheless it wasn't realised in this case;
- Recommend developing a joint project application as a means of securing funds for acquisition of eco-technology;
- Recommend developing a joint project application as a means of securing funds for R&D activities in order to generate new eco-technology, and
- Recommend potential supplier of eco-technology.

Conclusions of recommendations

The recommendation has the potential to achieve an impact in both academia and business community as well. Beside these, the development agency institutional position being strengthened as well. All of achieved results are based mostly on mobilising human resources with insignificant share of financial resources. In case of in-depth R&D activities the share of financial resources would be increasing (new materials, prototyping, testing,,…).

Concrete informal partnership established between TCAS and RDA Banat naturally involved business sector in itself because this sector should be a real beneficiary of this kind of partnership in long term perspective.

This approach/model/partnership could be easily transferred in other regions and local communities as well where exists similar kind of institutions. Doubtless is that this approach/model/partnership could contribute to the local/regional economic development.

Date of recommendation package

April 28th, 2018

Author

RDA Banat, Serbia

65. “Recommendation for Consumption Management and Monitoring System implemented cross-border in the area of public lightening

Recommendation package for savings potential that has already been recognized and incorporated into European policies. EC Regulation 245/2009 sets phasing out requirements for a range of frequently used street lamp types between 2012 and 2017. Also, recommendation package for Cross-border optimal use of public lighting.

Keywords: Energy efficiency, renewable energy, public lighting, led technology, monitoring system

Aims of this recommendation

Document named “Cross border Guide for optimal use of public lightening” will ensure to public utilities as well as local authorities to gain knowledge and experience in the field of usage of public lightening and new ways of saving energy on the cross border level.

Target group of this recommendation package

The stakeholders are local/regional government, R&D institutions for energy efficiency and renewable energy, small and medium sized enterprises, as well as Development agencies and other support organizations.

Background to this recommendation package

This guide ensures EcoInn general objective in the field of eco innovation in terms of energy consumption and decreasing of CO2 emission.

Since municipalities in the region have a problem with large energy consumptions in the field of public lightening and large emission of CO2, after consultations with them we came to a joint conclusion that recommendation should be done. Due to the huge financial costs of maintenances and burgeon on the local budgets, municipalities were not able to provide a better quality life to the citizens and to save energy and green house emission, they came to the idea to implement the Smart city practise in line with EU policies and regulations in small municipalities in the region. In consultation with some relevant R&D institutions in Serbia and Romania we came to the joint project including recommendations and ideas from all relevant institutions in solving this problem.

Summary of party / parties

Municipalities from Romania and Serbia which are in charge of maintenance and managing of Public lightening standards and deliverable of quality lightening systems

Development Agencies as well as R&D institutions in the field of renewable energy which are in charge foe regional development and solutions for models for energy savings and decrease of CO2 emission.

Summary of eco-solutions/knowledge/technology

Street lighting refurbishment, especially with the availability of LED and other innovative solutions that are economically attractive and offer a relatively low level of complexity, presents a low risk entry point into the provision of EPC services for SMEs. Setting up a new way of illumination in the border area and establishing a joint monitoring system for saving energy, investment in public lighting systems in two municipalities will upgrade current situation and provide energy savings. Also, installation of remote control will include the collection, use, and processing of data on the work of Public lighting system, and later use of these data for further regulation.

Summary of proposed collaboration / proposed partnership and knowledge transfer

In order to address the common challenges municipalities decided to jointly in partnership with development and R&D agencies prepare project and to upgrade Public lightening in cross-border area. Furthermore, this cooperation will result with new future projects since municipalities will sign partnership agreement and cooperation agreement in the field of cross-border cooperation in different area of interventions. Also trough round tables and seminars transfer of knowledge will be transferred to the other stake holders such as SMEs, public utilities, agricultural producers and NGOs in the region.

Summary description

In Europe, street lighting consumes a significant amount of electricity: there are more than 56 million street lighting luminaires in operation, with an estimated electricity consumption of 35 TWh. For municipalities with older, inefficient systems, street lighting can account for 30-50% of their total electricity consumption. However, the saving potential is enormous: with current technologies 30-70% energy savings are generally possible. This savings potential has been recognized and incorporated into European policies. EC Regulation 245/2009 sets phasing out requirements for a range of frequently used street lamp types between 2012 and 2017. Phasing out means that these product groups will no longer be placed on the market and will no longer be available for purchase. The very recent market introduction of LED technology for street lighting offers high savings with comparatively short pay-back times. LED technologies have developed very rapidly, especially in the last few years. Today, with cost reduction potentials of over 50%, LED lighting is already an economically very interesting option for street lighting refurbishment. Moreover, street lighting refurbishment presents a unique opportunity for the uptake of guaranteed energy services in the form of energy performance contracts (EPC):

- Phasing out requirements are placing municipalities under pressure to act: nearly 80 % of all currently used lamps types will not be available after 2017;
- Street lighting refurbishment, especially with the availability of LED and other innovative solutions that are economically attractive and offer a relatively low level of complexity, presents a low risk entry point into the provision of EPC services for SME.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Well-functioning networks, interconnections and interoperability are needed for energy security, diversification and effective energy operation. Regarding energy market organization, cooperation helps to ensure security of supply, to balance supply and demand more effectively and to realize economies of scale on investments. Encourage cooperation opportunities which aims in particular at creating an integrated energy system allowing cross-border exchange of experience, common practices and integration with the EU market. The consumption management and monitoring system is an innovative solution for outdoor lighting. For demand-oriented control and monitoring of individual luminaires up to thousands of points of light. The system facilitates particularly a reduction in power consumption, CO2 emission and light pollution and moreover an optimized maintenance planning.

Using open protocols, scalable and adaptable to third-party components, the consumption management and monitoring system integrates with present and future city systems.

When the street lighting needs to decrease in a certain area or within a certain timespan, the system helps to dim the lights accordingly. If the pedestrian traffic decreases significantly between 1:00 AM and 5:00 AM, then dimming the lights is the right solution. It is considerably reduce energy consumption and CO2 emissions, also reducing light pollution and overall environmental impact. The solution is

fitted to dim any street lights, using either magnetic or electronic ballasts, without any extra investments to the grid. After installation of new lightening system with remote control there will be a significant saving in the municipal budget as well as reduce of CO2 emission in atmosphere and decreasing of greenhouse emission.

Summary of status of knowledge transfer

Development agency started with establishing list of potential partners among relevant stakeholders after the municipality address us with their problem regarding their problem with public lightening system. After several consultations with them and with different potential partners we established a list of partners for the joint project. Since we found the municipality in Romania with similar problem we have established partnership with them and also with other Agency for energy management from Romania. After defining the joint problems and possible solutions we have decided to jointly prepare project for external funds from Interreg IPA CBC Romania-Serbia programme. We knew that we will act in the cross border region with the common solution and the joint project. All of this has happened in January 2016. On July 2017 partners has signed the Subsidy contract as well as Partnership agreement for joint realisation of the project. Since October 2018, several actions were carried out. Partners have organized a numerous round tables and seminars on the subject of energy savings and renewable energy sources for different target groups. One municipality has finished all planned works and established management remote control of the entire system on the one side of the border. Other partners from Romania are just starting with works, and by the July 2019 we will have Joint monitoring remote system for public lightening in two countries, “Cross border Guide for optimal use of public lightening”, as well as “Action Plan for increasing energy efficiency in public lighting”.

Summary of recommendation(s)

Partners have organized a numerous round tables and seminars on the subject of energy savings and renewable energy sources for different target groups. Once partners finish all planned works and establish management remote control of the entire system on the both side of the border, all collected data will be used for future project in relevant field. After realisation of the project we will have Joint monitoring remote system for public lightening in two countries, and prepared recommendations trough two documents “Cross border Guide for optimal use of public lightening”, as well as “Action Plan for increasing energy efficiency in public lighting”.

Recommendations to support knowledge transfer, aid negotiations.

- Recommend signing a partnership agreement in annex to the recommendation.
- Recommend engaging experts in the field of public lightening in order to monitor existing system
- Recommend revision of existing Action plan for increasing energy efficiency in public lightening every 2 years
- Recommend potential future partners for innovative projects in this field
- Recommend involvement of Development agencies in preparing of project applications
- Professional consultation outside of the Eco-INN Danube partners competence
- Recommend and provide financial information via excel tables

Conclusions of recommendations

This recommendation package has a potential to be spread to other regions and countries and have a large impact on decreasing of CO2 emission in the future. With remote control system installed in numerous municipalities we will have a significant saving in the municipal budgets as well as reduction of CO2 emission in atmosphere and decrease of greenhouse emission.

Date of recommendation package

July 2018

Author

RDA Banat

66. Recommendation for strategic improvements in SME business model with implications to the environment protection by using available supporting schemes

Recommendation package for the mentoring process with applicant for the competition named as “The Best Technological Innovation” reviews the whole process, from its beginning where the potential applicant has been evaluated in order to initially judge the potential of the innovation, till the training phase in order to raise its capacities to present the innovation in the most appropriate manner.

Keywords: Partnership guidance, Mentoring process, Supporting Schemes, Innovation, Intellectual property, Waste, Environment protection.

Aims of this recommendation

The recommendation of this document is about the identification of the entrepreneur with high potential business idea and support it at most relevant national competition. The main idea is not to win the competition but to develop business idea and make some improvements in product(s) as well as in their technology.

Target group of this recommendation package

The audience of this report could be:

- Innovative entrepreneur and/or SMEs,
- Regional Development Agency
- R&D institutions
- Government institutions representing the competition organisers on the other side.

Background to this recommendation package

This recommendation is matching the EcoInn Danube general objective which is increase the cooperation of innovation actors in the field of eco-innovations with special emphasis on development and application of eco-technologies in the Danube Region. This recommendation highly represents useful suggestions and proposals to the target audience on this case how to identify and develop cooperation between two parties in order to involve R&D sector as a third one.

On behalf of its regular activities in the field of business consultancy that lasts since Regional Development Agency has been established (for 16 years), it is being recognised in the relevant environment as a trustful and a highly competent organisation. On the other side, the national

competition for the best technological innovation has been organising on yearly level since 2005. So, Regional Development Agency is one of the most relevant institutions in the region to promote the competition and support entrepreneurs to apply for it.

Summary of party / parties

An innovative SME that strives to improve its product and technology as well as to draw attention in relevant institutional and business environment.

The Regional Development Agency and R&D institution in the field of recycling industry are in charge for regional development and solutions for scrap and waste materials management, new construction materials and green technology systems introduction in business [practice.

The relevant Ministry with its co-organisers (Business, academia and media institutions) set the evaluation criteria, choose the selection committee, promote the competition and its competitors and finally provide awards for the best one(s).

Summary of eco-solutions/knowledge/technology

This innovative technology reduces the number of operations in the process of recycling non-hazardous waste materials, reduces energy consumption necessary for the thermal processing of the non-hazardous waste materials and includes non-hazardous waste materials in the recycling process which were not recyclable before. Those materials were either incinerated or piled-up in the dumps in lack of an economically efficient and applicable recycling technology solution.

Summary of proposed collaboration / proposed partnership and knowledge transfer

In order to support the development of an innovative business idea, its promotion and evaluation SMEs may address RDA as a first contact point. Based on business idea potential RDA will conduct the whole process for the sake of benefit for an SME. Technologically more demanded ideas often requires higher level of expertise that is over the RDA capacities so it is necessary involve R&D sector which could help in future development of the idea.

Depending on the collaboration development and results achieved, the collaboration could be prolonged after the competition has been finished in way that RDA and R&D institution became outsourced services for the SME.

Summary description

Waste accumulation, its management and finally its re-use is one of the main points in different agendas worldwide. Plastic as a material is particularly challenging one. Its improper disposal in the environment violates tiny balance achieved threatening human kind with serious consequences.

Based on first researches there is no any similar technology developed so far that could solve the problem of recycling waste composites and mixed plastics and glass. Generating these kinds of waste materials caused only costs to the primary waste generator companies that deal with waste management and recycling. At the end of the cycle, the local communities faced the problem, because such materials are collected and eventually burned or disposed on their dumps which have to be repaired after years.

With serious savings in the waste management cycle of the aforementioned waste the SME use them to produce useful products (mostly in agriculture and construction industry) that bring economic benefits as well.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

This partnership brought together the business knowledge, R&D expertise and RDA skills and knowledge, that resulted in developed innovative business idea and with successful performances at national business competitions and finally the improved technology implementation.

Waste management is a problem for most businesses and (local self-) governments that has to be solved on daily level. For some businesses who deal with recycling technologies it is an opportunity. Products and the technology developed so far by the SME are eco-innovative ones but both of them need some improvements in different aspects of business such as: product design, different probes-testing, some technology adjustments, intellectual property protection, promotion and finally considering the possibility for external investments.

The products that the SME manufacturing are made by using an innovative technology and they are widely applicable and

can entirely replace similar products made of traditional materials (wood, concrete, metal). The products have consolidated all the individual advantages of the traditional materials, whilst eliminating their flaws; all that while being aesthetically attractive, long-lasting, self-extinguishable, requiring no maintenance and yet, affordable. Relating to the technology, it reduces the number of operation in a recycling process and includes materials which were considered to be non-recyclable in the process of recycling. Those materials were piled in the dumps or were being incinerated (composite plastic materials, mixed plastic materials, glass) and degrading the environment this way. The main SME products are: eco posts, eco profiles and eco concrete. They are made of innovative materials and are able to entirely replace products made of traditional materials (concrete, wood, metal). Those products have shown to be more durable, require no maintenance whatsoever, weigh less, and are easier to manipulate and process later than the products made of traditional materials. Target customers for the products are farmers (posts are used as fencing poles, carrier posts for anti-hail nets etc.), construction work contractors, regular household owners etc.

The partnership has been initiated when the entrepreneur decided to move forward in his business development being aware that he needs external support at least to protect his business idea. Based on the previous contacts and services provided by RDA, SME explained his intentions and initial plan has been made, with main objectives set as:

- Make some improvements relating to the products and the technology in order to protect intellectual property on higher level,
- Ensure finances for the previously mentioned improvements,
- Include a service provider capable for making the improvements, and
- Promote eco-innovative products in order to attract external investors.

Summary of status of knowledge transfer

Considering the objectives that are set, the partners agreed to involve in the partnership the expert with background in the environmental protection and/or recycling technologies as a first step. After an adequate partner has been found, the plan has been developed for the future joint activities.

First of all, the R&D partner (the relevant faculty) and SME considered the state of the technology as well as the main products status. It have been considered critical points in the technology with intention to decrease the number of total operations needed to finish the eco products as well as where should be made improvements in eco products design in order to create more attractive ones. Because these are knowledge intensive activities it was necessary to find external finances. RDA came out with the idea to apply for the Green Innovation Vouchers scheme that helps SMEs access to R&D services in order to develop and improve products and technologies that will reduce environmental impact and enable a more efficient use of resources (energy, water and materials). After the application materials were completed in several weeks the SME was granted by the Green Innovation voucher. When improvements on the technology and the products has been made, RDA contacted an experienced attorney office in field of intellectual property protection and the procedure has been initiated. In a couple of weeks the patent has been registered.

Finally, the promotion of the eco-technology and eco-products remained as not achieved objective. RDA proposed to the partners for considering the idea to apply for the National competition on The Best Technology Innovation. RDA managed the whole process from the team establishment, documentation preparation till the training for the presentation of the technology innovation. Every applicant had to pass the both technical and business model review as well as present the innovation “in vivo” and had the opportunity to match make with the investors. At the end the SME team reached semi-final.

After these experiences and the improved technology which is immediately implemented in the manufacturing, SME has met with numerous investors at place with the idea for the commercialization of business efforts made so far.

Summary of recommendation(s)

This kind of collaboration brought together people from different areas of work (business, R&D and semi-government) with different approaches to the relevant eco-innovative issue.

Establishing this kind of partnership could have visible business and finally economic effects within an SME as well as visible improvements in institutional positioning of both R&D institution and development agency.

Finally, this kind of partnership strongly demonstrated the way how a relatively small business relating to its

infrastructure but big in its innovative drive could be approached and led in order to promote and develop its innovative idea.

In-depth details / explanations of recommendations with links

- Recommend to formalise long term cooperation between interested parties (education and R&D institutions, SMEs, RDA and Local self-governments) by signing an MoU or any other form of documents, nevertheless it wasn't realised in this case;
- Recommend potential future partners for innovative projects in this field;
- Recommend potential supplier of eco-technology and eco-products.
- Recommend individual experts in eco-innovation field.

Conclusions of recommendations

The SME invented the technology which is environment friendly in many ways. First of all, it improves the process of recycling non-hazardous waste materials, mainly composites, plastics and glass relating time and energy consumption. Besides that, the final products manufactured by this technology show have better (mechanical, chemical, physical) characteristics comparing to conventional ones (e.g. Eco posts, Eco profiles, Eco concrete).

The recommendation has the potential to achieve an impact on various fields. First of all SMEs could benefit a lot by outsourcing SME institutional support as it is. By definition, SMEs haven't enough resources for maintaining and developing their own functions, particularly in R&D as well as in promotion. Burdened by everyday problems like manufacturing, financing etc. most of SMEs neglect their long term perspective. Supporting institutions could play major role in their move upward before they start to use professionals on the market. On the other side, this recommendation could be the initial spark for many local communities how to deal with such waste materials like composites, plastics and glass by using the technology which helps to keep the environment in proper condition. Finally, the Government also could have deeper insight on what is happening in the field of eco-innovations and support this kind of endeavours in the future, not just throughout general national innovation competition, but by developing new specialised programs for supporting eco-innovations.

Date of recommendation package

January 2019

Author

RDA Banat

67. Recommendation for eco-innovative approach in an innovation development in SME business operation

Recommendation package is related to the development of an eco-innovative product in area of space heating. The package describes the process initiation by the SME throughout the development of the idea into the product and finally its promotion to the scientific and professional community.

Keywords: Partnership guidance, Innovator, Eco-innovation, Space heating device, Sawdust, Wood.

Aims of this recommendation

The recommendation of this document is about matching partners that are able to initiate and develop an idea with technical background into the product for practical everyday use. The product promotion is also an important part of the recommendation package.

Target group of this recommendation package

The audience of this report could be:

- Innovative entrepreneurs and SMEs,
- R&D institutions,
- Households dedicated to use renewable energy sources in space heating.

Background to this recommendation package

This recommendation is matching the EcoInn Danube general objective which is increase the cooperation of innovation actors in the field of ecoinnovations with special emphasis on development, application and promotion of ecotechnologies in the Danube Region.

A regional development agency (hereinafter: RDA) became a trustful and competent business support institution since it has been established. Beside business community RDA operates in relevant institutional environment where education and R&D institutions operates as well. In scope of his work RDA deals with matchmaking in order to foster cooperation among relevant partners in the environment.

Summary of party / parties

- An innovative SME with lack of technical and wider knowledge to develop an eco-innovative product and present it at wider professional and business community.
- R&D institution with expertise and laboratory equipment in specified area but not motivated to initiate a business endeavour.
- RDA positioned in institutional environment with good social capital and relevant information related to specific area.

Summary of eco-solutions/knowledge/technology

This eco-innovative technology is developed in response to the issue of utilization of waste materials in woodworking and, as such, represents an environmentally acceptable

solution for space heating. Comparing to other similar devices this one has improved the flow of raw material and its burning efficiency which results with more uniform burning without spontaneous smaller explosions.

Summary of proposed collaboration / proposed partnership and knowledge transfer

In order to support the development of an eco-innovative product and its promotion SMEs may address RDA as a first contact point. Based on initial idea potential RDA will consider the possible partnership with relevant institution or individuals inside of them for the sake of both sides. Technologically more demanded ideas often requires higher level of expertise which is not available in closer environment so RDA should find the most appropriate one..

Depending on the collaboration development between SME and R&D as well as results achieved, the collaboration could be extended after finishing the whole process which is agreed or contracted at the beginning.

Summary description

Specific waste that is being generated in woodworking (eg. lumbering or furniture industry) could be used as a raw material on various ways. Some of them its use as raw material for space heating devices. Moreover, there are also different technologies of burning this raw material in various devices. Most of these technologies processing the sawdust or wood chips which results with higher costs.

Initial researches show that serious savings could be achieved by implementing Environment Friendly Combustion System for Sawdust In Function of Space Heating. This is particularly interesting for those who are able to acquire raw material for free or at site where it is considered as waste.

Summary of eco-knowledge, eco-solution or eco-technology featured in recommendation package

Wood is a widespread renewable energy source. It can be found at many places in the nature excluding those with extreme climate conditions like deserts, high mountains etc. Wood is widely used in different industries like furniture, construction, energetics etc. Mostly, just one part of the wood as a plant is used, and it is timber. Other parts of it like leaves and branches are insufficiently exploded. If wood is considered as energy source, except timber and branches, bushes also should be taken into the consideration. On the other side, considering space heating, particularly where man resides is old problem lasting for centuries. Wood as a heating material from prehistoric times to the present has its important place in solving this problem. With the development of science and technology, as well as environmental standards, wood continues to hold its position among other heating materials.

There are various solutions/devices/products are developed throughout history that convert chemical energy from wood into the heat, by its burning. In modern days the main issue in this type of heating is energy efficiency of the product as well as stable burning process without explosions. From the side of the raw material – wood, the main issue is still, the price what is related to its quality in wider sense (thermal power, handling, grime, …).

Moving a step forward the innovator focused on wood remains generated in wood and furniture industry as well as on that, which is generated by maintaining road sides, parks etc. These remains are mostly considered as waste that should be managed so it is additional work and additional cost for the operators. Bearing this idea that sawdust and wood chips could be used as a heating material, innovator started to think how to improve existing devices available on the market. First of all most of them are relatively expensive and adjusted for burning just one or very narrow sort of heating materials which are also with significant share in total price of space heating. The main technical problem that has been found during the research is unstable burning process.

In his efforts to solve the problem the innovator/SME contacts the RDA to find a reliable and partner with high level of expertise in the heating area. After the R&D institution has been selected the initial plan has been made, with main objectives set as:

- Develop improved design of existing sawdust/wood chips based boilers relating the stability of burning,
- Find the solution for rearranging existing devices for various types of wood (logs, briquettes, pellets) or coil burning in order to use sawdust and wood chips,
- Promote eco-innovative product to the professional and academic community.

Summary of status of knowledge transfer

First of all, the R&D partner and the innovator with its SME re-considered the state of the technology as well as the main products status. They searched through users complaints relating different types of boilers and it have been identified that critical points are the unstable burning of raw material what often cause unpredictable laud explosions.

Later on, throughout laboratory researches partners identified the main causes of explosions. They are related to two main reasons. First one is related to the condition of raw material meaning its humidity, and this is known by good practice throughout the centuries. The second reason is more challenging because it is related to the quantity of the raw material which is burning in certain period of time.

During the experimental phase with testing different solutions for the problems identified, partners tried to find solution which could be applicable for the second objective also, so that it could be implemented as rearrange of existing devices for various types of wood (logs, briquettes, pellets) or coil burning boilers.

One of the causes of unstable flame has been successfully solved after mixers being placed in the tank, which prevents compaction of sawdust. This is not relevant if a wood chips is used as a raw material. But, there is another cause which exists by using both kinds of raw materials. It is related to the speed of raw material which is moving to the burning space. This has been solved by installing the frequent regulator in transmission system.

After several tests with combination of different raw materials relating their quality as well as combination of different speeds of raw material introduction the device showed stable work and efficient use of raw material comparing to other solutions available on the market.

After testing phase, the device has been promoted as an eco-innovative one at the national conference dedicated to the eco-innovations.

Summary of recommendation(s)

This kind of collaboration brought together people from different areas of work (business, R&D and semi-government) with different approaches to the relevant eco-innovative issue.

Establishing this kind of partnership particularly between SME and R&D institution could have visible business and finally economic effects within an SME as well as visible improvements in institutional positioning of both R&D institution and development agency.

Despite this eco-innovation isn't developed till the patent level there is a good example how a relatively small business relating to its infrastructure but big in its innovative drive could be supported in the very beginning of the idea development and later on in its promotion, with minimum costs.

In-depth details / explanations of recommendations

- Recommend to formalise long term cooperation between interested parties (education and R&D institutions and SMEs) by signing an MoU or any other form of documents, nevertheless it wasn't realised in this case;
- Recommend potential future partners for innovative projects in this field;
- Recommend individual experts in eco-innovation field.

Conclusions of recommendations

The innovator/SME improved state of the technology in area of space heating. The solution is based on renewable energy sources and more precisely it is based on wood processing waste such as sawdust and wood chips. With minor rearrangements the traditional wood based boilers could use these kinds of waste.

The recommendation has the potential to achieve an impact on various fields. First of all SMEs could benefit by selling the technical solution in rearrangement of traditional boilers for the customers. Secondly, the SME could assemble new products based on orders. The next level of the innovation development and its real commercialization, it has to pass several stages, such as: determining the burner power, determining the efficiency of fuel material or nominal efficiency (primarily for sawdust and wood chips), then several test should be conducted related to the safety of the whole system etc. All this may require certain modifications to the system, in order to compliance with the standards in this area (EN 12809 and EN 13240) as well as the laws, but also in order to obtain the eco-label for the product/system.

In all of these additional activities in the further development of the eco-innovation, the R&D institution as well as development agency could play important role.

Date of recommendation package

February 2019

Author

RDA Banat