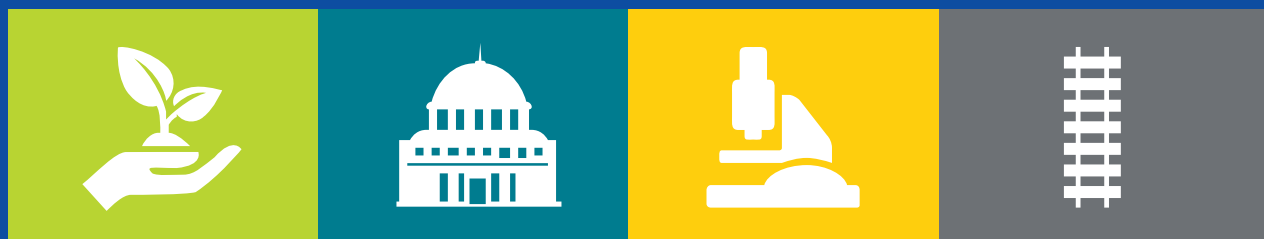


Transnational Partnership Training TRAINING HANDBOOK



Project Made in Danube project (Code: DTP1-072-1.1)
INTERREG Danube Transnational Programme

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Target Groups

- Small and medium-sized enterprises
- Regional public authorities
- Researchers within higher education institutions and research institutes

**Training date
and venue** October 20 2017, Budapest

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PART I.

Introduction – the aim and expected results of this training course

The objective of this training course to provide a quick and comprehensive overview for the participants about the benefits of the transnational partnership focusing predominantly of the SME's. The participants will gain a relevant and up-to-date landscape about the main barriers related to the growth-orientation an internationalization of SME's and the incentives and measures to eliminate these problems. The training also aims to share ideas experiences and know-how in the field of transnational partnership with stakeholders from different institutions that can contributes to bridging the gap between R&D and innovation and business creation.

The ultimate objective of the training is to initiate the rise of transnational partnerships through the knowledge of multi-stakeholder partnerships.

Based on the Territorial Analysis of SE-Europe, the Danube Macro-Region has challenges to overcome in relation to the following difficulties: a) significant gaps in the relationship between R&D and market participants b) lack of ability to implement the knowledge-based and technology-intensive innovative activities in the SE-European regions c) modest flow of information and knowledge between region and d) lack of knowledge and internationalization of SME's.

The transnational partnership training is aiming to teach the participants the techniques and steps of establishment and develop successful, mutually beneficial and profitable transnational partnerships, sharing the best practices and experiences related to this area and draw the main lessons learnt from this course, which all participant can take into the practice.

The expected results of the training:

The trainings will improve the awareness of transnational partnership in order to stimulate technology transfer and innovation. At the end of the training the participants will be more equipped with the knowledge to elaborate better cooperation and a successful and effective partnership on a transnational level.

After participating on the trainings, the participants will be able to:

- Understand the conceptual framework of transnational partnership
- Play a vital role in knowledge exchange
- Contribute to establish a common pool of resources through networking and alliance building
- Develop future strategies to implement a capacity building

The general landscape: the main barriers in front of the growth-ability and internationalization of the SMEs and the reasons beyond them

Sources: OECD (2009), "Top Barriers and Drivers to SME Internationalisation", Report by the OECD Working Party on SMEs and Entrepreneurship, OECD.

ACCA: SME internationalisation in central and eastern Europe

<http://www.accaglobal.com/content/dam/accaglobal/PDF-technical/small-business/pol-tp-sicee.pdf>
October 2, 2017. download by Dr. Zoltán Peredy

Small and medium-sized enterprises (SMEs) form the potential powerhouse of European economic growth. Smaller businesses have the ability to act fast and respond to market opportunities as they arise. The European Commission recognises the importance of SMEs. It understands that Europe's capacity to build on SMEs' growth and innovation potential will be decisive for the future prosperity of the European Union (EC 2011).

Across the EU28, the contribution of SMEs in the non-financial business sector is considerable. SMEs make up 99.8 % of all enterprises, 57.4 % of value added and 66.8 % of employment. Thus, in 2015, just under 23 million SMEs in the non-financial business sector generated EUR 3.9 billion of value added and employed 90 million people.

SMEs in the EU

Class size	Number of enterprises		Number of persons employed		Value added	
	European Union		European Union		European Union	
	Number	Share	Number	Share	Billion €	Share
Micro	21 356 252	92,8 %	40 057 410	29,5 %	1 454	21,2 %
Small	1 378 702	6,0 %	27 503 428	20,2 %	1 233	18,0 %
Medium-sized	224 647	1,0 %	23 170 353	17,0 %	1 251	18,2 %
SMEs	22 959 601	99,8 %	90 731 191	66,8 %	3 938	57,4 %
Large	44 458	0,2 %	45 168 733	33,2 %	2 924	42,6 %
Total	23 004 059	100,0 %	135 899 924	100,0 %	6 862	100,0 %

Figure 1.: General SME landscape in the EU (2015)

Source:

http://ec.europa.eu/growth/smes/business-friendly-environment/small-business-act/sme-test_en October 02, 2017. download by Dr. Zoltán Peredy

https://ec.europa.eu/growth/industry/innovation_en October 02, 2017. download by Dr. Zoltán Peredy

SME stands for small and medium-sized enterprises as defined in the EC recommendation. (Commission recommendation 2003/361/EC of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises, notified under document number C(2003) 1422)

To be counted as an SME, the enterprise must be engaged in an economic activity and must have:

- less than 250 employees, and
- an annual turnover not exceeding €50 million, and/or
- an annual balance sheet of no more than €43 million.

Within the SME category, a small enterprise is defined as an enterprise which:

- employs fewer than 50 persons, and
- whose annual turnover and/or annual balance sheet does not exceed €10 million

Innovation is vital to European competitiveness in the global economy. The EU is implementing policies and programmes that support the development of innovation to increase investment in research and development, and to better convert research into improved goods, services, or processes for the market.

How the European Commission promotes innovation

New growth opportunities come from providing new products and services from:

- technological breakthroughs
- new processes and business models
- non-technological innovation and innovation in the services sector

These must be combined with creativity, flair and talent, or innovation in its broadest sense.

The European Commission supports innovation development in priority areas and in SMEs, mainly through [Horizon 2020](#) fosters the broad commercialisation of innovation in the EU including [Public Procurement for Innovation](#), [Design for Innovation](#), [Demand-Side Policies for Innovation](#), [Public Sector Innovation](#), and [Social Innovation](#) develops sector policies to modernise the EU's industrial base and accelerate the market uptake of [Key Enabling Technologies](#) such as [Workplace Innovation](#)

Monitors innovation performance and innovation uptake in order to identify developments that require policy changes. Key methodologies include the

- [European Innovation Scoreboards](#),
- [Innobarometers](#),
- [Business Innovation Observatory](#)

Improves regulatory conditions for innovation with measures for [start-ups](#), [entrepreneurship](#), [access to finance](#), [digital transformation](#), [Single Market](#), [intellectual property](#) and [standards](#).

Supports the development and cooperation of [clusters](#) to boost SME innovation.

The European Innovation Scoreboard (EIS) 2017.

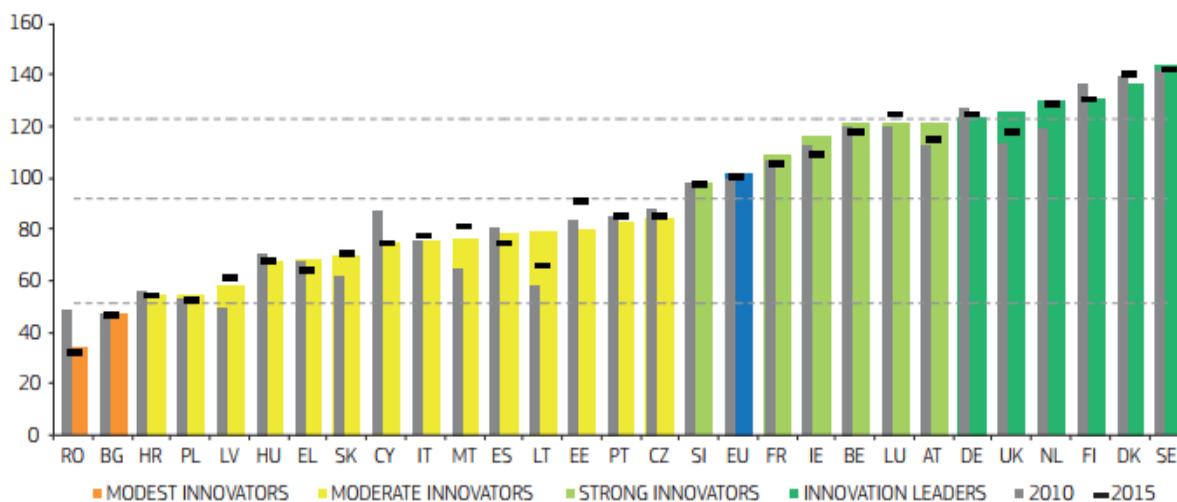
Creating an ecosystem that allows innovation to thrive and multiply is a shared task of the EU, its Member States, regions and municipalities. The European Innovation Scoreboard helps Member States to assess performance, track progress on key aspects and identify policy priorities.



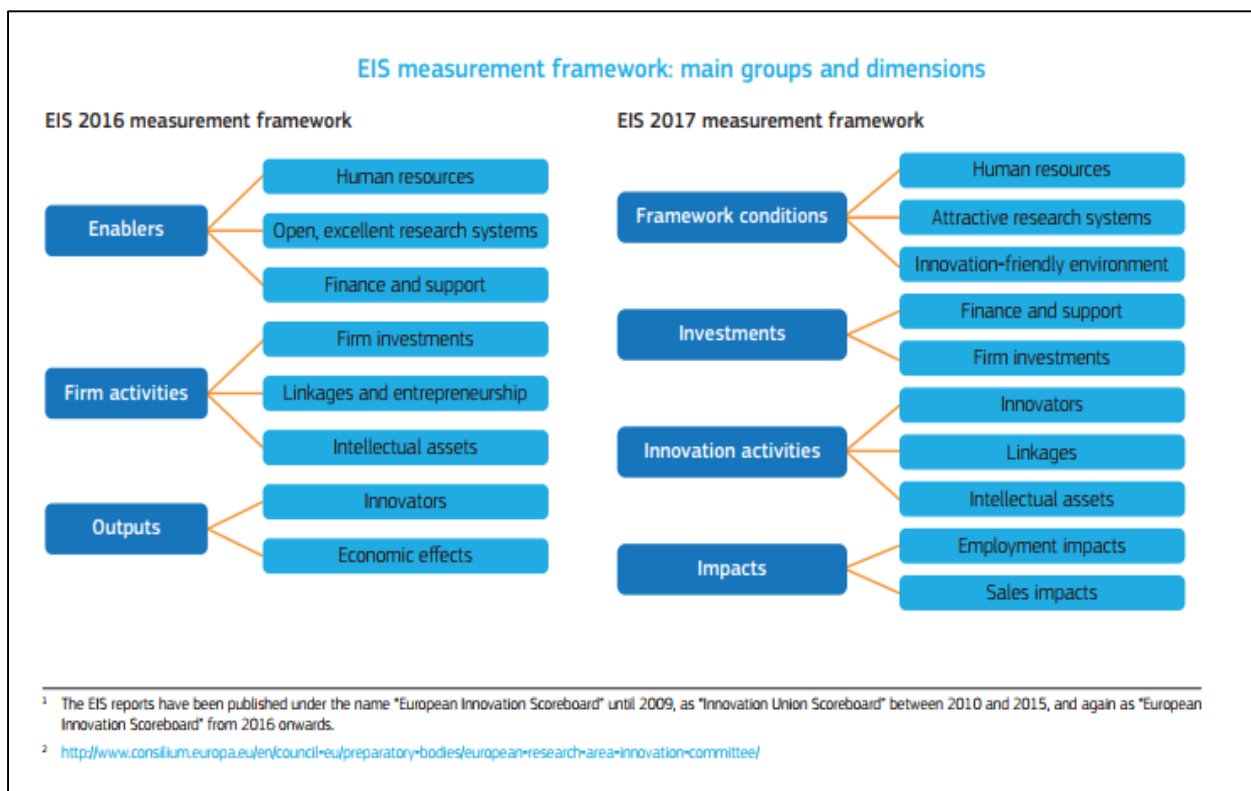

 Carlos Moedas
 European Commissioner for Research,
 Science and Innovation

„In essence, Europe still lacks the market-creating innovation that is needed to turn our best ideas into new businesses and high quality jobs. We need to make sure at local, regional, national and EU level that innovative companies – established ones and start-ups alike – have access to the right employees with the right skills, to academic communities, other innovators and business partners, to the right investors and finance, and to the right political support for venturing into new markets in Europe and beyond.”

Performance of EU Member States' innovation systems



Coloured columns show Member States' performance in 2016, using the most recent data for 27 indicators, relative to that of the EU in 2010. The horizontal hyphers show performance in 2015, using the next most recent data for 27 indicators, relative to that of the EU in 2010. Grey columns show Member States' performance in 2010 relative to that of the EU in 2010. For all years the same measurement methodology has been used. The dashed lines show the threshold values between the performance groups in 2016, comparing Member States' performance in 2016 relative to that of the EU in 2016.



The Business Innovation Observatory

It provides regular evidence on the latest innovative trends in business and industry, including how innovative solutions are developed and brought to market, as well as their impact on the economy.

Source: <http://ec.europa.eu/growth/industry/innovation/business-innovation-observatory> October 2, 2017, download by Dr. Zoltán Peredy

The Observatory has been set up to identify innovation trends and insights to be investigated through:

- case studies, covering the success stories of a range of innovative companies
- videos, showcasing a selection of the case study companies and the key lessons learnt
- reports, drawing on the case studies and workshop outcomes and providing related policy recommendations
- workshops to engage the business community, policy makers, industry experts and academia on key business innovation trends.

The objectives of the Business Innovation Observatory are to:

- identify the latest innovation trends emerging in the European institutional, political, legal, and socio-economic context – for example, the Internet of Things and clean technologies
- identify the dynamics of good business practices of innovative companies, with a special focus on small and medium-sized enterprises (SMEs)
- understand the barriers to innovation and propose policy tools to overcome them
- nurture 'win-win' relationships between entrepreneurs, policy makers, innovation facilitators and researchers
- enhance awareness of the latest business innovation trends, success stories, and related business opportunities and barriers, through case studies, trend reports and workshops/conferences
- disseminate the project's findings via the website and social media tools of the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs.

The European Enterprise Promotion Awards

The European Enterprise Promotion Award reward those who promote entrepreneurship and small business at the national, regional and local level. Initiatives from all EU countries, as well as Iceland, Serbia, and Turkey can take part in the competition. Since 2006, over 2,800 projects have entered the awards and together they have supported the creation of thousands of new companies.

The objectives of the awards are to:

- identify and recognise successful activities and initiatives undertaken **to promote enterprise and entrepreneurship**
- showcase and share examples of best entrepreneurship policies and practices
- create a greater awareness of **the role entrepreneurs play in society**
- encourage and **inspire potential entrepreneurs.**
- The winners of the European Enterprise Promotion Awards are announced at an awards ceremony at the [SME Assembly](#), which is part of [European SME Week](#).

The award categories are:

1. **Promoting the entrepreneurial spirit** – Recognises initiatives that promote an entrepreneurial mindset, especially among young people and women

2. **Investing in entrepreneurial skills** – Recognises initiatives that improve entrepreneurial and managerial skills
3. **Improving the business environment** - Recognises initiatives that support enterprise start-up and growth, simplify legislative and administrative procedures for businesses
4. **Supporting the internationalisation of business** - Recognises initiatives that encourage enterprises and particularly small and medium-sized businesses to benefit more from the opportunities offered by markets, both inside and outside the EU.
5. **Supporting the development of green markets and resource efficiency** - Recognises initiatives that support SME access to green markets and help to improve their resource efficiency through, for example, green skills development and matchmaking, as well as funding **(this category is suspended in 2017)**.
6. **Responsible and inclusive entrepreneurship** - Recognises initiatives that promote corporate social responsibility among small and medium-sized enterprises and entrepreneurship among disadvantaged groups such as the unemployed, legal migrants, disabled, or people from ethnic minorities.

The Jury's Grand Prize can be from any category and will go to the entry considered to be the most creative and inspiring entrepreneurship initiative in Europe.

Selection criteria

- Originality and feasibility
- The impact they have on the local economy
- The improvement of local stakeholder relations
- Transferability of the project to other regions in Europe.

The competition has two stages. Applicants must first compete at national level to be eligible to compete at European level. For the national competition, each country will select two entries to be nominated for the European competition.

A shortlist of nominees will be chosen by a European jury. All nominees from the national and European competitions will be invited to attend the awards ceremony. The ceremony recognises the winners for their efforts and gives them the opportunity to present themselves in a pan-European environment.

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More info: <http://ec.europa.eu/growth/smes/support/enterprise-promotion-awards/>

Challenges and need for cooperation:

- There is an insufficient transnational cooperation and coordination on institutional level which needs to be improved in order to fully enhance the research and innovation potentials of the region while reducing spatial disparities ·
- The creation of a stimulating environment for research and innovation activities is dependent on promoting adequate policies which are not in place in many parts of the region ·
- The modest flow of information and knowledge between regions of the programme area is enlarging the differences in research and innovation activities, therefore efforts should be made to create functional and efficient communication channels
- **The SMEs capability to adapt to innovation needs to be supported by strengthening the transfer of information**
- There is a need to develop skills and competences in order to make possible the generation and use of the results of research and innovation activities, and their transfer into economy to tackle societal challenges.

The internationalisation of SMEs concerns not only their export activity, but also their imports, foreign direct investment, international subcontracting and international technical cooperation (EC 2010).

For central and east European countries, encouraging internationalisation and innovation among the SME sector is particularly important in order to offset the loss of current advantages

The high prevalence of SMEs in the business landscape heightens the importance of encouraging these smaller businesses to internationalise. While SMEs have particular qualities and strengths and may perceive opportunities to expand internationally, they are also frustrated by perceived barriers.

Studies are consistent in their findings relating to the numerous barriers for SMEs seeking to internationalise. There are problems with:

- gaining access to networks and contacts in an overseas market, including establishing a dialogue and building a relationship with actors in the market
- navigating unfamiliar business environments and cultures and coping with different languages
- procedural barriers such as product standards and legal and regulatory issues
- having the capability to understand the competitive environment and assess potential opportunities and risks
- finding the confidence, management time and other resources to investigate and pursue opportunities in overseas markets (BIS 2010; OECD 2009).
- inadequate information
- accessing local partners

Identifying and accessing local partners, who understand the realities and complexities of the market, is a major challenge for SMEs seeking to expand abroad. Having such a partner – with good contacts and the necessary know-how – enables initial activities to be established more quickly and effectively, providing a sound base on which to grow. SME's limited internal capabilities make this imperative for small firms as well as the business support community.

- intellectual property issues

The high cost of protecting intellectual property rights in Europe acts as a barrier for SMEs, especially innovative small firms that are the most likely to wish to enter foreign markets. Participants at the ACCA event in Warsaw discussed how businesses in Poland, for example, can find that registering and patenting new products costs up to €100,000, raising serious cost implications for innovative small firms. The European protection system is indeed at least four times more expensive than the US, Chinese or Japanese systems and it is estimated that a single EU Community patent would reduce patenting costs in Europe by around 60% (Van Pottelsberghe 2009). Current efforts towards development of a single European patent are therefore welcome, and indeed long called for, and would provide a significant help to SMEs if current efforts were to result in an effective, consistent and less costly patenting system

- local red tape

Domestic regulations, including tax laws, can hold SMEs back from achieving their full potential for innovation, growth and international expansion. Barriers of this variety may include dealing with legal, financial and tax regulations and standards, and regulations in other EU and non-EU countries such as product standards, compliance procedures, and patent and trademark issues (BIS 2010)

Other main challenges of working in transnational cooperation/project:

(Source: https://www.ewt.gov.pl/media/21120/Project_Management_Handbook.pdf)

- a) **Working with different (working) cultures and languages and establishing a common way of working together in the project.**

Relationships and mutual trust need to be developed, especially when some of the partners do not know each other before the project. Do not under-estimate the value of shared experiences and face-to-face contact in building trust.

- b) **Different types of organisations from the public, private and voluntary sectors with different fields of expertise and organisational cultures.**

They have different expectations and working methods, and these differences need to be managed so the team works together. More positively, cooperation projects can often unlock existing conflicts between organisations in the same country by injecting new ideas and perspectives, or may alternatively provide a safe, informal and non-committal space for contact and discussion between organisations in different countries.

- c) **Working remotely in large partnerships requires extremely good planning and organisation, commitment of all partners to the project, and efficient and timely communication to achieve the common objectives and avoid isolated outcomes.** Modern technologies help but can never completely replace the need to meet and look each other in the eye. Defining a shared understanding of what the project really wants to achieve, how much it will cost and how long it will take becomes more challenging in a multinational and multi-organisational context, but is still essential when developing the project. Projects need to identify the right balance between necessary detail and sufficient margins for adjustment.

- d) **Meeting European reporting, control and audit requirements:** means investing time in developing the necessary knowledge and ensuring that all project partners are living up to all requirements. There is a major drive towards simplification in the new period, but new beneficiaries have to accept that there is still a lot to learn. Project managers need to make sure they themselves have the necessary knowledge, invest time in passing it on to the other project partners, and follow up to ensure that things really are being done in compliance with programme rules. Mistakes can be expensive!

- e) **Need for partner liquidity.** Project costs are almost always reimbursed after the money has been spent. A small number of programmes have managed to make arrangements for limited advance payments but this is generally impossible for programme authorities. This means that project partners need to have sufficient financial capacity to pre-finance their costs until payment is received from the programme. In the worst case (if programme payments are suspended because of unclear audit findings), this may mean a delay of payments of several years. Although these horror cases are rare, all project partners need to be aware of the risk before joining a project.

Advantages of transnational cooperations

Integration results: Transnational cooperations should reduce the effects of borders by encouraging the interested stakeholders to view their potentials as a shared asset, whether this concerns human capital, education and research opportunities, transport connections or any other issue. Regions working together and combining their efforts are stronger and more effective than each region acting in isolation.

Examples: *Integrated/coordinated delivery of services, integrated/coordinated business and education frameworks, common branding for inward investment, establishing frameworks for joint/coordinated management of joint assets.*

Investment results: Cross-border areas can share infrastructure and in some cases need new crossborder infrastructure. Larger transnational areas will more often benefit from joint development of new ideas for piloting more efficient or effective investments.

Examples: *New cross-border transport connections, shared facilities such as business incubators located on one side of the border but open to businesses from both sides, pilots of new flood*

prevention techniques tested in one location on behalf of the wider partnership, one-off facilities such as wind turbine evacuation models which can be used by all participating countries.

Performance-related results: Cooperation can lead to an improvement in the quality of policies and governance.

Examples: *Better policies, improved working methods, spreading knowledge of new technologies and techniques, supporting more effective international innovation, improved cooperation between national business clusters.*

The importance of the SME sector in Europe (SBA Act and Action Plan, SBA Factsheets, measure to engaged SMEs to be internationalization)

Small and medium-sized enterprises (SMEs) represent 99% of all businesses in the EU. The definition of an SME is important for access to finance and EU support programmes targeted specifically at these enterprises.

“Think Small First” – The Small Business Act for Europe (SBA)

The Small Business Act (SBA) is an overarching framework for the EU policy on Small and Medium Enterprises (SMEs). It aims to improve the approach to entrepreneurship in Europe, simplify the regulatory and policy environment for SMEs, and remove the remaining barriers to their development.

The general climate in society should lead individuals to consider the option of starting their own business as attractive, and acknowledge that SMEs contribute substantially to employment growth and economic prosperity.

- I. Create an environment in which entrepreneurs and family businesses can thrive and entrepreneurship is rewarded***
- II. Ensure that honest entrepreneurs who have faced bankruptcy quickly get a second chance***
- III. Design rules according to the “Think Small First” principle***
- IV. Make public administrations responsive to SMEs’ needs***
- V. Adapt public policy tools to SME needs: facilitate SMEs’ participation in public procurement and better use State Aid possibilities for SMEs***
- VI. Facilitate SMEs’ access to finance and develop a legal and business environment supportive to timely payments in commercial transactions***
- VII. Help SMEs to benefit more from the opportunities offered by the Single Market***
- VIII. Promote the upgrading of skills in SMEs and all forms of innovation***
- IX. Enable SMEs to turn environmental challenges into opportunities***
- X. Encourage and support SMEs to benefit from the growth of markets***

Implementing the Small Business Act for Europe (SBA):

As of the first quarter of 2016, the implementation of the SBA is still not complete. For some principles, the work is still just half-done, while for other SBA principles the policy work – at least in terms of the adoption or implementation of measures – is nearly completed by all Member States. Measures to support the internationalisation of SMEs have practically been covered by all Member States.

There is no shortage of incentives to stimulate exports, programmes to develop clusters, trade missions and targeted financial support. All Member States have put in place state guarantee programmes and other SME financing programmes. In addition, public financial support for SMEs is largely available in all Member States, **but policy measures and incentives to stimulate and facilitate private investments are somewhat still lacking.**

Entrepreneurship education programmes, including teacher training programmes and mentorship programmes, are also widespread. **However, entrepreneurial programmes integrated within primary and secondary education still need a policy push, and the existing programmes in place have not had a significant impact.** In nearly three-quarters of Member States, SMEs benefit from public measures that fund employees training or business advisory/support services.

All the Member States have specific measures in place to develop SMEs' R&D&I competencies. While significant policy efforts have been made in the area of 'responsive administration', particularly with regards to making it easier, cheaper and quicker to register a new business, certain administrative inefficiencies are still apparent. The deficiency in linkages between the databases of different public administrations is resulting in the ongoing duplication of requests for information from SMEs. **'Second chance' policies have largely been neglected, achieving only modest progress**



Figure 2. Taking into practice the SBA principles (trend analysis on EU level)

The figure above illustrates the collective policy progress at EU28 aggregated level in terms of the number of policy measures adopted/implemented over the period 2011-2016 per (primary) SBA principle. Remarkably, more than 2000 SBA policy measures have been adopted since 2011. The highest number of policy measures adopted/implemented have been identified under access to finance, entrepreneurship, skills & innovation and 'responsive administration'.

Think Small First' Principle

Thanks to the 'Think Small First' Principle, SMEs' interests are taken into account at a very early stage of policy making. This helps the EU develop SMEs-friendly legislation. The tools enabling effective application of the principle are:

- the SME Test
- the use of specific provisions in legislation avoiding disproportionate burden on SMEs
- consulting and listening to SMEs
- the work of SME Envoys
- the use of Common Commencement dates - business-related legislation comes into force on a limited number of fixed dates, making life easier for SMEs

The SME Test implements the ['think small principle'](#) through:

- preliminary assessment of businesses likely to be affected
- consultation with SMEs and SME representative organisations (SMEs, [Envoys](#), [EEN](#))
- measurement of the impact on SMEs (cost-benefit analysis)
- use of mitigating measures, if appropriate

The COM is committed to a systematic and proportionate application of the SME Test in its [Impact Assessment Guidelines](#). The updated SME Test is presented in the [Better Regulation toolbox](#), revised in July 2017

SME Envoys Network

The network of SME Envoys was set up in 2011 as part of the review of the Small Business Act.

Each EU country has nominated a national SME Envoy to complement the role of the EU SME Envoy who chairs the network. The group of SME Envoys makes up an SBA advisory group that promotes SME friendly regulation and policy making in all EU countries.

The current EU SME Envoy is Ms Elżbieta Bieńkowska, Member of the European Commission for Internal Market, Industry, Entrepreneurship and SMEs.



J. J. J.

Her role involves:

- opening up channels of communication between the European Commission, SMEs, and their representative organisations
- promoting SMEs' interests throughout the whole Commission and ensuring that the '[think small principle](#)' is applied effectively in the new [Europe 2020 strategy](#)

SME Envoys in EU countries are appointed by the national government. Their role is:

- To promote SMEs' interests throughout all government bodies and ensure that the 'think small first' principle is integrated into their policy-making and regulatory proposals
- act as the main interface between the Commission and national policy-makers
- report on the uptake of the SBA in EU countries, step up efforts to distribute information on SME policy actions, and promote the exchange of good practices
 - List of the EU Memberstate SME envoys:

https://ec.europa.eu/growth/smes/business-friendly-environment/small-business-act/sme-envoys_en

The SME Performance Review

This is one of the main tools the European Commission uses to monitor and assess countries' progress in implementing the Small Business Act (SBA) on a yearly basis.

With an emphasis on the measures from the SBA Action Plan, the review brings comprehensive information on the performance of SMEs in EU countries and other partner countries. It consists of two parts: an annual report on European SMEs and SBA country fact sheets.

http://ec.europa.eu/growth/smes/business-friendly-environment/performance-review-2016_en

The SBA Fact Sheets

The SBA fact sheets present an assessment of the progress in the implementation of the Small Business Act at national level. They focus on key performance indicators and national policy developments related to the SBA's 10 policy dimensions in the 28 EU countries, Albania, the former Yugoslav Republic of Macedonia, Iceland, Montenegro, Serbia, Turkey and Moldova.

Published annually, the SBA fact sheets aim to improve the understanding of recent trends and national policies affecting SMEs. Since 2011, each EU Member State has appointed a high-ranking government official as its national SME envoy. SME envoys spearhead the implementation of the SBA agenda in their countries.

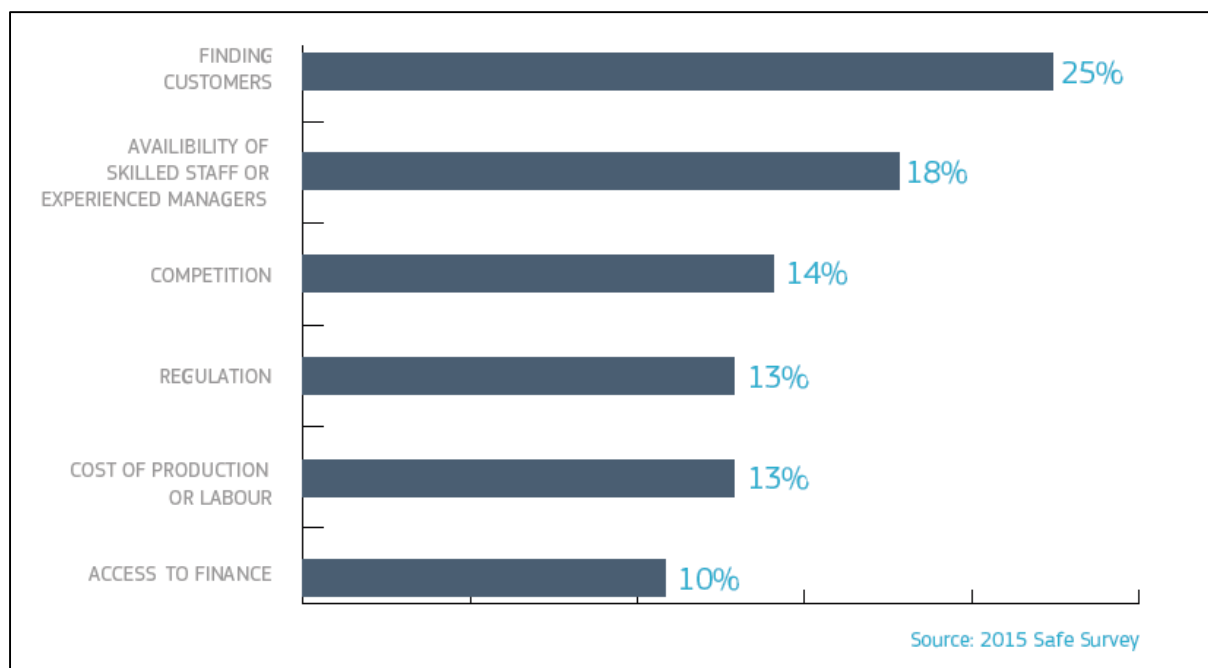


Figure 3: EU-28 SMEs' most pressing problems in 2015

Several possibilities to establish or join any transnational cooperation in the field of innovation (without limitation: Eurostarts program, COSME program, Interreg programs, Enterprise Europe Network – advice for international growth and partnership)

SMEs are the backbone of Europe's economy, providing 85% of all new jobs. The European Commission aims to promote entrepreneurship and improve the business environment for SMEs.

Horizon 2020

Horizon 2020 is the financial instrument implementing the Innovation Union, a Europe 2020 flagship initiative aimed at securing Europe's global competitiveness. EU funding for research and innovation is focused on the three main priorities, corresponding to the pillars of Horizon 2020 (See Figure 4)

- **Excellent Science** – to reinforce and extend the excellence of EU's science base and to consolidate the European Research Area in order to make the EU's research and innovation more competitive on a global scale.
- **Industrial leadership** – to speed up development of the technologies and innovations that will help to innovative European businesses to grow into world-leading companies.
- **Societal challenges** – reflecting the priorities of the Europe 2020 strategy and addressing major concerns shared by citizens in Europe and elsewhere.

In addition, there are two specific objectives / horizontal programmes:

- **Spreading excellence and widening participation** – targeted at low-performing Member States in order to balance research and development performance with other EU countries.
- **Science with and for society** – aimed at cooperation between science and society to make science more attractive, increase awareness and open up new research and innovation activities.

And three smaller blocks:

- **European Institute of Innovation and Technology (EIT)** – created to enhance Europe's ability to innovate by integrating education and entrepreneurship with research and innovation at EU level. The main operational arm of the EIT is its Knowledge and Innovation Communities (KICs). Currently, there are 3 KICs (Climate, InnoEnergy, ICT Labs) and 5 new are to be launched from 2014 onwards (active ageing, raw materials, added-value manufacturing, Food4Future, urban mobility)
- **Joint Research Centre (JRC)** – it is the Commission's in-house science service and the only service responsible for direct research.
- **Euratom** – it is a complementary research programme for nuclear research and training

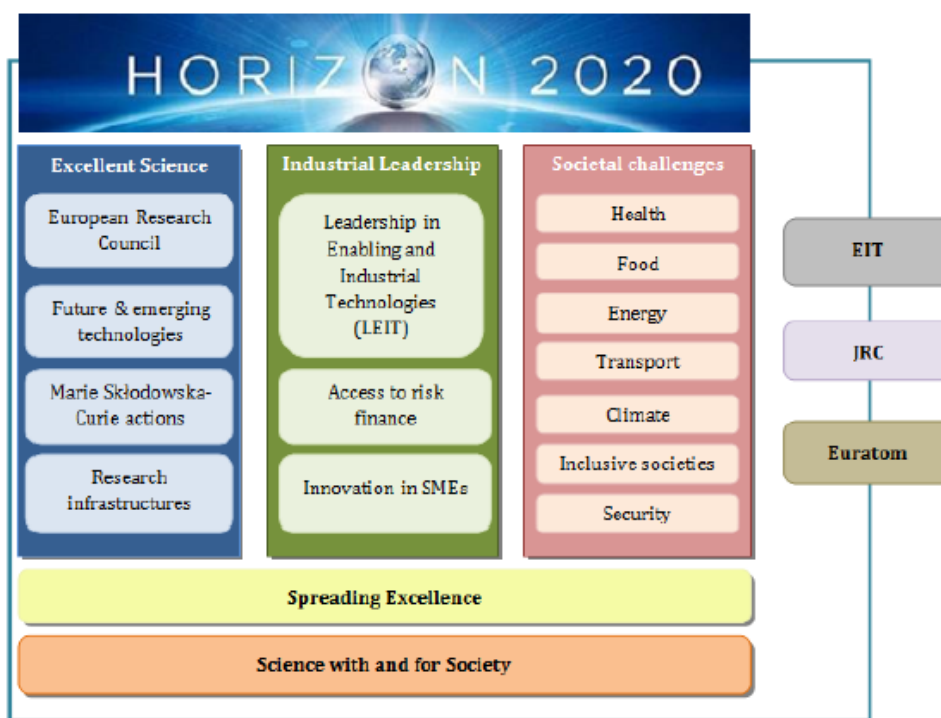


Figure 4.: Structure of H2020

More info: <http://ec.europa.eu/research/participants/portal/desktop/en/home.html> October 2, 2017. download by Dr. Zoltán Peredy

COSME

COSME helps businesses to access markets in the EU and beyond. It funds the Enterprise Europe Network that helps SMEs find business and technology partners, and understand EU legislation; the Your Europe Business portal that provides practical information on doing business within Europe. It also finances a number of IPR (intellectual property rights) SME Helpdesks.e their full potential in today's global economy

- COSME is the EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises running from 2014 - 2020 with a planned budget of EUR 2.3 billion. https://ec.europa.eu/growth/smes/cosme_hu

COSME aims to reduce the administrative and regulatory burden on SMEs by creating a business-friendly environment. COSME also supports businesses to be competitive by encouraging them to adopt new business models and innovative practices. This complements actions in areas with high growth potential such as the tourism sector.

COSME helps businesses to access markets in the EU and beyond. It funds the Enterprise Europe Network that helps SMEs find business and technology partners, and understand EU legislation; the Your Europe Business portal that provides practical information on doing business within Europe. It also finances a number of IPR (intellectual property rights) SME Helpdesks.

COSME supports entrepreneurs by strengthening entrepreneurship education, mentoring, guidance and other support services. Actions support specific groups who may find it difficult to reach their full potential, such as young people, women and seniorentrepreneurs. The programme also aims to help businesses access opportunities offered by digital technologies.

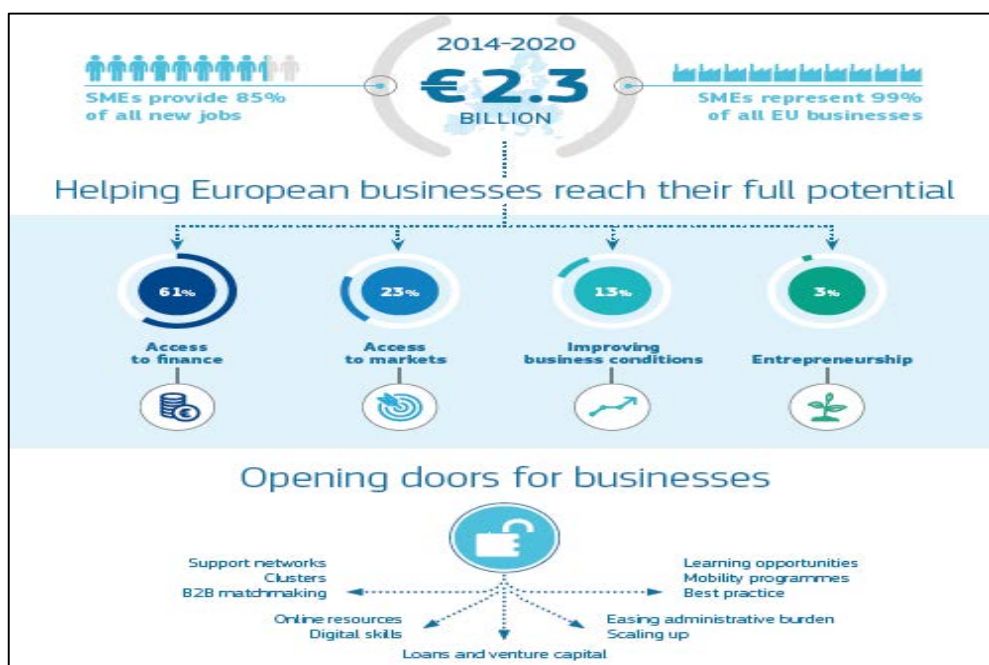


Figure 5. COSME in nutshell

Eurostars

Eurostars supports international innovative projects led by research and development- performing small- and medium-sized enterprises (R&D-performing SMEs). With its bottom-up approach, Eurostars supports the development of rapidly marketable innovative products, processes and services that help improve the daily lives of people around the world. Eurostars has been carefully developed to meet the specific needs of SMEs. It is an ideal first step in international cooperation, enabling small businesses to combine and share expertise and benefit from working beyond national borders.

Eurostars is a joint programme between EUREKA and the European Commission, co-funded from the national budgets of 36 Eurostars Participating States and Partner Countries and by the European Union through Horizon 2020. In the 2014-2020 period it has a total public budget of €1.14 billion.

More info: <https://www.eurostars-eureka.eu/about-eurostars> October 2, 2017 download by Dr. Zoltán Peredy

<https://www.eurostars-eureka.eu/eurostars-faq> October 2, 2017 download by Dr. Zoltán Peredy

The Enterprise Europe Network (EEN)

For SMEs with big ambitions to innovate and grow, the Enterprise Europe Network can provide tailored support packages to steer you onto the fast track to success.

Access to finance

Getting finance can be a big challenge for entrepreneurs and small businesses. Do you know who offers venture capital or loans in your region, your country or in Europe? What's the best way to sell your business plan to investors? The Enterprise Europe Network experts can help your company to get the finance it needs to grow.

Going international

When you expand your business to another country, you need competent and trustworthy partners. The Enterprise Europe Network helps you find them. Our business database contains thousands of company profiles and you can meet potential business partners in person at our matchmaking events.

Technology transfer

If you need a certain technology or innovation to complete your business or a business application for your technology, the Network can help.

Intellectual Property Rights (IPRs)

Are you interested in commercialising a new idea, product, service or process? The Enterprise Europe Network will help you work out how to protect and make the most of your firm's ideas and technologies. We can also put you in touch with the right organisations and IP experts – saving you time and money

More info: <http://een.ec.europa.eu/>

Different-types of Interreg Programs

European Territorial Cooperation (ETC), better known as Interreg, is one of the two goals of cohesion policy and provides a framework for the implementation of joint actions and policy exchanges between national, regional and local actors from different Member States. The overarching objective of European Territorial Cooperation (ETC) is to promote a harmonious economic, social and territorial development of the Union as a whole.

Interreg is built around three strands of cooperation:

- cross-border (Interreg A),
- transnational (Interreg B) and
- interregional (Interreg C).

The Interreg initiative is designed to strengthen economic, social and territorial cohesion throughout the [European Union](#), by fostering the balanced development of the continent through cross-border, transnational and interregional cooperation.

Five programming periods of Interreg have succeeded each other:

INTERREG I (1990-1993) - INTERREG II (1994-1999) - INTERREG III (2000-2006) - INTERREG IV (2007-2013) - INTERREG V (2014-2020)



<https://www.interregeurope.eu/>

- a. **Interreg Europe** helps regional and local governments across Europe to develop and deliver better policy. By creating an environment and opportunities for sharing solutions, we aim to ensure that government investment, innovation and implementation efforts all lead to integrated and sustainable impact for people and place.

Interreg Europe aims to get maximum return from the EUR 359 million financed by the European Regional Development Fund (ERDF) for 2014-2020. Interreg Europe exists to assist three types of beneficiaries:

- Public authorities – local, regional and national;
- Managing authorities/intermediate bodies - in charge of the Investment for Growth and Jobs programmes or European Territorial Cooperation;

- Agencies, research institutes, thematic and non-profit organisations – although not our main target group, these types of organisations can also work with Interreg Europe by first engaging with their local policymakers in order to identify options for collaboration with Interreg Europe.

Organisations that work with Interreg Europe must also be based in one the 28 EU Member States, Switzerland or Norway

Any actions developed with financial support from Interreg Europe must fall into one of the following four categories

- Research and innovation
- SME competitiveness
- Low-carbon economy
- Environment and resource efficiency



<http://www.interreg-central.eu/>

- b. **Interreg Central Europe** aims to get maximum return from the EUR 246 million financed by the European Regional Development Fund (ERDF) for 2014-2020. Interreg Central Europe exists to assist the following types of beneficiaries.
- Public authorities, NGO's, innovation agencies, technology transfer organizations, SME's, chambers of commerce and industry, universities, research organizations, energy suppliers, environmental protection organizations.
 - The overall objective of our programme is to cooperate beyond borders in central Europe to make our cities and regions better places to live and work. Put more precisely, transnational cooperation should become the catalyst for implementing smart solutions answering to shared regional challenges in the fields of:
 - Innovation and cooperation for Central European competitiveness
 - Low-carbon economy strategic cooperation in Central Europe
 - Natural and cultural resources for the sustainable growth in Central Europe
 - Transport cooperation for better connecting Central Europe



<http://www.interreg-danube.eu>

c. Interreg Transdanube Program

The total programme budget is 274 578 077 euros, including the EU support (231 924 597,00 €) and the national counterpart (42 653 480,00 €).

The EU support comes from three different funds:

- European Regional Development Fund (ERDF) (202 095 405,00 €)
- Instrument for Pre-Accession Assistance II (IPA II) (19 829 192,00 €)
- European Neighbourhood Instrument (ENI) (10 000 000,00 €)
- Selected projects are financed up to 85% of their costs.

The projects supported by the Danube Transnational Programme (DTP) must form transnational partnerships to cooperate together in the following four thematic priorities and specific objectives:

- Innovative and socially responsible Danube Region
- Improve framework conditions for innovation
 - Increase competences for business and social innovation
- Environment and culture responsible Danube Region
- Better connected and energy responsible Danube Region
- Well-governed Danube Region

Beneficiaries of the projects funded by the Programme can be local, regional, national public bodies/ bodies governed by public law, international organisations and private bodies (including private enterprises from EU countries of the programme area) having legal personality

PART II.

Essential aspects of working in transnational teams Familiarize with the new and innovative tools and methods

Main steps creating the transnational partnership

According to the (UN Global Compact 2013) there are seven main steps that have to be respected when building a successful partnership, capable of achieving preset goals and objectives. It can be argued that all partnerships are unique, however, the following steps constitute as common elements regarding all partnerships. In essence, a successful model can't be obtained, if one of these steps is omitted or skipped.

STEP I – IDENTIFYING AND SELECTING POSSIBLE PARTNERS

Basically any type of entity can associate itself with another, if the partnering is found to be opportune for all involved parties. Namely, these entities can include any type of companies, official institutions, non-governmental organizations, or even research or academic institutions.

There are no restrictions regarding potential cooperation, however there are some factors that limit this aspect including the following:

- end scope of the partnership;
- resources involved (material or human);
- matching competences and experience of partners;
- timetable;
- political and legal aspects.

The risks and rewards have to be carefully analyzed in order to select a compatible partner which can assure the completion of the project and reduce the risks by deploying its connections or infrastructure. Thus, from the early stages of a partnership the goal and objectives have to be clearly defined. Additionally, an estimate about involved resources has to be made in order to identify the scale of the project.

Competences and experience of potential partners have to be described and it has to be formulated the contribution of each one. The more heterogeneous the skill set is of involved partners, the higher

the success rate of the project and the better the chance for finding innovative solutions to problems occurred during the time stretch of project (Leonardo UK National Agency 2003).

Timetables also have to be synced, this way assuring that no other external activities will influence projects tasks. The contribution and timetable analysis at this stage does not have to be done in-depth, as these will be reviewed and detailed at a later phase, after the potential partners have been compared and the best are selected. Finally, all the necessary authorizations have to be obtained (in the case of governmental institutions or civil society organizations) and legal aspects have to be identified and taken into account.

STEP II – INDIVIDUAL CONTRIBUTION OF PARTNERS

After the selection process is complete, the definition of roles and individual undertakings can begin. All involved partners have to know what they are responsible for. If one or more partner is capable of completing a certain task, it has to be delegated the most competent one in that area. Overlapping competences can lead to disputes, if the responsible(s) is (are) not clearly named.

Mapping the core competencies of all partners helps when deciding who is responsible for what. This way it is also assured that each partner will have its mark on the outcomes and that it is included in the decision making process.

The management of the partnership can be done by selecting a lead representative, preferably who has the most experience, but not necessarily because all members can express their vote regarding this issue. The lead partner will have to mobilize all the resources involved in such a way that at least the primary goals are achieved. The temptation is however to enforce its own interests upon the rest of the partners, but deflecting from the previously set objectives can lead to partnership failure. The partnership should be designed to be inclusive, meaning, that all the involved entities (regardless of their country of origin) should have their own separate role and the budget allocation should be made according to this principle (Leonardo UK National Agency 2003). If the project activities are shared only by

STEP III – SETTING UP THE TIME TABLE

The partners have been chosen, the competences have been described, roles and contributions have been distributed, now it's time for putting them all together in a timeframe. Due to the vastness of a multi-national partnership it is carefully divided into distinct implementation stages, each with its own objectives and preset outcomes that are reviewed and evaluated at the end of each phase.

Activities are created corresponding to each stage and they are designed to lead to the achievement of pursued results. Activities, which does not depend on the outcomes of another, or standalone activities can be completed simultaneously, thus shortening the implementation time and saving

resources. There are cases, however when it is desired for a partnership to last as long as possible, because the longer it carries out activities the greater the impact. Such partnerships address, for example, environmental challenges.

Additionally to designing the activities performance indicators have to be defined, which will reflect the degree of implementation or the failure or success at the end of each phase. These results must be communicated to all partners and to external stakeholders (UN Global Compact 2013).

When creating the timetable it also has to be kept in mind, that there are cases in which a partner decides to exit the partnership prior to contracting. The completion of the activities set in each phase must not be influenced by this factor and the remaining partners have to be capable to overtake the activities left uncovered (Leonardo UK National Agency 2003), quickly, such that the success of the project will not be put to the risk.

STEP IV – DEFINING THE PARTNERSHIPS SCOPE

The definition of the scope also defines the magnitude or scale of the partnership. The results and objectives set the scope to be local, regional or global, each with its own advantages and drawbacks.

Local partnerships are easier and much faster to implement, than at a global level. They involve local resources deployed by local companies serving local beneficiaries with local needs (UN Global Compact 2013). The time-span of these types of partnerships are usually short, however this can be influenced by the amount of resources involved, number of partners and bureaucracy of local authorities. Global level partnerships are much visible and serve the needs of millions. The risks are greater, they involve considerably more resources and stretch over long periods of time.

STEP V – CREATING THE GOVERNANCE STRUCTURE

The governance structure is the backbone of the partnership. It sets the rules about how the partnership functions and who is responsible for which stage of the project, how resources are allocated and who is involved in the decision-making process.

Designing this structure can prove to be difficult, if multiple partners are involved and the magnitude of the partnership is significant.

The governance structure is constituted by three key factors:

“the underlying agreement, the chosen degree of autonomy and the established management bodies” (UN Global Compact 2013).

The underlying agreement can be looked as the core element of the partnership. When a consensus is reached and interest is expressed between the partners, that is, the moment when the partnership starts to exist effective immediately. This agreement can be in the form of an oral expression of

cooperation or it can take a written, more official form. In both cases there are advantages and disadvantages, and when choosing an agreement form all of them have to be weighed and considered, in the context of that particular situation. The oral agreement offers flexibility, it is non-bureaucratic, avoids complex legal procedures and it can be terminated at once without any other supplementary actions. On the other hand the legal risks are higher, the degree of uncertainty for success increases, partners are not motivated for respecting deadlines and the security level of investments is very low.

Opposed to this type of agreement, the written partnership contract builds trust between partners, clearly stating all the necessary information and conditions agreed upon and signed by all involved members (UN Global Compact 2013).

The degree of autonomy is set by how the partnership is administrated and how does it function: if it is managed as a project it has a low autonomy degree, if it was constituted to be a newly formed entity it has a high level of autonomy. Again, this depends on the scale of the partnership. When the partnership is managed as a project by an administrator who dealt with similar projects in the past his experience can be valuable, thus saving resources and time. The disadvantage of this is that by speeding up the administrative actions the potential of expanding activities are also limited. (UN Global Compact 2013). Newly formed partnerships require not only large financial resources, but also time and know-how needed for it to be operational. In contrast, the positive thing is that the expansion potential is much bigger and it can serve the needs of more stakeholders.

Management bodies are those who represent and help steer the partnership. When chosen, the scale of the partnership has to be taken into account: simpler partnerships require single practitioners, more complex ones need the governance of management teams. These teams can be comprised of chosen experts of the relevant partners (steering bodies) and other management support bodies. The latter ones are addressing strategic issues (their intervention in the partnership is periodical – once or twice a year), while the steering bodies are concerned with tactical and operational aspects of the partnerships (constantly adjusting activities to achieve desired outcomes) (UN Global Compact 2013).

STEP VI – FINANCING THE PARTNERSHIP

Depending on the needs of the organizations for development, self-improvement and growth the E.U. offers several opportunities, with financing through newly created programmes specific for research and innovation field.

The biggest one is the Horizon 2020 (also known as FP8 – Framework Programme 8).

It contains numerous sections and hundreds of calls, covering a wide range of participants, from research organizations to SMEs. The first calls were released last year in mid-December. The main pillars of this programme are: excellent science, industrial leadership, societal challenges, spreading excellence and widening participation, science with and for society, European Institute for Innovation and Technology, Euratom.

Another important programme, is the Competitiveness of Enterprises and SMEs or COSME. This programme focuses specifically on developing SMEs. It has a six year lifespan and a generous budget of 2.3 billion €. The main objective of this programme is to support and help SMEs to access financing, thus improving their access to markets. The first calls for this programme started last year in mid-December (only 9 were released), like in the case of Horizon 2020, but there are many more to come.

Additional information regarding these projects and other possible sources for financing can be found at the following webpage:

<http://ec.europa.eu/research/participants/portal/desktop/en/home.html> October 2, 2017. download by Dr. zoltán Peredy

STEP VII – MONITORING AND EVALUATING THE PARTNER SHIP

This process assures all the necessary information, needed to determine if the goals and objectives set at the beginning of the partnership are achieved or not. Monitoring activities gather key piece of information during the course of the partnership. This information is then compared to already established performance indicators, thus analyzing the extent to which they were reached.

While monitoring activities are conducted throughout the whole partnership, evaluation is done only at regulated time intervals or when an implementation phase is completed and the continuing of the partnership depends on the previous phase' success.

Because monitoring activities are a crucial part of partnership functioning and because they are done on an ongoing basis, the partners are usually responsible for their deployment. On the other hand evaluation can be outsourced to external institutions: consultancy firms, NGOs or academic institutions, in the case in which partners are incapable, or don't have the necessary resources, excluding financial, to do it themselves. (UN Global Compact 2013)

External evaluations are generally more expensive, than those conducted internally, however they assure a higher level of impartiality and they are done more objectively. Additionally, when needed, they can be presented as credentials to external stakeholders, proving performance level (UN Global Compact 2013).



Figure 6.: Developing partner cooperation

(Source: Dr. Joachim Beck, Director of Euroinstitut, Kehl (www.euroinstitut.org) in the course of a joint intervention of PROGNOS (www.prognos.com) and VIAREGIO (www.viaregio.com))

Several tips that have to be taken into account when searching for the most relevant partners for finding relevant partners and avoiding the unknown pitfalls are the followings:

- *Type, size and internal characteristics of the potential partner;*
- *Similar focus of performed activities (research or business/commercial) in order to find common interests and objectives that could be fulfilled by the joint project; Similar expectations and ambitions;*
- *Complementary skills, facilities and know-how that could enrich the collaboration and accelerate the progress;*
- *Ability and willingness to dedicate human and financial resources in the joint project efforts; - Ability to take risks and to cope with the pressure the project could bring.*

After the identification of the most relevant partners, first contact with them and formal involvement in the partnership, it is necessary to define the roles each partner will play in the project. The partners must be informed in advance what will be their responsibilities and tasks in order to avoid potential misunderstandings and conflicts during the implementation of the project. The tasks must be assigned

to partners according to their expertise in specific field in order to get the most benefits from their participation. Additional to the professional

roles of the partners, it is good to create a project management structure which will determine the position of each partner in the decision-making bodies of the project. All these relationships and tasks should be clearly described in the project proposal.

IMPORTANT

Language should never be a cause for some partners to participate less actively in the project than others. If no common language can be found, the partners should consider the following:

- adequate interpretation facilities at meetings and other means of communication,
- translation of publications
- interpretation and translation services need to be budgeted already at the development stage,
- time allocation will be increased due to the time needed for interpretation and translation.

	Success criteria	Yes	No	Comments
Project idea	Project is demand-driven: Identified target groups will be able to benefit from the project.	<input type="checkbox"/>	<input type="checkbox"/>	
	Project is result-oriented: Project will make a change by addressing the need of the target groups.	<input type="checkbox"/>	<input type="checkbox"/>	
	Project is relevant: Project contributes to the programme objectives and results as identified in the Cooperation Programme.	<input type="checkbox"/>	<input type="checkbox"/>	
	Project requires cooperation: The project would not succeed without international cooperation.	<input type="checkbox"/>	<input type="checkbox"/>	
Partnership	The relevant organisations needed to address the need and achieve project objectives are involved.	<input type="checkbox"/>	<input type="checkbox"/>	
	The partnership is balanced with respect to levels, sectors and territory.	<input type="checkbox"/>	<input type="checkbox"/>	
	Partner organisations have experience and competence in the thematic field concerned, as well as the necessary capacity to implement the project.	<input type="checkbox"/>	<input type="checkbox"/>	
Project's stakeholders	Potential project's stakeholders and their roles have been identified.	<input type="checkbox"/>	<input type="checkbox"/>	
	Stakeholders to be addressed have been prioritised.	<input type="checkbox"/>	<input type="checkbox"/>	
	Core stakeholders have been contacted and engaged according to their interests.	<input type="checkbox"/>	<input type="checkbox"/>	
Testing project idea	The partners have made use of available knowledge, and built the project on existing results and practices.	<input type="checkbox"/>	<input type="checkbox"/>	
	The programme has been consulted and comments taken into account.	<input type="checkbox"/>	<input type="checkbox"/>	
	If relevant, the project idea has been tested.	<input type="checkbox"/>	<input type="checkbox"/>	

Figure 7.: Successful project idea generation checklist

Several partner search channels:

- **CORDIS Partner Service** – one of the largest databases of self-registered partner profiles.
- **Enterprise Europe Network** – the cooperation opportunities database publishes an extensive number of profiles of international companies and research organisations
- which may help to find suitable partners for bilateral business, innovation and technology cooperation.
- **Other theme-driven networks and databases,**

The Mintzberg's managerial roles

The sources of the below summary: <http://www.free-management-ebooks.com/faql/leadmodels-01.htm>) and An Analytical study on Mintzberg's Framework: Managerial Roles Dr. Pardeep Kumar International Journal of Research in Management & Business Studies (IJRMBS 2015) Vol. 2 Issue 3 July - Sept. 2015 ISSN : 2348-6503 (Online) ISSN : 2348-893X (Print)

“Mintzberg's Management Roles cover ten tasks and responsibilities that a manager may need to perform. These are divided up into three categories: interpersonal, informational, and decisional.

- Interpersonal roles include: figurehead, leader and liaison.
- Informational roles include: monitor, disseminator and spokesperson.
- Decisional roles include: entrepreneur, disturbance handler, resource allocator, and negotiator.
- Any given manager may be asked to complete a variety of tasks during a given day depending on what comes up and what problems need to be solved.”



Figure 8. The main groups of the Mintzberg's Management Roles (<http://www.free-management-ebooks.com/faql/leadmodels-01.htm>)

1. “Interpersonal Roles. The interpersonal roles link all managerial work together. The three interpersonal roles are primarily concerned with interpersonal relationships.

- **Figurehead Role:** The manager represents the organization in all matters of formality. The top level manager represents the company legally and socially to those outside of the organization. The supervisor represents the work group to higher management and higher management to the work group.
- **Liaison Role:** The manager interacts with peers and people outside the organization. The top level manager uses the liaison role to gain favors and information, while the supervisor uses it to maintain the routine flow of work.
- **The leader Role:** It defines the relationships between the manager and employees.”

2. “Informational Roles. The informational roles ensure that information is provided. The three informational roles are primarily concerned with the information aspects of managerial work.

- **Monitor Role:** The manager receives and collects information about the operation of an enterprise.
- **Disseminator Role:** The manager transmits special information into the organization. The top level manager receives and transmits more information from people outside the organization than the supervisor.
- **Spokesperson Role:** The manager disseminates the organization’s information into its environment. Thus, the top level manager is seen as an industry expert, while the supervisor is seen as a unit or departmental expert.”

„Decisional Roles. The decisional roles make significant use of the information and there are four decisional roles.

- **Entrepreneur Role:** The manager initiates change, new projects; identify new ideas, delegate idea responsibility to others.
- **Disturbance Handler Role:** The manager deals with threats to the organization. The manager takes corrective action during disputes or crises; resolve conflicts among subordinates; adapt to environmental crisis.
- **Resource Allocator Role:** The manager decides who gets resources; schedule, budget set priorities and chooses where the organization will apply its efforts.
- **Negotiator Role:** The manager negotiates on behalf of the organization. The top level manager makes the decisions about the organization as a whole, while the supervisor makes decisions about his or her particular work unit.”

In general, the main roles of any teamleader can be summarized briefly in the followings:

“Team leader must be impartial. He should support one and all equally. Don’t favour anyone just because he is your friend.

As a team leader, one should constantly motivate his team members. Motivate them so that they perform even better the next time. Avoid criticizing anyone.

Encourage the team members to help each other. In case of a conflict, don’t add fuel to the fire, rather try to resolve the fight immediately. Listen to both the parties before coming to any conclusion. Try to come to an alternative feasible for all.

Be a mentor to your team members. The team members should be able to gain from the team leader’s talent and mentorship.

The team leader should take the initiative of bringing the team members closer. A leader should try his level best to break the ice among them. Celebrate their birthdays, anniversaries together so that they can discuss issues apart from work more freely. Once in a while do organize picnics or parties where families can also be invited. Such activities strengthen the bond among the employees apart from increasing the trust factor between them.

It is the duty of the mentor to monitor the team’s performance on a regular basis.

The team leader is the face of every team as well as the organization... Discipline is a must. Give your team a direction, without which it fails to perform.

If a team member comes to you to discuss any of his personal problems, lend him a sympathetic ear. Try to help him.

A team leader should set an example”

Source: <http://www.managementstudyguide.com/role-of-team-leader.htm>

The criteria of the successful high performing teambuilding

Effective, efficient, high performing teambuilding

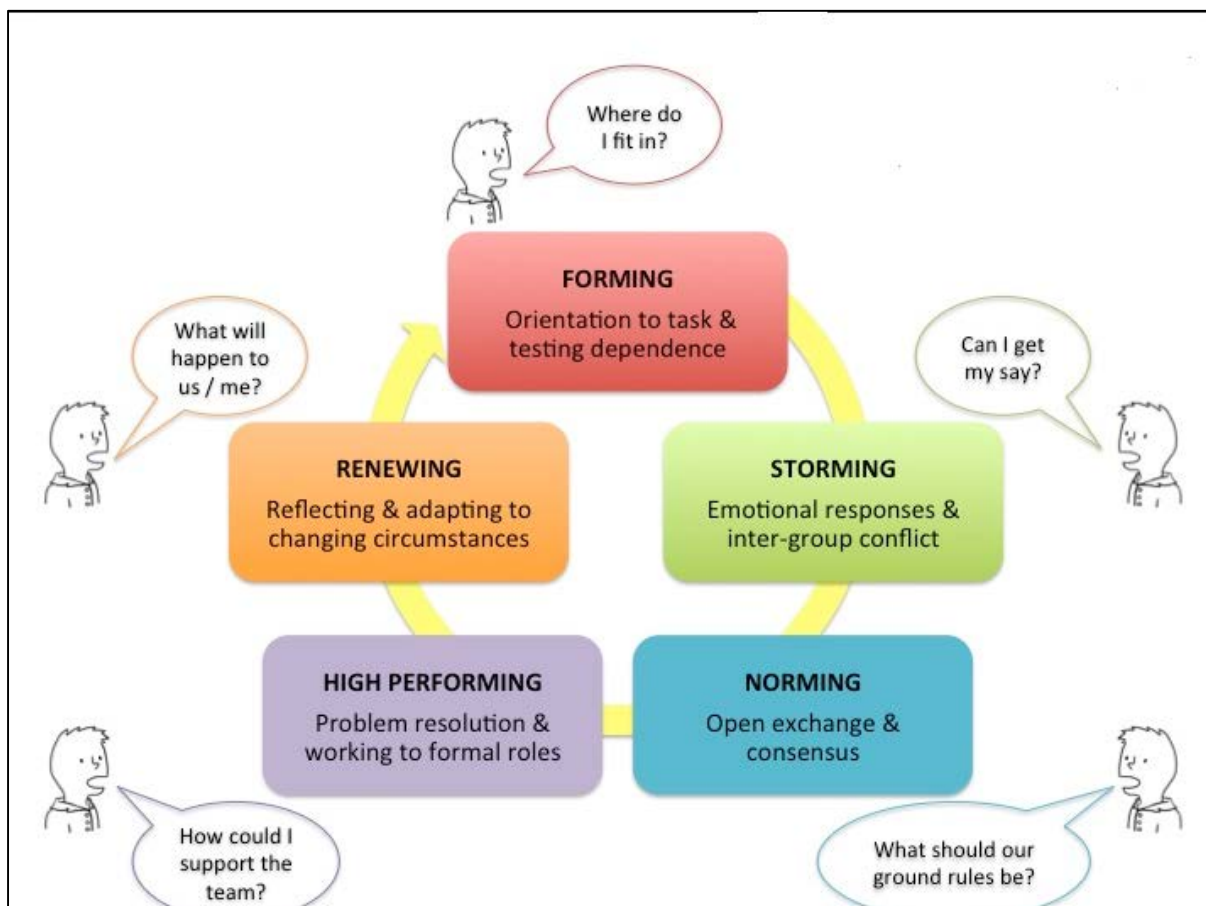


Figure 9. : Stages of team development in Elisabeth Goodman's „The Effective Team's High Performance Workbook“ RiverRhee Publishing 2014

- Main characteristics of high performing team:
- **„A clear, elevating goal:** This is a goal which has been communicated to all.
- **A results-driven structure:** The goal has been jointly decided by all the team members. They are fully committed towards achieving it.
- **Competent members:** Each team member has the required skill set in order to achieve the team objectives.
- **Unified commitment:** There is nothing happening in silos. With the total commitment from team members, achieving organizational goals becomes easier.
- **A collaborative climate:** Commitment from team members and a good leadership leads to a collaborative team with a productive work environment.
- **Standards of excellence:** Quality orientation is vital to the success of any organization.

- **External support and recognition:** Appreciation as well as appraisal is required to keep the morale of the team high.
- **Principled leadership:** Leadership defines a team. An able-bodied leadership can chart the team's path to success.
- **Each team member participates actively and positively in meetings as well as projects.** This shows a person's commitment as well as understanding towards a project.
- **Team goals are clearly understood by all:** Communication is vital for achieving successful completion of any project.
- **Individual members have thought about creative solutions to the team's problem.** Thinking out of the box is vital in today's economic scenario.
- **Members are listened to carefully as well as given a thoughtful feedback.** Listening is an important skill for any team. Each team member is important. The thoughts and ideas of each team member have to be listened to, with respect, no matter how silly they may sound at first.
- **Everyone takes the initiative in order to get things done.** There is no concept of passing the buck. This is an indication of clear communication leading to understanding of individual responsibilities.
- **Each team member trusts the judgment of others:** Mutual trust and respect is highly important for the team. This is the only way to achieve the organization goals.
- **The team has to be willing to take risks:** Risk taking is an attitude which comes with confidence. Confidence on yourself as well as on the team, besides the ability to face all consequences.
- **Everyone has to be supportive of the project as well as of others. A team is one unit.** Unless these cohesive forces are there, the team will never be able to work efficiently enough.
- **There is ample communication between the team members.**
- **Team decisions are made by using organized as well as logical methods.**
- **Dissenting opinions are never ignored:** In fact, they are always recorded in order to be revisited in case the future situations dictate so.
- **Teams are given realistic deadlines:** External support as well as aid is vital to the success of any team."

Source: <http://managementstudyguide.com/characteristics-good-team.htm> October 02, 2017.
download by Dr. Zoltán Peredy

- The strengths (and allowable weaknesses) for each of the nine Belbin Team Roles

Belbin identified nine team roles and he categorized those roles into three groups: Action Oriented, People Oriented, and Thought Oriented. Each team role is associated with typical behavioral and interpersonal strengths

Source: <http://www.belbin.com/about/belbin-team-roles/> September 25, 2017 download by Dr. Zoltán Peredy



Figure 11.: Summary of the Belbin nine teamroles







	Team-role contribution	Allowable weaknesses
 PLANT	Creative, imaginative, unorthodox. Solves difficult problems.	Ignores incidentals. Too pre-occupied to communicate effectively.
 RESOURCE INVESTIGATOR	Extrovert, enthusiastic, communicative. Explores opportunities. Develops contacts.	Over-optimistic. Loses interest once initial enthusiasm has passed.
 CO-ORDINATOR	Mature, confident, a good chairperson. Clarifies goals, promotes decision making, delegates well.	Can be seen as manipulative. Offloads personal work.
 SHAPER	Challenging, dynamic, thrives on pressure. The drive and courage to overcome obstacles.	Prone to provocation. Offends people's feelings.
 MONITOR EVALUATOR	Sober, strategic and discerning. Sees all options. Judges accurately.	Lacks drive and ability to inspire others.
 TEAMWORKER	Co-operative, mild, perceptive and diplomatic. Listens, builds, averts friction.	Indecisive in crunch situations.
 IMPLEMENTER	Disciplined, reliable, conservative and efficient. Turns ideas into practical actions.	Somewhat inflexible. Slow to respond to new possibilities.
 COMPLETER FINISHER	Painstaking, conscientious, anxious. Searches out errors and omissions. Delivers on time.	Inclined to worry unduly. Reluctant to delegate.
 SPECIALIST	Single-minded, self-starting, dedicated. Provides knowledge and skills in rare supply.	Contributes on only a narrow front. Dwells on technicalities.

Figure 12.: Analysing the contributions and weaknesses of the different team-member habits and personalities

Source:

<https://www.google.hu/search?q=belbin+team+member+roles+figures&tbm=isch&tbo=u&source=univ&sa=X&ved=0ahUKEwjG7tDAXbbWAhUjiRoKHVCIDwYQsAQITq&biw=1920&bih=974#imgrc=vcYeOWdf6UEs4M> September 25, 2017 download by Dr. Zoltán Peredy

“Team leaders and team development practitioners often use the Belbin model to help create more balanced teams. Teams can become unbalanced if all team members have similar styles of behavior or team roles. If team members have similar weaknesses, the team as a whole may tend to have that weakness. If team members have similar team-work strengths, they may tend to compete (rather than cooperate) for the team tasks and responsibilities that best suit their natural styles.”

(Source: https://www.mindtools.com/pages/article/newLDR_83.htm) September 25, 2017. download by Dr. Zoltán Peredy

Managing conflicts in virtual teams

Source:

<http://www.managementstudyguide.com/conflict-management-in-virtual-teams.htm>

October 2, 2017. download by Dr. Zoltán Peredy

https://www.steinbeis-europa.de/files/d3.4handbook_training_for_smes.pdf

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Conflict is an inevitable characteristic of all work teams.

The most common factors due to which conflict situations occur are miscommunication and misunderstanding the coworker or team colleague. Adding the international element to the team we obtain a very prone to conflict scenario. Within a multi-cultural team, things tend to get lost in translation, preset goals are misunderstood and ideas expressed incorrectly. These conflict sources have to be avoided and/or corrected by making everything clear to everyone. If the team members know what to do, they will be busy completing their assignments on their agenda and they “won’t have time” to get involved in conflicts.

“The main source of virtual conflict occurs when people don’t have the same expectations about outcomes or goals. Confusion occurs around who is doing what, who is allocated how many hours, and personality differences” – Virtual Leader, Investor Relation (Yael 2012)”

“The biggest virtual conflict involves communication or lack thereof: How come I wasn’t told? How come no one communicated with me?”

Other conflicts between virtual team members happen when people don’t pull their weight. Generally, they don’t talk to each other. They go to the project manager, and the project manager has to deal with it.” –Project Manager, Pharmaceutical Company (Yael 2012)

“Since you don’t have body language and eye contact, which are so much a part of how we communicate, verbal or e-mail message scan be easily misinterpreted. There are many more misunderstandings in the virtual environment. For example, e-mail blasts across the organization can be more risky than yelling down the hall way. Conflict can arise from misinterpreting an e-mail sent out of emotion or not fully thought through.” – Field Operations Manager, Gourmet Food Company (Yael 2012)”

Considering the complex dynamics of virtual teams, understanding and managing conflict becomes a big challenge. Conflict can be both - constructive and destructive.

When members of the team present different viewpoints about a task and positively contribute to decision making, it leads to constructive conflict.

Destructive conflict results when group members doubt each other's intentions behind difference in opinions. Virtual teams present a very paradoxical situation because on one hand virtual team members are more task-oriented and therefore do not get into any interpersonal issues, while on the other hand, due to the lack of face-to-face interactions, task related conflict transpires into interpersonal/relationship conflicts. This impacts collaborative efforts, hinders productivity and decrease morale.

It is the key responsibility of a virtual team leader to prevent task-related disagreement to devolve into interpersonal conflict.

Virtual team leaders can increase the productivity and commitment of their dispersed work teams A strong leader who can anticipate team members' expectations and disagreements acts as the lifeguard when any problem arises.

The first and foremost task is to ensure a strong and well-planned orientation at the time of project initiation.

This is the time when ground rules are set, expectation clarified and responsibilities delegated. Good team building activities and icebreakers should also form part of the virtual team orientation session. Members should be encouraged to share their backgrounds, past experiences and other informal information about themselves. This would help members to relate to each other.

Constant flow of communication should be encouraged. Different media can be used to share information and knowledge.

Online discussion board in a shared virtual workspace is a great platform for virtual team members to discuss their opinions openly, voice their concerns and connect with each other in a relaxed and casual way. This generates transparency and builds trust among the members. Thus people do not attribute any hidden agenda behind a task related disagreement.

During the course of project, virtual team leader should promote team bonding activities outside work such as a 5 minute small talk session before project meetings etc. Such actions keep the members engaged as well as committed to the common goal. A daily updates from all the members about the four things - work completed, issues/challenges faced, assistance required and next day agenda - goes a long way in avoiding any seeping conflicts.

Virtual team leaders are mainly responsible for dealing with conflicts but a lot of time, effort and energy that goes in resolving the conflicts, can be saved if utmost care is taken during hiring & selection of virtual team members.

Hiring people with right attitude along with their technical skills and knowledge is necessary. Right attitude in the context of virtual teams means intercultural competence, tolerance and understanding. This would reduce the situations of interpersonal conflicts among the members.

Another cause of conflicts in virtual teams is lack of non-verbal features of communication including gestures, body language and facial expressions, especially when communication is done through emails.

For example, many a times a simple question/query sounds interrogatory and reproachful resulting in negative feelings and misunderstandings. Therefore, as much as possible the problem discussions should be done via videoconferencing and other rich synchronous media.

However, this virtual barrier has both its negative and positive aspects.

The negative aspect is that tension can build up over a long period of time and then suddenly explode, unlike in the case of physical interactions, where tensions are released immediately and gradually. Of course, this issue is also related to the type of the individual's personality. Introverted personalities tend to build up anger and when they can't take it no more, they unleash it all.

Amongst the positive aspects it can be mentioned that the virtual barrier provides a "thinking time buffer". This means that individuals can analyze their perceived tension scenarios and see if they were wrong or not in that situation. If they realize that they made a mistake the tensions will not build up anymore. Again this is also in close relation to the type of the individual's personality and if they are capable to admit that they were wrong. It is up to the virtual team manager to foresee all these situations and scenarios and diffuse them before a breakdown in communications happens

According to (Yael 2012) there are four typical types of virtual conflicts: performance conflict, identity conflict, data conflict, and social conflict, which are presented below:

I . PERFORMANCE CONFLICT

This type of conflict is constituted by all the work-related factors. Differences regarding schedule in completing a certain task, resources needed or even the manner in which a problem is dealt with can bear potential conflict sources.

These differences have to be resolved in such a way that all the involved parties are satisfied as possible with the decision or they convene upon a solution themselves. It is recommended that smaller conflicts are deal with the latter approach, thus stimulating the bondage between members. However, it has to be noted that in both cases a mediator is needed, otherwise the so called small conflict can escalate and more people could become involved in it. Unresolved and persistent issues lead, mostly, to low performance, however in some cases certain conflict scenarios can energize team members, thus increasing overall performance.

II .IDENTITY CONFLICT

This sort of conflict, like the name suggests, happens mostly when team member(s) report to more than one manager or supervisor. In a big organization, with numerous employees, teams and departments it is difficult complete all the assignments given by multiple superiors, especially when the organizational chart is arranged vertically. This means that the employee can receive multiple tasks to complete simultaneously.

Figuring out priorities can be found difficult, thus conflict situations can emerge. The conflict can escalate when superiors of the same employee have different views and objectives. Even if these incompatibilities are minor, the employee won't know what he actually has to do and who to follow.

III . DATA CONFLICT

Since our modern times dictate the use of information technology, even when communicating, this also constitutes as a potential source for conflict. Online communication is starting to overthrow the traditional ways, especially in a work environment, where everyone does their daily activities with the help of a computer. It seems to be easier to send e-mails and memos to colleagues rather than speaking with them directly. What we don't realize is that everyone is bombarded with information and it's hard to take it all in, analyze it and prioritize it. The so called data conflict situation appears when team members aren't aware of key piece of information exactly because it was lost in the pile.

This conflict source tends to be underestimated as, seemingly, it has no impact for team members' in carrying out their activities. Practice shown that this is not the case: it must be noted that when a conflict source has the potential to lower performance it has to be very much taken into account and dealt with right from the beginning.

IV . SOCIAL CONFLICT

Finally, social conflict occurs when team members are not able to create a bond because their views upon certain aspects differ very much, thus tension situations and arguments are prone to take place. This can be avoided if teammates are introduced properly and if they take time to try to know each other and start up face-to-face communication. If this doesn't happen, small conflicts occurring sporadically can build up over time between team members and suddenly erupt having negative consequences

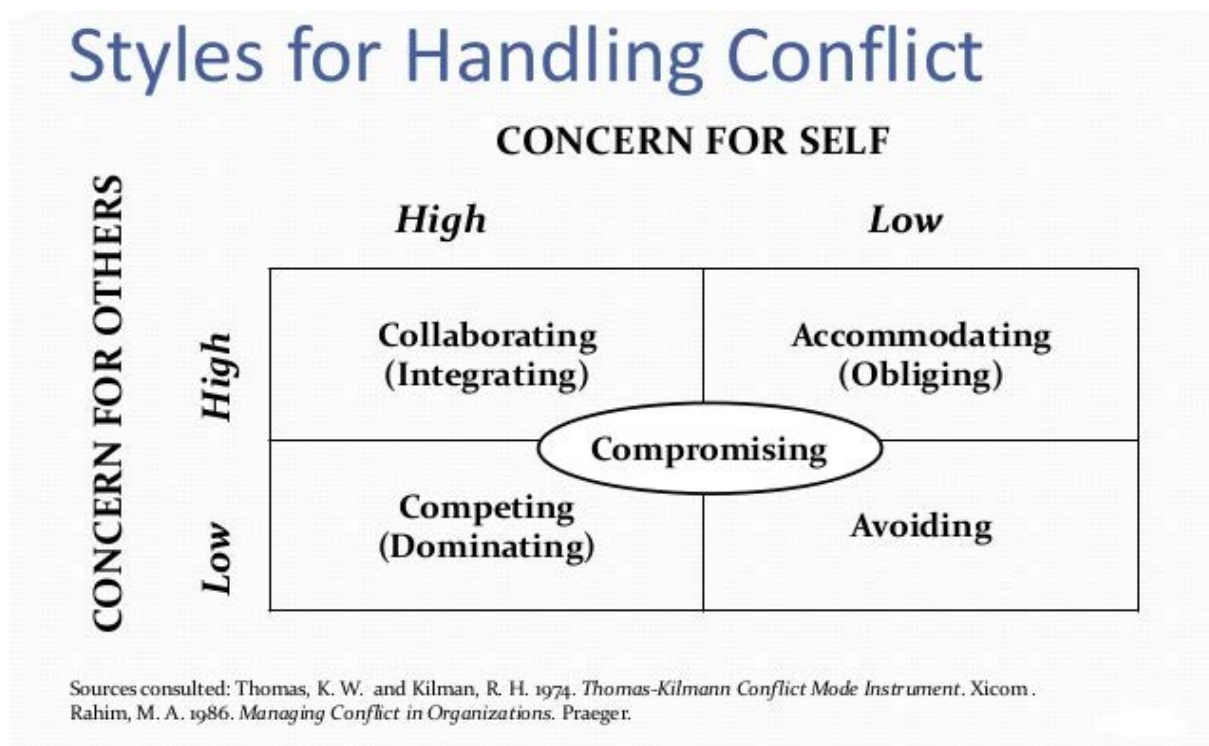


Figure 13. Resolving conflicts

The following conflict management strategies are widely recognised and used in practice:

- **Accommodating** – sometimes to protect the established relationship is more than to win the conflict. It is used to keep the peace.
- **Avoiding** – avoiding conflicts by sidestepping without confrontations.
- **Collaborating** – teamwork and cooperation help to come to a consensus while also maintaining relationships. It leads to creative solutions satisfying all involved parties.
- **Compromising** – winning something while losing a little is a good strategy for everyone when the parties have approximately equivalent power.
- **Competing** – when goals are extremely important, people usually use all existing tools and power to win.

In addition to, the following conflict management strategies are widely recognised and used in practice

Source: Conflict Resolution Network, PO Box 1016 Chatswood NSW 2057 Australia, <http://www.crnhq.org> „CR Kit“ [accessed 28.04.2014] October 2, 2017. download by Dr.Zoltán Peredy

The Conflict Resolution Network identified a toolkit of skills which can be used to solve the conflict:

This approach is based on the openness between people. It requires active listening and understanding of what other people need and feel.

Empathy: The essence is to empathise to the feelings of other people and to try to comprehend what is behind their behaviour.

Creative response: It is about turning problems into possibilities. The people must think positively and to see what can be done in order to solve the situation in the best possible way. Even failures and errors may bring opportunities for learning.

Broadening perspectives: All the people are unique and have distinctive points of view which require consideration and respect in order to form a complete solution. The views of other people may open our eyes to many more possibilities. The conflict is not the only way how to deal with different opinions of others, but taking a broader perspective may lead to increased dynamics and further ideas generation.

Win-win approach: It is based on the change in the attitude of people who have the conflict. It represents the move from attack and defence strategy to cooperation and to reaching a consensus. Win-win approach is about finding a solution that fits to all involved in the conflict. Therefore, it can be a successful strategy since it leads to mutual gain.

Introduction to mediation: This approach is relevant in a situation when the conflict arises among the participants. In this case it is necessary to be objective and take into account every sides, to be supportive and make the right atmosphere, not to be judging and saying what is wrong and what is right and to work towards wins for every sides.

The effective and efficient communication

Source: <http://managementstudyguide.com/types-of-managerial-communication.htm> October 2, 2017. download by Dr. Zoltán Peredy

Necessary skills for successful managerial communications

An individual needs to possess certain skills for effective managerial communication. Let us go through various skills required for effective managerial communication:

- **Body Language and overall personality of an individual play an essential role in effective communication.** It is essential for managers to express their thoughts in a positive way. Remember shouting at team members and quarrelling with them lead to no solution; instead make the situation all the more worse. There are several other ways of expressing your displeasure. Make sure you do not lose your temper while communicating. Take care of your pitch and tone. Speak in a convincing way for people to understand what you intend to communicate.
- **People generally like to communicate with someone who is nicely dressed and presentable.** No employee would ever like to communicate with a shabbily dressed manager. Be an idol for your team members. It is really important for managers to dress well for co workers to look up to them. Clothes must be clean and ironed properly and you really need to create that much needed first impression.
- **Take care of your facial expressions and gestures.** A smile on your face will attract employees and they would readily come to you to discuss their problems.
- **Be Honest.** Pass on information to your team members in its correct form. Playing with information and data tampering lead to ineffective communication. Communicate directly with your team members rather than appointing middle men.
- **Speak Relevant.** The choice of words is really very important in verbal communication. Do not use slangs and abusive words in your speech. Loose talks must be avoided at the workplace.
- **Be Focused.** Know what you intend to communicate. Managers must prepare their speech well in advance before addressing their team members. Do not communicate just for the sake of communicating. Deviating from the topic only confuses recipients. Managers must ensure their team members are able to understand them well.
- **Be Confident.** You must believe in yourself for others to believe you. Learn to stick to your words. It is really important for effective managerial communication. Never be low on self belief.
- **The pitch and the tone need to be taken care of.** Do not be too loud or too soft. A manager must know how to keep a control on his anger. Stay calm and composed. Do not overreact.
- **As a good manager, you ought to be impartial towards all your team members.** Giving special attention to one of your team members just because he is your friend is something which is not at all expected out of a good manager. As a manager you are responsible for all your team

members and you need to interact with them on a regular basis. It is your duty to address their grievances and problems. Be available to them and let them express themselves.

- **Know when to communicate.** Avoid calling your team members at late evenings or early mornings. They would never pay attention to your communication and the message gets diluted. Prefer not to interact with them during lunch hours unless there is an emergency.

Tips for Effective Managerial Communication

It is essential for employees to communicate effectively with each other for better understanding as well as increased productivity at workplace. Employees doing everything on their own are generally overburdened and eventually fail to deliver their best.

Effective managerial communication enables the flow of information and knowledge among employees in its desired form. Managers need to interact with their team members to extract the best out of them. Problems remain unsolved if employees do not communicate with each other. Discussions go a long way in reducing confusions and also improve the relations among employees.

Let us go through some tips for effective managerial communication at workplace:

- **Remember a manager's task is not only to sit in closed cabins and shout at subordinates. He needs to interact with his team members on a regular basis.** Speak to your colleagues more often. Find out what they are upto? Treat all your team members as one. There is absolutely no harm in taking lunch with your team members. This way you tend to discuss lot many things apart from routine work.
- **Promote the concept of morning meetings at workplace.** Morning meetings help you interact with your team members on an open platform where everyone has the liberty to express his/her views. Communicate with your team members and help them plan their day. Let them come out with their problems. Walk up to their workstations once or twice in a day.
- **Increase your listening skills.** A good listener is always a good communicator. It is really important to listen to the other person carefully before speaking. Interrupting a conversation breaks the momentum and the message loses its impact.
- **Working in a team leads to effective managerial communication.** Employees working in isolation hardly interact with their fellow workers and superiors. Make sure your team members discuss things amongst themselves and work together. Instruct them to keep you in the loop as well. The employees must mark a cc to their immediate reporting managers to keep them updated of the latest developments at the workplace.
- **Master the art of writing emails.** Also train your team members how to write an official mail. There is a huge difference between a personal and official mail. The subject line needs to be relevant for people to open the mail.

- Do not call your team members one by one for any kind of communication. Address them together.
- **Think before you speak.** Make sure whatever you communicate is relevant. Avoid using complicated words and terminologies in your speech. The message has to be clear and precise for effective managerial communication. Be straightforward and communicate clearly as to what you expect out of your team members.
- **No communication is complete unless the message is understood clearly by the recipients.** There should be absolutely no room for confusion in effective communication. Once you are through with your speech, give some time to your team members for them to ask whatever they have not understood.
- **Never communicate at a noisy place.** Choose conference room, meeting rooms or any noise free zone for communication.
- **Learn to express your thoughts in a positive way.** You need not to be rude with someone for him to understand your message. Know what you are speaking. Be precise. Use relevant words in your speech. Using complicated terminology does not make your speech interesting, instead confuses the recipient.
- **Communicate with your team members on a common platform.** This would reduce half of the misunderstandings and problems. Communicating separately with employees increases conflicts among team members and also spoils relation of team members with their bosses. A manager should master the art of keeping his personal and professional lives separate. Avoid giving special attention to someone just because he is your friend or picks your child daily from school. Each employee should have the liberty to express his/her opinions on an open forum without the fear of getting criticized or insulted.
- **Do not communicate separately with your team members as information might not reach in its desired form.** Transparency at all levels is essential for effective managerial communication

PART III.

BIO-TIC: Enabling European innovation in industrial biotech (Study case)

Sources:

http://ec.europa.eu/research/infocentre/article_en.cfm?&artid=42996&caller=SuccessStories

http://cordis.europa.eu/project/rcn/104298_en.html

<http://www.industrialbiotech-europe.eu/>

Project technical details

- Project acronym: BIO-TIC
- Participants: Belgium (Coordinator), UK, Netherlands, France, Finland, Germany, Italy
- Project N°: 312121
- Total costs: € 2 809 777
- EU contribution: € 1 995 798 (Funded under: FP7-KBBE)
- Duration: August 2012 – July 2015

About the project in brief:

Boosting industrial biotechnology

Using biotechnology in industrial processes is one of the most promising ways to reduce pollution, the waste of resources and costs, while opening up markets for new products. The EU-funded BIO-TIC project has issued a roadmap to help European industrial biotech companies overcome the hurdles to innovation that have prevented the widespread commercialisation of bio-based product.

Project researchers began with an extensive literature review that included over 80 expert interviews and 13 stakeholder workshops conducted over the course of a year. Based on this work, the project issued an in-depth report that not only highlighted the most significant barriers to the deployment of industrial biotech in Europe, but also included 10 recommendations for pragmatically addressing these barriers.

Project Context and Objectives:

Worldwide, there is an increasing recognition of the importance of developing the bioeconomy as a route to tackling some of the huge modern global societal challenges, including climate change, dwindling fossil resources, and

the need for the development of a more sustainable and resource-efficient economy. Biobased industries, in particular, can have significant positive benefits for the renaissance of rural economies, promoting the efficient use of agricultural resources, as well as creating and safeguarding rural jobs. Since the adoption of the Bioeconomy Strategy by the European Commission in 2012, the visibility and importance of this sector has increased significantly, and industrial biotechnology (IB) has rightly been recognised as a key enabling technology for accessing the potential of the bioeconomy.

The BIO-TIC's objectives were to:

1. Obtain a comprehensive overview of the market potential for IB.

One of the key objectives of the BIO-TIC project was to draw up a blueprint document of recommendations for overcoming the innovation hurdles within a selection of targeted business case segments that could make a major contribution to an accelerated take-up of IB into the market place. This included identification of the market, research and development, and major non-technological (regulatory and political) hurdles facing the sector. BIO-TIC aimed to utilise a comprehensive stakeholder identification and consultation process to identify the hurdles to IB innovation in Europe and to formulate actions to overcome them.

2. Outline the 'size of the prize' for IB in Europe to 2030

BIO-TIC aimed to provide a comprehensive overview of the market potential for IB in Europe, drawing upon the input of IB related stakeholders from diverse backgrounds (e.g. large industries and SMEs, industry associations and academia).

3. Develop a clear, actionable roadmap to achieving a competitive IB industry in Europe by 2030

Despite the major drivers for its application, several hurdles continue to hamper the full exploitation of IB's potential today. Several roadmaps for IB exist, however they have generally been limited in scope, often with a geographical (e.g. national) or sectoral (e.g. biotechnology in textiles) focus, that does not fully reflect the broad IB landscape as it exists today. Moreover, the IB sector is one of rapid change and development, both in terms of technological developments but also in terms of the accompanying social and economic issues which it can address, and policy and regulatory factors which can promote the sector. There was therefore a need to pull all of this information together into a coherent document, which reflected the reality of the current situation.

4. Show how much biomass is being used for biobased products and processes

One of the main problems in the evaluation of the bioeconomy is the lack of data and insights into bio-based processes and products. The main databases of the EU, especially EUROSTAT, are not made to give these insights on the special questions for the bioeconomy in Europe. They contain lots of information for agriculture, production and trade, but are not usable when it comes to specific questions on data for the utilisation of biomass in Europe. A methodology to assess this kind of information to get a better understanding on the existing bioeconomy, its progress and hurdles is needed

5. Provide clear indicators to measure the socio-economic and environmental impacts of IB

Addressing Challenges to Industrial Biotechnology in Europe

Industrial Biotechnology (IB) derived products are projected to offer significant potential for overcoming many of the socio-economic and environmental challenges facing the EU today. However, the magnitude of this potential, and how it can be achieved remain uncertain.

The BIO-TIC project has shown that the EU market for IB-derived products is expected to increase from 28 billion euro in 2013 to 50 billion euro in 2030. This represents a compounded growth rate of 7% per annum. This growth will be largely driven by projected increases in the consumption of bioethanol and biobased plastics, while new products such as aviation biofuels are expected to be commercialised in this period and also gain in market share. However, despite this potential, significant barriers remain and hamper the full exploitation of industrial biotechnology based production in Europe.

One of the key themes of the BIO-TIC project was to ascertain the hurdles and challenges for industrial biotechnology in Europe and to propose actions by which they can be addressed.

Other elements of the BIO-TIC project aimed to address existing problems. These included:

- The development of an online partnering platform to bring stakeholders together and help overcome the fragmentation of expertise and knowledge in the sector
- The development of a methodology to help ascertain to what extent biomass is used for biobased products
- The development of a prototype database to show the sustainability of different biobased products to help address the lack of information on the sustainability of different biobased products.
- Providing information to stakeholders on IB applications and policy environment in the EU

Connecting the Dots – Creating a Central, European Online Platform for Industrial Biotechnology

In times of dwindling resources, the role of industrial biotechnology (IB) has become increasingly important. The very interdisciplinary nature of IB represents both a chance and a problem: it offers a chance to establish sustainable, innovative business models, but at the same time the challenge is to bring together players from different disciplines and cultures. To promote communication among experts from all pertinent areas of IB, a comprehensive communication platform is required, enabling experts to meet and exchange ideas simply and effectively.

A number of online platforms are available. Usually, they highlight either only one specific aspect of IB (e.g. Agrobiobase, Biofuels, International Business Directory for Innovative Bio-based Plastics and Composites) or their topics are very broad, covering the whole range of the bio-economy and biotechnology, including medicinal and pharmaceutical applications (e.g. Biofpr, ETP, CLIB, ...). While the number of events in the field of IB is rising steadily, many companies and organisations are cutting down on travel and events budgets. Especially at a stage where stakeholders want to explore a wide range opportunities for cooperation, the effort associated with participation in on-site events and the scope of these events can be a hindrance.

The aim of the BIO-TIC platform was to solve the key problem of the lack of a central, European online platform for industrial biotechnology. The setting-up of a central, European online platform brought together the diverse areas of IB, thus providing a comprehensive overview of the European IB community. Moreover, the integration of organisations from different industrial sectors active in IB on the BIO-TIC platform encourages thinking outside the box and boosts cooperations between various industrial sectors, thus triggering hitherto undreamt of synergies. In particular, the possibility to quickly and selectively contact potential cooperation partners from different regions of Europe which would otherwise only be chance encounters, e.g. at an on-site event, is another distinguishing feature of the BIO-TIC platform.

3,306 new organizations and experts were integrated into the BIO-TIC partnering platform. Information on almost all organizations includes postal addresses, e-mail details as well as links to their homepages. Most of the contact details were gathered by consulting the websites of the relevant organizations. 772 experts registered on the database with their personal contact data and information. Altogether 5,086 datasets were gathered.

In order to attract experts to register on the BIO-TIC platform, DECHEMA and the project partners offered a series of seven webinars. The webinars informed the European IB community about the BIO-TIC roadmaps and additional topics of interest to the IB community. The webinars attracted 539 participants.

Topics of the individual webinars were:

- European Bio-economy revisited: How far have we come?
- Where next: Industrial Biotechnology?
- Webinars for the BIO-TIC Business Case on Biopolymers, Biosurfactants, Chemical Building Blocks, CO2 and Advanced Biofuels

Potential Impact:

The overall objective of the BIO-TIC project was to support the creation of a more favorable environment for IB innovation in Europe, with the aim of enhancing European industrial competitiveness and developing new products and creating jobs and growth in this sector. It has done this by:

- **Showing that the IB market in Europe could develop from 28 billion euro in 2013 to 50 billion euro in 2030, representing a compound annual growth rate of 4% per annum (7% if antibiotics and biogas are excluded).** These projections, developed through consultation with a wide range of stakeholders throughout Europe, show that industrial biotechnology can provide a significant growth market for Europe, and establish a new, sound basis to steer policy and investment decisions towards a globally competitive European IB sector. These market projections are dependent upon various hurdles being addressed. If these hurdles are not addressed, EU based demand will end up being satisfied by non-EU based supply, thus representing a missed profit opportunity for the EU industry in the range of tens of billions euro.
- **Developing a partnering platform to overcome the fragmented nature of IB expertise in Europe thus aiding in the development of new alliances in this area.** The BIO-TIC partnering platform provides a free database by which users can advertise their expertise and needs within this sector. It contains details of over 5,000 stakeholders covering the value chain from feedstock supply, its transformation and integration into industrial processing up to end-user industries and service providers. The platform

facilitates networking, contact and business opportunities between e.g. companies, academia and venture capitalists.

- **Identifying the key market sectors in which industrial biotechnology can contribute significantly to economic growth and job creation in Europe. Five product groups were identified as being particularly promising based on their future market potential, the potential for that product to introduce cross cutting technology ideas and to respond to societal and customer needs. These product groups were:**

1. **Advanced biofuels** (advanced bioethanol and biobased jet fuels) where consumption in the EU could be worth 14.4 BEUR and 1.4 BEUR respectively by 2030. For aviation biofuels, the proportion fulfilled by industrial biotechnology-based processes is unclear given the range of technologies available and their early stage of development;
2. **Biochemical building blocks** which can be transformed into a wide range of products which are either similar or offer additional functionality compared to fossil products, where a market value of 3.2 BEUR is suggested by 2030;
3. **Biobased plastics**, where demand in the EU is projected to reach 5.2 BEUR in 2030;
4. **Biosurfactants** derived from fermentation where demand could be up to 3.1 BEUR in 2030, led strongly by the growth in detergent applications;
5. **Novel products from conversion of fossil carbon dioxide by industrial biotechnology routes**. Given the nascent state of this market, no estimates for deployment can be given, but some technologies are expected to be ready for commercial production by 2030.

Bringing together upstream and downstream users, in a combined open and “market oriented” consultative process to agree on the innovation hurdles and formulate the requirements needed to boost industrial biotechnology innovation in their market segment. **This was achieved through the delivery of eight regional workshops which have investigated the regional enablers and barriers to the IB industry as a whole, and a series of five workshops which investigated hurdles to specific IB market opportunities, and developed solutions to overcome them.** The research and development and non-technology (e.g. policy and regulatory barriers) to developing these sectors and IB more generally, have been identified, providing a sound basis for innovation agencies, research funders, local and national governments and the European Commission to take action and enhance European industrial competitiveness in this sector.

- **Developing a prototype tool by which the sustainability of IB products can be measured.** This will aid assessments of the comparative

advantages of IB products both compared to fossil equivalents, and between different IB products, allowing consumers and end users to clearly identify the products which have the best sustainability credentials. **It will also help industry, policy makers and academia in their work on sustainability-criteria for bio-based products, and as such further stimulate the market introduction of bio-based alternatives with significant predicted environmental benefits.**

- **Developing and testing methodologies for assessing how much biomass is used for industrial products in the EU.** Such a methodology is crucial to assess the impact of policies in this area and to propose remedial actions to promote the sector where needed. BIO-TIC

has provided the groundwork for further investigations in this area by consolidating the existing data, identifying gaps and filling them where possible

RESULTS:

1. Raising Awareness of the Potential for Industrial Biotechnology

One of the main problems which faces IB deployment today is the general lack of knowledge about the benefits which IB can offer to a wide range of established, and often conservative , sectors. The BIO-TIC project aimed to tackle this barrier through three main channels; the project website as the main static resource, outreach through attending events and interactions, and the final, high level policy event of the project entitled ‘From bugs to business: Unlocking the Bioeconomy in Europe’.

2. Bringing together the community

The BIO-TIC project aimed to bring together stakeholders to facilitate the transfer of knowledge and technology and thereby ensure a long lasting impact of the project. This objective has been met through several methods, namely the establishment of a partnering platform, a LinkedIn page for discussions on IB and the organisation of 14 workshops to discuss markets, hurdles and enablers for IB in Europe. Each of these activities is described in more detail below.

These have been backed up with a comprehensive communications campaign, including web articles, dedicated mailshots, journal articles, presentations and exhibitions at trade fairs, conferences and scientific congresses both to the IB community and to the wider scientific community.

3. The BIO-TIC roadmap for overcoming hurdles for IB in Europe.

The bioeconomy enabled: A roadmap to a thriving industrial biotechnology sector in Europe’ represents an integrated overview of the market potential for IB in Europe to 2030, the principal hurdles and the possible solutions by which they can be overcome. **This 40 page document represents the principal output of the project, and builds upon three technical appendices covering markets, non-technology issues and R&D issues in more depth.** The roadmap (and its appendices) was officially launched on 23rd June 2015 in Brussels at the project’s final conference.

Enhancing the reach – preventing duplication of activities by cooperating with other platforms.
During the project, a cooperation was established with the Bio Base NWE project, a European INTERREG IVB NWE project. One goal of the Bio Base NWE project was to create a database that

presents technologies offered or sought in the European bio-economy context. This technology database was developed as a component of the BIO-TIC platform. The integration of the technology database within the BIO-TIC platform avoided the creation of parallel platforms focusing on the bio-economy, thereby supporting the idea of creating a central, European bio-economy platform.

The interested stakeholders have to focus on three main critical areas:

- ***Developing novel microbial production systems and methods.*** The yield and productivity of current strains and the robustness of fermentation and biocatalyst strains are often insufficient to enable cost-effective production of biobased products, especially with 2nd generation feedstock. Microbes could be engineered to optimally use 2nd and 3rd generation feedstocks and tolerate growth inhibiting compounds present in the feedstock. Anaerobic fermentation systems and associated strain improvement and cultivation methods should be investigated as they are less costly, and there should be an effort to reduce the byproducts excreted during IB processes as these may affect productivity and product recovery.
- ***Ensuring that bioprocesses are developed as a whole system.*** This is because processes have largely been developed in discrete steps without taking the following purification steps into account. Even if each step works well in isolation, it may not work well in the complete system.
- ***Promoting 'continuous improvement' in processing technologies.*** Technologies within the IB sector are at different TRLs. Even if a technology is at a high TRL, R&D on that technology should continue to be funded over time to allow continuous improvements in technologies and improve the competitiveness of the process, thus reducing costs and improving environmental impact.

Other hurdles identified were the lack of HR with right skills and curricula, high patent costs that hinder start-ups and SMEs, high production costs, and the lack of market incentives for biobased chemicals, the high energy costs, the absence of standards and difficulties in implementing the sustainability agenda and life cycle thinking in policies.

In order to start the implementation of (some of) the solutions and increase the market penetration of the major IB products studied in this project, there is still a need to identify the most efficient solutions (which solutions will have the biggest impact, which solutions can be implemented on the short term and medium term in an efficient way, etc.) with stakeholders and policy makers.

Possible solutions:

- developing policy tools to stimulate demand (e.g. public procurement);
- implementing a tax and/or subsidies for certain applications to close the price gap between biobased and fossil based plastics.
- raising consumer awareness about the benefits of bio-based products in general
- developing positive and consistent labelling and language (“EU-wide regulation”).
- to increase funding for R&D programs, including demonstration projects.

It will be important that the Commission’s JRC and other FP7/Horizon2020 projects, such as Step2Bio are made aware of the findings of BIO-TIC.

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