

LOCAL INNOVATION LAB SCHEME

Partner organisation	DEX Innovation Centre
Other partner organisations involved (LIAG)	-----
Country	Czech Republic
NUTS2 region	Severovýchod (Northeast)
City/Municipality	Liberec
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Contents

1. Introduction.....	3
2. What are the objectives of the Innovation Lab?.....	4
3. Target groups	5
4. DEXIC FabLab powered by Interreg Danube	7
4.1. Physical infrastructure and equipment.....	7
4.2. Operational governance.....	8
4.3. Main actors and role of stakeholders.....	8
4.4. Portfolio of FabLab services	10
5. Link to Dynamic Learning Package (DLP).....	11
6. Sustainability	12

1. Introduction

All modern technologies without which we can't imagine today's society are based on discoveries and innovations that have been the result of the desire of previous generations to find something new. The economic and social impacts of the overwhelming majority of the key discoveries of the last century have not been apparent at the time of their creation and it has often lasted for several decades before these scientific findings have been put into practice. Keeping young people's desire for knowledge even in the future is a prerequisite and an important driving force for the development of our society.

A significant part of the Danube region is characterized by low innovation performance and relatively low business culture. This fact is based on history since in previously communist countries entrepreneurial activities have been suppressed by centralized systems. As a result it has not been possible to build up enough entrepreneurial culture that we lack today. Entrepreneurship and innovation are one of the basic preconditions for the development of our society and the whole region. The New Generation Skills project responds to this need.

In order to improve the entrepreneurial culture in the Danube region it is necessary to cooperate with those who have not entered yet or are only shortly in the labour market, the youth.

The New Generation Skills project launched on 1 January 2017 has been awarded financial assistance in the context of the Danube Transnational Program. The New Generation Skills project focuses on changing business culture in these countries. This is what the project wants to achieve through the Dynamic Learning Package (DLP) and the inspiring and training space – Innovation Lab (IL). IL will serve young people who are interested in innovation, business and personal development. IL will be used to develop necessary new generation skills of the youth through DLP.

2. What are the objectives of the Innovation Lab?

The Innovation Lab (IL) created thanks to the New Generation Skills project will serve as a place to implement ideas for young people.

The current generation of young people is a great promise for our future if they use their proactivity to innovate and use these activities to make positive changes to their surroundings. 62% of young people in Central and Eastern Europe do not currently think about doing their business in the future. According to surveys on the possibility of doing entrepreneurship, 1 out of 5 people of this generation are considering it. But one in five of them think this road is very difficult and it is a question of whether it will eventually succeed.

This weak entrepreneurial culture and lack of innovation management capacity are recognized as key challenges in the Danube Region. In order to change the perception and view of self-improvement, there is a need to begin to support the potential that these people certainly have, but in this case they do not use it. By creating an environment that will enable them to grow, we can help them develop their future in innovation and entrepreneurship/business.

If we support youth in regions, we can influence how young people in these regions will once change the economic performance of the whole country, thus improving the quality of life for themselves but also for their surroundings.

The IL in Liberec, the Czech Republic, is based on the specific need of youth for advanced digital skills and their transformation into entrepreneurial activities. Several objectives of the IL in Liberec have been therefore identified:

1. Identifications of prospective youth / teams.
2. Digital skills teaching – supporting the learning of digital skills
3. Entrepreneurial spirit and skills teaching – new business activities
4. Experimentation and testing space where young people can develop their own ideas (thanks to digital equipment they could not afford themselves and which is not available elsewhere)
5. Connecting youth with actors supporting new digital innovations with the goal to link all the important actors (secondary school and university students –

innovative youth, mentors, start-up's, large companies, regional stakeholders) that provide complete support in developing business ideas.

6. Individual support providing further support to innovative youth who exploited IL, have business idea and need further mentoring / coaching support.

3. Target groups

Unlocking the youth potential will be achieved through IL which will offer favourable environment and place where they will have the possibility to develop their digital skills and transform their innovative ideas into businesses with the business skills targeted. As the IL will offer multiple digital equipment including 3D printers and IoT tool for instance, the IL will be called "**FabLab**" (further only as FabLab) as it better fits the relevancy and popularity as a concept of fabrication laboratory, that is well familiar to youth related to building digital and creative skills. In our case, the FabLab will be used with limited equipment for digital skills building and prototyping of business ideas.

The FabLab will offer its services to the following target groups:

1. STUDENTS

The main target group for the FabLab operation will be secondary school (2nd part – 17-19 years due to their advanced profile) and university students including PhDs. (19-29 years).

Role of students in the FabLab:

- DLP programme participants** - students of both secondary schools and universities are the main target group for the DLP programme. Secondary school students are also eventual future students for the university and their technical faculties.*
- Participants for FabLab community events** – students of secondary schools and university from technical as well as other schools/faculties have also the potential to be taking part in FabLab community events outside of the DLP programme for building a FabLab community that will contribute to its success and promotion*

- c. **FabLab's technical "gurus"** – especially for PhD and master students of technical faculties from the university, there is a possibility of these students providing technical support to younger students and to the equipment in the FabLab itself.

2. TECHNOLOGICAL INNOVATION YOUTH TEAMS AND DIGITAL STARTUPS

Secondary meaningful target group for the FabLab operations are young technological innovation teams and digital start-up's.

Role of technological teams and start-up's in the FabLab:

- a. **Inspiring and promoting young businesses and business ideas** - presenting their own start-up's and their innovative ideas will help motivating the primary target group of students as well as to promote their ideas to a wider community
- b. **Ambassadors in using the FabLab for the development of their ideas through the technological equipment involved** – e.g. rapid prototyping when start-up's can realize their idea or design prototype and make them physically right in the FabLab, or through hackathon's realized as community events also for wider community
- c. **Destination for prospective youth individuals** – Technological teams and start-up's might be interesting destination for young prospective technology skilled individuals who do not possess business idea or team themselves so getting on board of another team might be o a valuable benefit
- d. **Participants for FabLab community events** – also technological teams and start-up's have the potential to be taking part in FabLab community events outside of the DLP programme for building a FabLab community that will contribute to its success and promotion
- e. **FabLab's technical "gurus"** – also individuals from technological teams and start-up's can support FabLab in providing technical support to primary target group and to the equipment in the FabLab itself.

4. DEXIC FabLab powered by Interreg Danube

4.1. Physical infrastructure and equipment

DEXIC FabLab powered by Interreg Danube (further cited only as FabLab) will be located either at DEXIC's own DEXIC premises, at Rumjancevova 696/3, 46001 Liberec. These premises are located in the same building as the headquarters of the company. This building is also adjacent to the Regional Research Library, which has spaces that can be used for larger community events.

The room will consist of 2 separate rooms where 1 room will be used for stationary physical equipment, such as 3D printers and other larger appliances, and another room will be used for social events, workshops with other smaller equipment, safety training and group sessions, where 2 different groups will work in parallel.

FabLab will be equipped with all the equipment that is needed for the 3D design and production process including printers that enable the creation of real product prototypes. Particularly speaking about:

- a. *3D Printer – Prusa I3 MK3 – for basic 3D printing and for training and skill development*
- b. *3D SLS printer SINTERIT LISA 1 – for developing specific durable projects and components and rapid prototyping*
- c. *Professional computer with freeware 3D design software*

In addition to the 3D printing equipment FabLab also offers the equipment needed to work with hardware production and prototyping:

- a. *Voltera V-One – PCB printer + Drill headset – for printed circuit boards and creation of hardware prototypes*
- b. *Digital solders, machining tools, gauges, oscilloscope, air filter – for accompanying work*
- c. *IoT tools box to connect different IoT devices (e.g. Arduino)*

Finally FabLab will include all the necessary equipment for the realization of ideas not only for students and start-up's. Specifically this will be:

- a. *Tables, chairs, projector, flipchart,*

- b. *Tools (screwdrivers, vices, insulating tapes, hammers, etc.) and other necessary creative equipment*
- c. *Batteries and chargers*
- d. *Protective aids, fire extinguisher, smoke detector*

4.2. Operational governance

DEX Innovation Centre will be the main founder and operator of the FabLab.

FabLab will not be opened all days in the week mainly due to the necessity to have a relevant technical support person (guru) who will be providing entry security and technical training and support for target groups as well as taking care for the equipment and materials. Instead, FabLab will be opened for specific occasions for DLP sessions, community events, partner events (e.g. from LIAG members) as well as any alumni, mentoring/couching and extra opened hours.

FabLab will be primarily opened during weekday evenings (from 6pm) and weekends based on the time availability and preference of mainly the full time university students.

Using the FabLab will be for free. Material consumed within DLP programme and community events will be for free. Materials consumed within other events will be born financially by the organizer.

For specific equipment in the FabLab which requires users to have proper training, user will be allowed to work with this equipment only after carrying out introduction training from the FabLab guru.

4.3. Main actors and role of stakeholders

1. DEX INNOVATION CENTRE

DEX Innovation Centre (DEXIC) will play a key role in the successful operation of the FabLab. It created its concept, will contribute with the needed equipment and place, will coordinate work and support of other involved individuals and institutions, will be in charge of the future direction of the FabLab and will be the guarantee of sustainability.

It's role:

- *Core actor – decision maker*

- *Sustainability guarantor*
- *DLP programme provider*
- *Community events organizer*
- *Equipment provider*
- *Alumni and mentoring/coaching service provider*
- *Builder of FabLab community*
- *Promotion of FabLab*

2. TECHNICAL UNIVERSITY OF LIBEREC / RELEVANT FACULTIES

The Technical University and its relevant faculties (TUL) play a major role in the university education of students in the Liberec region. Thanks to the fact that Liberec is a university city there is great potential for creating a community around FabLab and for acquiring DLP participants.

It's role:

- *Connecting FabLab with potential participants of relevant faculties*
- *Connecting FabLab with PhD./master students for the availability of technical guru position*
- *Participants of the FabLab community events*
- *Lecturers of specific programmes and/or working with specific digital equipment*
- *Potential co-organizer of community events*

3. SECONDARY SCHOOLS (INDUSTRIAL SCHOOLS, GYMNASIUMS)

Collaboration with secondary schools plays a very important role, especially through access to students. Secondary school students are also a very interesting group for developing new business ideas.

Their role:

- *Connecting FabLab with potential participants from their classes*
- *Participants of the FabLab community events*
- *Lecturers of specific programmes and/or working with specific digital equipment*
- *Potential co-organizer of community events*

4. LARGE COMPANIES

Another very important factor of FabLab operation will be the cooperation with large companies that already have their place on the market. Collaboration with these companies is important both for the long-term functioning and sustainability of the FabLab and for one-off short-term activities. Companies can contribute through the involvement of technology mentors to show youth and start-up's what challenges a successful business brings.

All the roles of large companies include:

- *Sponsorship (money, HR, know-how, equipment)*
- *Inspiration – Mentors, experts, successful people*
- *Connecting – creating new linkages between prospective individuals/teams and successful companies and investors*

5. OTHER STAKEHOLDERS

Other regional stakeholders, relevant for the youth business support, such as Lipo.ink, Student Business Club or similar programmes run by other actors might be interesting for the FabLab operation for 2 main purposes:

- *cooperation on communication of the services and events for youth in the region*
- *exchange of mentors/experts for the specific activities*

4.4 Portfolio of FabLab services

To be successful FabLab will offer multiple activities that will enable students and start-up's to meet their needs/interests in a supportive and positive environment, and get further technological and business support.

FabLab will therefore offer the following services:

- a. *Inspiration talks, lectures and discussions on business successes and failures and needed skills and attitude for success – besides increasing the popularity of innovative technologies, we also want FabLab to serve to develop an entrepreneurial culture.*
- b. *Access to digital equipment not available elsewhere and relevant technical support – if we want not only to inspire young people, we must give them access to these digital technology possibilities. With the equipment that FabLab will offer, they will be able to develop their ideas without the need for their own equipment.*
- c. *Seminars / workshops on using digital technologies for 3D design and prototyping – organizing various inspiring lectures and workshops that help increase interest in 3D technology.*
- d. *Community /networking events + alumni club – the aim is to create a community of people around FabLab, bringing together technology and business interests. Such a community will contribute to the use of space and this community can carry out certain activities in itself.*
- e. *Individual mentoring, peer to peer reviews – for those interested, FabLab will offers individual approach and mentoring in the field of digital technologies and business.*
- f. *Rapid prototyping – the ability to create their own prototypes will help individuals, technology teams and startups to realize their own ideas.*

5. Link to Dynamic Learning Package (DLP)

The Dynamic Learning Package (DLP) is a training programme for developing defined youth skills focused on several identified points from the SWOT analysis of the region described in the Local Action Plan. DLP will be implemented within the space and equipment that FabLab will offer. Thanks to FabLab it is possible to develop not only the digital skills of the participants but it is also possible to transform these skills into new business ideas and skills. Thanks to this connection of digital as well as business skills, new ideas will be created.

Modules of the DLP that will taught in the FabLab:

1. *2GETINSPIRED - Getting to know the project; introducing the organizer; general presentation of the program and the basic objectives; 2x presentation of a successful*

*entrepreneurship - motivation to do entrepreneurship not only in the digital area;
discussion*

2. *2EXPLORE - Getting acquainted with laboratory space; familiarization with the timetable and thematic timetable and other basic information of the program; demonstration of individual equipment; demonstration of the PC programs that participants will use; workflow; security measures; basic conditions of use*
3. *2DESIGN&PLAY - Working with the IOT kits, work with programs for 3D design, creation of simple models, creation of printed circuit boards*
4. *2INVENT - Introduction to entrepreneurship; who and why; mapping current ideas among participants; generating other own ideas; practical exercise's; team building; work in teams; final team ideas for further work; work supervised and supported by mentors*
5. *2DEFINE - Getting familiar with the business canvas tool and its capabilities; using individual teams on their own canvas models; creating a final idea for the 2CREATE phase; work with mentor support; presentation of own canvas models and discussion*
6. *2CREATE - Individual work with partial mentor support; access to the individual equipment for each team separately; free production time in the FabLab on the basis of pre-ordered time; technical support*
7. *2PRESENT - Current trends in presentation; expert presentation for presenting idea/pitching, group work on their presentations of their ideas, 1st trial of presentations with feedback from expert*
8. *2SUCCEED - Introductory speech; the presentation of the project and its outputs to date; introduction of individual teams; presentation of individual teams; announcement of the winners*

6. Sustainability

In order to create FabLab, which will have a real impact and meaning, it is necessary to ensure its sustainability even after the end of the project. As the city of Liberec was not able to become an associated strategic partner, this task is at the DEX Innovation Centre.

DEXIC has initiated possible cooperation with multiple stakeholders including TUL and Secondary Industrial School, but these institutions are currently unable to provide the suitable space for FabLab's needs. However, this cooperation is not always closed and, for example, with the Secondary Industrial School, there is still an open cooperation option after the end of the project. As a result, the success of the project

would not only be at the DEXIC but also at a strong partner, which would make it very close to students and "potential young entrepreneurs.

At this point we will be running FabLab in the same building as our standard operations. This ensures constant support from the DEXIC, but also low operating costs and ease of cooperation between FabLab and DEXIC. At the same time, it is a strategic location in the city centre, close to all important target groups.

Major financial sponsor for sustainability of possible equipment update investments and potential place partner to re-allocate FabLab even closed to target groups are still being sought and the launch of the DEXIC FabLab powered by Interreg Danube and the accompanying DLP could help to raise attention to such opportunities.