

CREATING LINKS TO SMART SPECIALISATION STRATEGIES AND RELEVANT POLICY PLAYERS

D.T.1.2.1

Series of Consultations

Version 1

05 2017





Except where otherwise noted, this work is licensed under

<https://creativecommons.org/licenses/by-nc-sa/4.0/>

CREATING LINKS TO SMART SPECIALISATION STRATEGIES AND RELEVANT POLICY PLAYERS

D.T.1.2.1

Series of Consultations / LP

Version 1

05 2017





Date and location of consultation	May and June 2017, Trento and municipalities
Name of those who attended the consultation	Marco Fellin (MUSE FabLab) Giancarlo Berardi/Associazione Artigiani, Nicola Svaizer/Associazione Artigiani, Luca Nabacini/Italfly, Michele Gubert/Solidpower, Servizio Europa Provincia Autonoma di Trento, Others Enterprises contacted in the previous periods.
Purpose of Consultation	Creating Links to S3s and relevant policy players within innovation ecosystem



S3 Stakeholders in Trentino Region

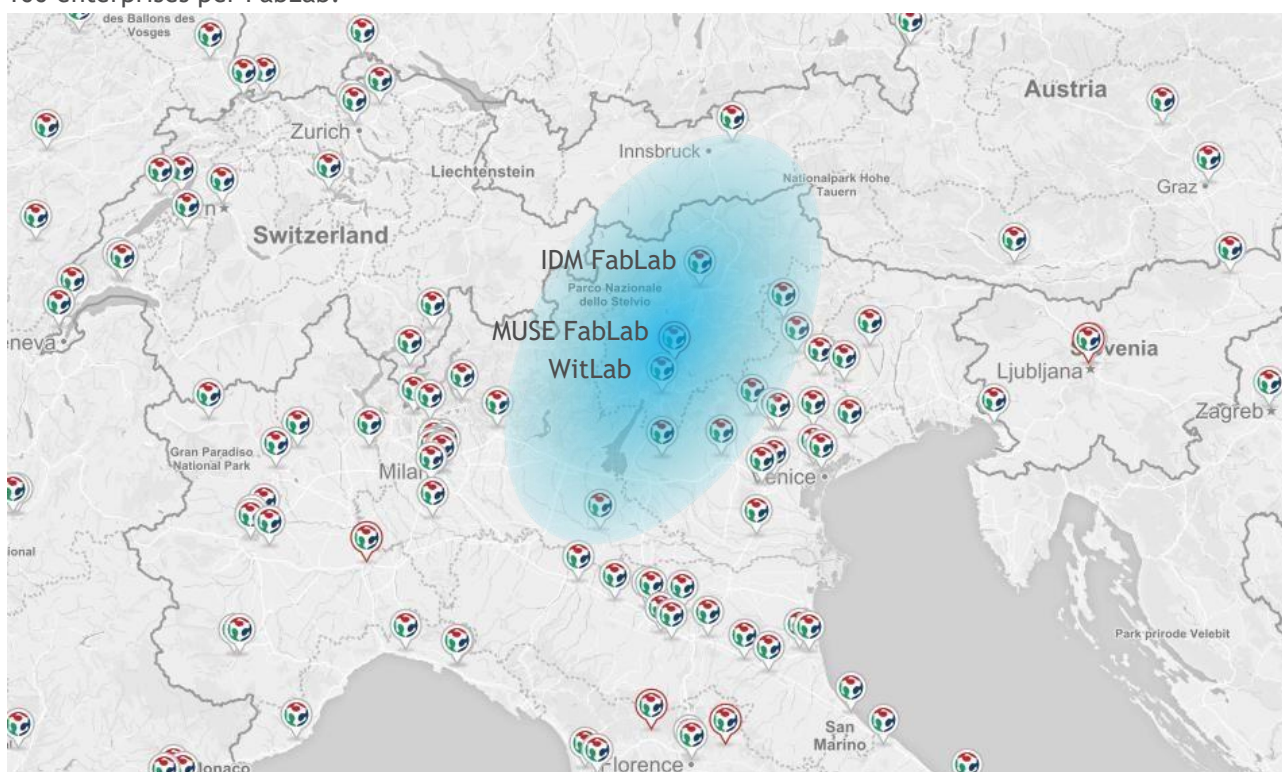
The main stakeholder involved in the RIS3 concept, which have an active role in definition of the policies, support their implementation or are final users are listed in the following table. They belong to a wide variety of public and private institutions, Associations, small and medium enterprises. The domains of interests are Education (High school and technical institutes of the Trento Province, University), Research centres related to Nature, Ecology, Science, Physics; Electronics, Software development, Engineering, Healthcare, Tourism.

Organization	Energy & Environment	Quality of Life	Mechatronics
Ass. Artigiani			X
Capi Group			X
Confesercenti	X	X	X
Confindustria			X
Dana Holding Corporation, Maumee			X
Enginsoft	X		X
LAMEL sns			X
Marangoni			X
OPTO-I			X
PAT - Dipartimento Sviluppo Economico e Lavoro	X		X
Progetto DPS/Invitalia, Moderatore	X	X	X
RKStudio			X
Trentino Sviluppo	X		X
Algorab	X	X	
Basso Costruzioni	X		
CNR-IVALSA	X		
Confcommercio		X	
Confcommercio Trentino	X		
Cooperativa - TrentinoWiva		X	
Cooperazione - Settore Cooperative di Lavoro Sociali Servizio Abitazione		X	
Create-net		X	
PAT - Dip. CTPS - Turismo e Cultura		X	
PAT - Dip. Salute e Solidarietà Sociale		X	
Dolomiti Energia	X		
Fondazione Bruno Kessler		X	
Fondazione Edmund Mach		X	
GPI		X	
Health Innovation Hub		X	
Ass. albergatori val di Sole	X		
HSL			
I&S	X		
I&T Sistem Srl		X	
Manifattura Domani	X		
Montibeller Costruzioni srl	X		
MUSE	X		
Cooperazione - Officine ZEB - Zero Emission Buildings	X		



Polo Tecnologico per Energia	X		
PVB Solution	X		
SOLIDpower: Home	X		
Telecom Italia		X	
Trentino Network		X	
Trento Rise		X	

In the Trentino Province there are more than 30 thousand enterprises, and about 8000 are associated as Artisans. In the Province just 3 FabLabs are operating in 2017 (MUSE FabLab in Trento, IDM FabLab in Bolzano and WitLab in Rovereto, in the map below), thus creating a potential basin of 10.000 enterprises per FabLab. Considering a realistic esteem of 1 % of enterprises cooperating with FabLab, the potential is an interesting 100 enterprises per FabLab.



National and Local Strategy

Trentino is an Autonomous Province with half a million inhabitants (1 % of the entire Italy) and 70 % of the territory located above 1000 m a.s.l..

Various economical indexes (GPI, Per capita income, employment ratio...) indicate Trentino as a fertile region, promoting this Province as an economic and social healthy reality. In Trentino there is an average of 67,1 enterprises every 1000 inhabitants, with an average of 4,1 employees per enterprise.

The primary sector is responsible of a half billion € added value generated by high quality traditional productions of apples, wine, olive oil, milk, wood.



Industry sector is responsible of a 2.5 billion € added value, generated by mechanics, engineering, chemistry, plastic, rubber, paper, prints, food and beverages, mechatronics.

Other important sectors are related to tourism, constructions and eco-building constructions, health, ICT and telecommunications, transport.

Huge is the contribution of the research and development sector, involving research centers, universities, high tech Foundation, Agriculture foundations, Business accelerators, innovation hubs, Business Innovation Centers.

Trentino Government participates actively in the S3 strategies with a round table meeting once a year, which involves the principal private and public stakeholders.

The main objective is “to concentrate and invest the available resources for the development in these excellence areas, by promoting realistic and viable innovation strategies and responding holistically and more efficiently to social and economic challenges”.

Several are the Policies and tools in support of the Research and Innovation System: The program agreements with foundations and research bodies, the Calls for research and innovation projects, the patent fund, precommercial contracts, the incentives for innovation for companies. The S3 specifically addresses the research compartment with the so-called Research multiannual Program that intends to be an orientation and a vision tool, helping the vertical coordination among Trentino research organizations with national, European and international strategies.

The local strategy can benefit from the interesting opportunities included in the Industry 4.0 National Plan. The new Industrial Revolution 4.0 is as a key opportunity for the development and the growth of the Italian manufacturing enterprises. The Govern has developed a specific plan for the promotion of investments and competitiveness.

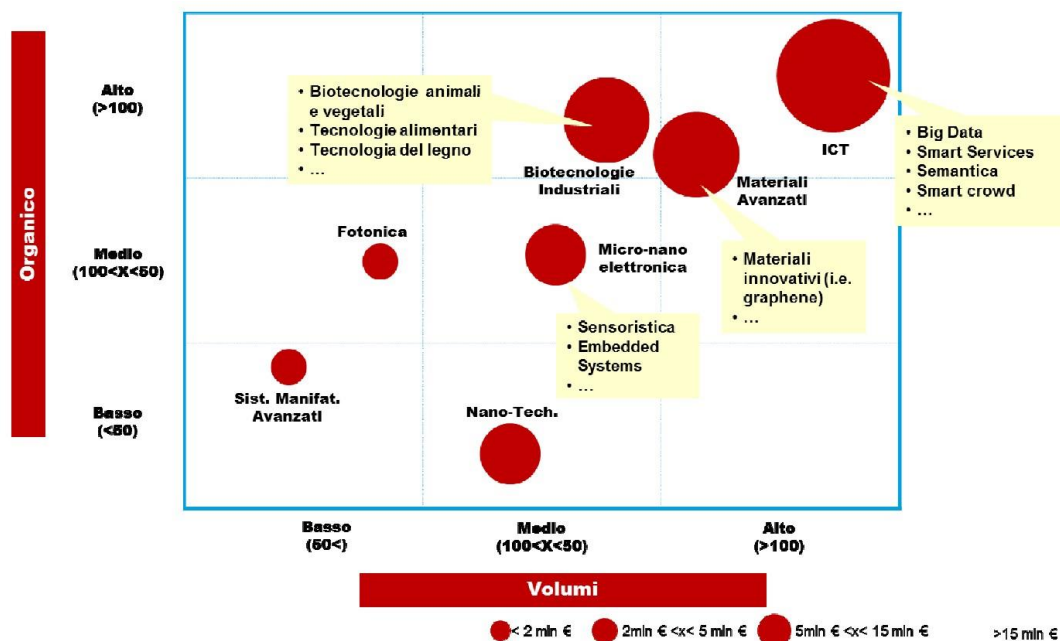
The major tools of the Plan are the so-called IPER and SUPER Amortization, a 250 % and 140 % return of investment for enterprises investing in new equipment, new technologies or tools.

Aside these two main tools, there are other 8 measures for the promotion of innovation, patents, promotion of start-ups, including a specific measure for increasing the wage of workers (one of the lowest in Europe).

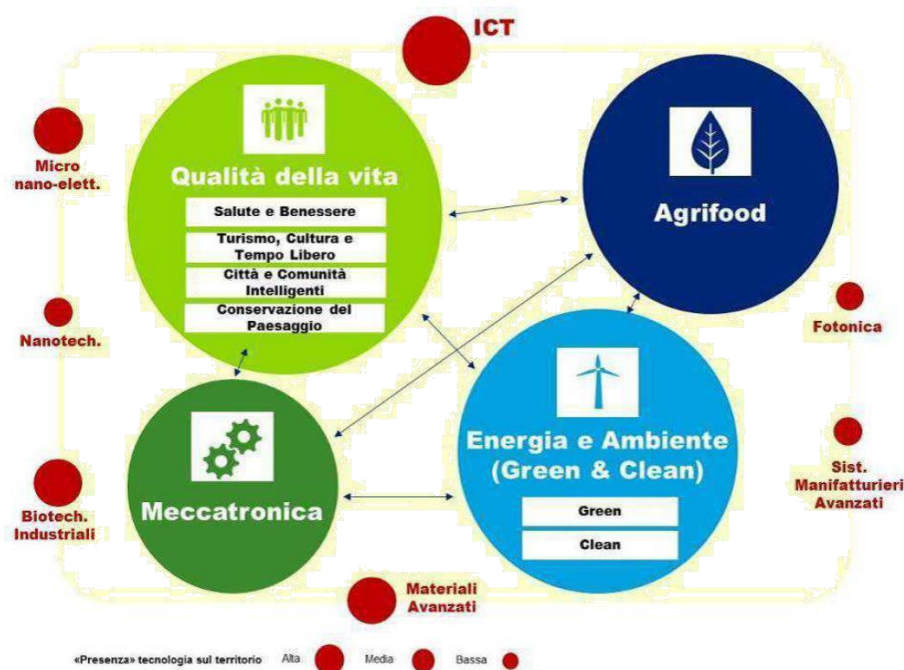
The local strategy is developed in 4 main areas (Quality of life, Energy and Environment, Agrifood, Mechatronics) and Key Enabling Technologies (industrial biotechnology, photonics, advanced manufacturing materials, micro-nano-electronics, nanotech, ICT).

The S3 are carried out with a bottom-up and a SMART approach (Sustainable, Measurable, Accessible, Result oriented, Timely).

The Key enabling Technologies are represented in the following graphic considering the volume of produced value (“volumi”, in millions €) and the number of project involved (“Organico”, in n°). A ICT key role is evident, followed by advanced manufacturing material and industrial biotechnologies.



The 4 main priority areas are represented in the following graphic, together with the KET's.





S3 Consultation report

As a general overview, we have found that the funding concepts involving the S3 strategies are well known and most of the consulted realities are including these in their everyday strategy. However, there is a general lack in the lexicon used, so it happened often that consulted persons were talking about a specific strategy or concept without knowing that was included in the S3.

The participants have their development strategies mainly focused on technical aspects. Each enterprise wants to increase the knowledge of their key technologies, and therefore expand the selling potential.

Most of the consulted have already had access to many funding schemes for acquiring machines, and all are evaluating this interesting possibility. The funding schemes are seen as fundamental support for innovation. The funds are an interesting opportunity to acquire new technologies for performing Research and Development and for the innovation/optimization of the production area; both aspects will affect the selling capabilities of the enterprises.

The goals of implementing the strategy are to increase the revenue and the amelioration of the technical capabilities by acquiring new technologies or updating the existing ones.

The Regional Smart Specialization Strategies Key Enabling Technologies more interesting are considered the Automotive, the Agrifood and the Energy and Environment.

The most strategic research domains are the IOT/smart city, the Addictive Manufacturing and the Low Carbon Footprint technology.

The open challenges are:

- Simplification and acceleration of the administrative/bureaucracy processes in the participation to funding schemes, of the legal framework for the prompt adoption of innovation on the market.
- The diffusion of the innovation concept within the enterprise is difficult. The concept of resilience is still not clear nor adopted.
- Selection of capable personnel.
- The legal framework is not facilitating the innovation process.

There is a strong necessity to support the innovation process, either inside the enterprises (with the culture of innovation, with the information on the active funding schemes, with information on the innovation process), either outside the enterprises (start-up, spin-off).

From the education and training point of view, there are necessities in education in these main topics:

- Innovation concept oriented to business model development.
- Problem solving.
- Teambuilding for the commitment of the workers as active and proactive part in the innovation process.
- Tools and machining advanced training courses.



Role of FabLab in S3 development

FabLab's can play a key role in supporting enterprises in innovation.

FabLab interlinks the Culture, traditionally an economical at a loss domain, with the industrial innovation, which is a profitable activity. It is a strategic actor for practicing the real innovations foreseen in the Industry 4.0 revolution.

For the micro and small enterprises (1-10 and 11-50 employees, respectively), a FabLab can constitute a real Research and Development sector for the enterprise, providing, equipment, expertise and training. In particular, the FabLab can assist in problem-solving providing qualified technical employees and state of the art equipment. The FabLab can provide tools for the creation process from the idea or concept to the final product. This is done also in the context of the FabLabNet project with the assistance of the associated partner INDUSTRIO, a hardware accelerator.

For the medium enterprises (<250 employees) a FabLab can provide high level specific trainings (on tools, machining, adoption of new technologies). The FabLab can be the place where the enterprise tests an equipment capability before acquiring it, or using a technology that is not intended to be acquired by the enterprise. High level trainings can be performed on modern cutting edge technologies, and in any of the process of industrialization of the idea: designing, prototyping, testing.

For all these realities, a FabLab is capable of creating a community, interlinking various stakeholders at decision making, policy, entrepreneurs, general public. This is done by spreading information on active funding schemes, innovation opportunities, joint participation to funding Programmes.

CREATING LINKS TO SMART SPECIALISATION STRATEGIES AND RELEVANT POLICY PLAYERS

D.T.1.2.1

Series of Consultations / PP2

Version 1

05 2017





Stakeholders

1. Armin Mahr (Head of Strategy Unit STI Locations & Regional Policies) designated S3 appointee for Austria
2. Dr. Petra L. Hiermann-Fochta, BA (DG V - Strategy Unit for STI Locations & Regional Policies)
3. MinR. DI Dr. Gerhard Schadler ((DG V - Strategy Unit for STI Locations & Regional Policies)

Subjective report

The participating partners were in general very interested in the concept of Fab Labs, especially in the offered infrastructures at Happylab. So it took some time in the beginning to explain Fab Labs in general, but also the approach here in Vienna at Happylab. They asked several questions about the business model and financing, about the members and the community and also about the technical infrastructure in the Fab Lab. We explained the different activities, like free machine workshops and open lab nights, that Happylab is offering to encourage as many people as possible to have access to digital fabrication. This approach is fitting the stated goals for the region to foster start-ups and innovative business. The city of Vienna is aiming to become an attractive location for research and businesses and also wants to promote state-of-the-art manufacturing (smart manufacturing and production) as written in the S3 paper “Innovative Vienna 2020” to safeguard local jobs. Within the six years at Happylab we experienced how important the access to digital prototyping was for some of the members that manage to grow their own business after starting to work on prototypes and ideas in the Fab Lab. Several articles have been published on the topic how the Maker Movement is creating jobs. Therefore, a place like Happylab as collaborative network that provide access to new possibilities for production and innovation can support the vision of Vienna to become a “City of opportunity” (p.16) that “provides optimal conditions for innovation potential” (p.16).

We also pointed out some successful cooperation we had in the past, with universities and other stakeholder. Due to the variation in stakeholders a strength of Fab Labs is the ability to connect and cooperate with different organisations and institution’s as well as connecting people with different backgrounds. This is another important objective listed in the paper as we can see in the following quote: “Innovative solutions often come about at the interfaces between different areas and sectors. This potential for innovation can be leveraged and put to use only through mutual exchange and the crossing of boundaries. More recent technological developments in particular require solutions across disciplines and sectors.” (p.24)

The consulted parties also comprehend the potential that FabLabNet could have for the participating partners and we try to explain them the general project structure, our approach and the aim of FabLabNet.

From there side they explained us the approach of Austria to RIS3 Strategies: already in 2011 Austria published a paper “Der Weg zum Innovation Leader. Strategien des Bundesregierung für Forschung, Technologie und Innovation” (Strategies of the government for research, technology and innovation.) Back than the wording “Smart Specialisation” wasn’t established, but this document was used in terms of S3 strategies since the approach was very similar. Some of the federal states in Austria have their own thematic strategy regarding S3 that they are pursuing on federal bases. In Vienna e.g. it is the strategy paper “Innovative Vienna 2020” that was published in September 2015. We choose the paper “Innovative Vienna 2020” for our preparation for the consultation. Based on this paper we will follow up the work to find links to S3 strategies for Fab Labs.

On federal level ÖROK is planning to publish a paper about Smart Specialisation in 2017. Until then a chapter (2.3.4 in 2016, p. 77) of the annual “Austrian Research and Technology report” was the federal reference for the federal Austrian S3 strategies.

Assessment

We would say that the participating parties were very curious about the structures and facilities offered at Happylab. They wanted to hear more about the business model and the machines. They saw also the potential and positive impact Fab Labs can have specially in smart production on regional bases. They recommended to focus on the smart specialisation strategies from the paper “Innovative Vienna 2020” and metropolitan region of Vienna. Therefore the following sections mentioned in this paper are of relevance for us:

1. Innovation objective no.1 - City of opportunity: Vienna provides optimal conditions for innovation potential to develop in the metropolitan region.
 - a. Specific objective: Further development of areas of strength
 - b. Action area 1: Attractive location for research and businesses
 - c. Action area 2: Further developing areas of strength - Promote a state-of-the-art manufacturing and services location
2. Innovation objective no.2 - Vienna is a place where different people meet
 - a. Action area 7: Spaces that promote an innovative climate
 - b. Set up a network of spaces
 - c. Set up information and networking platforms
 - d. Action area 8: Increasing visibility and arousing interest

Recommendations

The main recommendation was that Happylab should focus on local activities in the federal state Vienna. Which means on the topics mentioned in the “Innovative Vienna 2020” strategy paper. Therefore, they recommended us to focus on smart production, since Vienna wants to specifically strengthening these areas: “The conditions governing the manufacturing of goods are subject to profound and fast-paced change. In goods manufacturing, more and more products are being tailored specifically to customer demands. Production facilities need to be able to efficiently and economically produce even small series.” 5.20 This claimed flexibility in production can be supported by Fab Labs.

Also the innovative climate and knowledge exchange within the FabLabs and their community regarding informal networking are supporting the aim to the so called 2. objective of the paper “Vienna as a place where different people meet”. The city of Vienna on one hand wants to promote network spaces and on the other hand understood how important information and networking platforms are for the aimed innovative climate they want to achieve until 2020, but this also comes with a challenge to find ways how to do that: “Sharing encoded knowledge is relatively easy. However, sharing non-encoded or tacit knowledge as well as complex knowledge, both of which are crucial for innovation, requires personal contact between the



people having such knowledge. Transferring such knowledge becomes easier when the persons involved are located close to one another (...).” S.24. Fab Labs with their interdisciplinary community, open access and open knowledge approach are exactly proving these kind of networks and platforms described in the paper “Innovative Vienna 2020”.

Closing Information/Summary

Since Austria wasn’t communicating S3 in the way as we heard it from the other participating partner in FabLabNet in their country and the official Smart Specialisation Report of the federal government will not be published until 2017, the consultation helped us to understand how we can proceed in finding ways to contribute to our regional goals in Vienna regarding Smart Specialisation. In general, we learned that, the S3 strategies in Austria are worded on purpose in a very open way to include as many areas as possible within them. This can be seen as a benefit for Fab Labs to find links to S3 strategies in Austria, since they try to include different approaches and are not limited to specific areas.

As pointed out in the upper sections, in our opinion Fab Labs can support and push forward some of the S3 strategies in Vienna.

After the consultation Mr. Armin Mahr sent us pre-copy of the ÖROK document “Policy framework for smart specialisation in Austria” that officially will be published in 2017.

References:

<https://www.wien.gv.at/english/research/pdf/innovative-vienna-2020.pdf>

CREATING LINKS TO SMART SPECIALISATION STRATEGIES AND RELEVANT POLICY PLAYERS

D.T.1.2.1

Series of Consultations / PP3

Version 1

06 2017





This document will outline the essential conclusions and key-outcomes of a series of consultations with local stakeholders in matters of how FabLabs and MakerSpaces are currently influencing the local innovation-ecosystem, as well as possible long-term goals in that context.

1. Stakeholders

We have defined eight groups of stakeholders in the local ecosystem:

- *S3 strategy makers;*
- *Education (Schools and Universities)*
- *Clusters;*
- *RDI Companies*
- *Business Accelerators, Venture Capital;*
- *Start-up companies and Entrepreneurs;*
- *Co-working and Co-making Spaces;*
- *Academia;*

The following stakeholders have been interviewed in single or group session interviews.

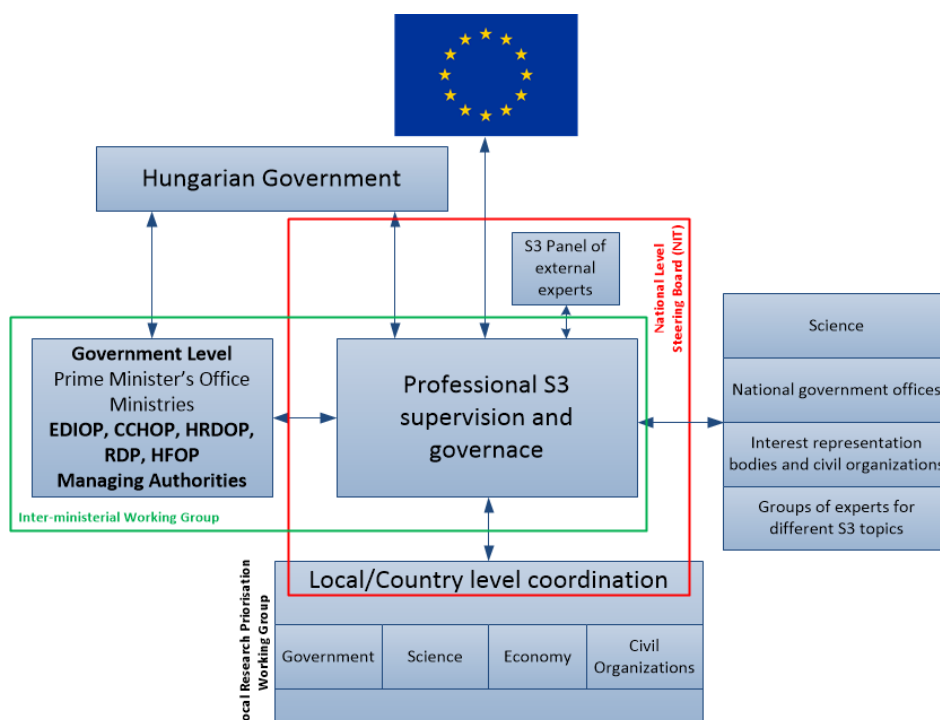
No	Name	Institution	Strategy maker	Education	Clusters	RDI Companies	Accelerators, Capital	Start-ups, & Entrepreneurs	Co-working & Co- making	Academia
1.	Máté PECZE	National Research, Development and Innovation Office	X							
2.	Barnabás MÁLNAY	SmartWare.tech; MMCulster			X		X	X		
3.	Balazs VARGA	MechatroMotive				X	X	X		
4.	Peter LANGMAR	GreenFox Academy; LabCoop		X			X	X		
5.	Pál HONTI	FreeDEE	X			X	X	X		
6.	Gergő NÁDORI	AKG		X						
7.	Panni KLEMENTZ	LOFFICCE				X			X	
8.	Máté VARGA	Science Meetup		X						X
9.	Balázs ZEITLER	SIEMENS					X	X		
10.	Zsolt BAKÓ	COLABS					X	X	X	
11.	Tamás TURCSÁN	STARTUPPER					X	X		



No	Name	Institution	Strategy maker	Education	Clusters	RDI Companies	Accelerators, Capital	Start-ups, & Entrepreneurs	Co-working & Co-making	Academia
12.	György BÖGEL	CEU BUSINESS		X				X		X
13.	Orsolya FORSTER	KIBU				X	X	X	X	
14.	László BACSA	DEMOLA	X							
15.	Ákos LIPÓCZKI	MOME		X						
16.	Kitti MAYER	DESIGN TERMINAL					X	X		
17.	Marcell MÁRK	MAKERSPACE		X				X	X	
18.	Adam LIPÉCZ	SHOKA	X	X		X	X	X		
19.	Péter KÁDAS	Traction Tribe	X			X	X	X		
20.	György SUREK	DEMOLA		X		X	X	X		
21.	Melinda Kis-Babják	CRAFTUNIQUE		X		X		X		

2. Implementation Smart Specialization Strategy S3 in Hungary

The following chart shows the management structure of the Hungarian S3 management:





The development of the smart specialisation directions is coordinated by an organisational structure involving four bodies, each building on the other. The planning is coordinated by the **S3 Management Team** functioning under the control of the **Prime Minister's Office**.

The **National Level Steering Board (NIT)** functions as the professional forum embracing the S3 working group involved in the national S3 design, the professional board and the heads of the **Local Research Priorisation Working Groups**. The presidents of the county general meetings were also invited to the NIT meetings. **Expert panel** means the panel of experts from the business and the academic world, civil society and regional development, which gives a technical opinion on the S3 process, especially the main directions of smart specialisation.

The **S3 Management Team** means a working group operating in the **National Research, Development and Innovation Office (NRDI Office)** and the **Prime Minister's Office**, which coordinates the work of the other organizations involved in the design process, directs and ensures the work of these organizations from the methodological and quality aspects, and prepares the smart specialization strategy for strategic decision-making.

The National Research, Development and Innovation Office founded by the Act “about scientific research, development and innovation” (Act2014/LXXVI) accepted by the Hungarian Parliament (RDI law) with the aim to “create stable institutional framework for the governmental coordination of the national research, development and innovation ecosystem, provide predictable funding and implements an efficient and transparent use of available resources.” The RDI law created a unified **National Research, Development and Innovation Fund (NRDI Fund)** “to provide state support for research, development and innovation and can be used solely for this purpose. According to the Law on Public Finance the NFDI fund is separated state fund” and succeeds the former Research and Technology Innovation Fund and the Hungarian Scientific Research Fund. According to the RDI law the NRDI Office handles the NRDI Fund.

The **Inter-ministerial Working Group** was formed in order to ensure the monitoring of the planning process of the S3 strategy-building at the government level, ensure the feedback of the experts and the public administration, support the individual subtasks, and prepare for the implementation of the strategy. Its members are all the competent ministries, as well as the delegates of the relevant managing authorities of the 2014-20 programming period. Its priority task is to harmonise the planning of S3 and the Operational Programmes.

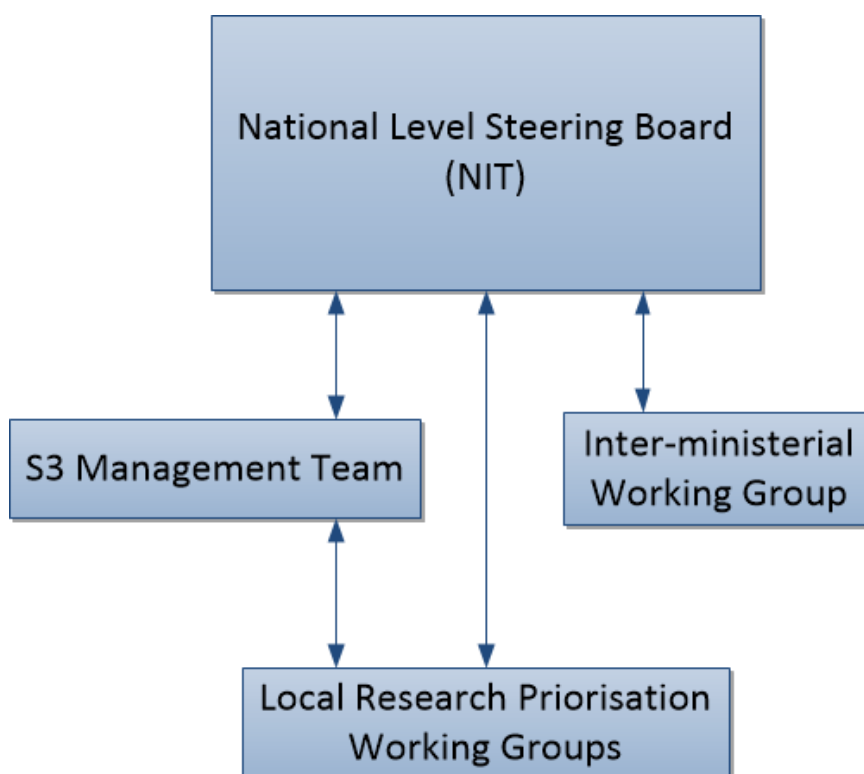
The **Local Research Priorisation Working Group's** work is supported by the county government offices under the guide of the S3 Management Team. The county governments are also involved in the work of the Local Research Priorisation Working Groups. Under the leadership of appointed experts, the work organisations are jointly carrying out the organising work which ensures the mobilisation and involvement of the local stakeholders. The counties are responsible for establishing the specialisation directions with the involvement of all stakeholders by setting out from the local and regional experience and building on the own knowledge and information of the participants. In developing smart specialisation, the counties are required to present sectors, areas of expertise, methodologies, technologies and measures which can designate the region's sustained and



successful R&I development. It may be based on the existing experience, knowledge and infrastructure, and may also contain conscious risk-taking. Participants of the Local Research Priorisation Working Groups:

- *representatives of knowledge bases: universities, research institutes, platforms, clusters, technology transfer organisations and incubators*
- *civil organisations and chambers*
- *entrepreneurs: start-up and spin-off companies, innovative SMEs, large corporations with substantial research portfolio*
- *investors: venture capitalists, business angels, mentors*
- *county governments the government side, which primarily performs administrative (organizational, documentation) tasks.*

The following chart is the governance structure of the Hungarian S3 design:



3. Conduction and Results of Consultations

The single and the group sessions were organized in the same structure. (We have to mention that there were some occasions when the session has been done over the internet, mostly using SKYPE, when meeting in person was not an option.)

Firstly we introduced the maker movement and FabLab Budapest, highlighting that we are one of the first FabLab in Central-East Europe and until now the only member of the FabLab network in Hungary. We have detailed that:

- We are located in the downtown of Budapest offering our services, access to our workshop, tools and knowledge for students, entrepreneurs and companies. We believe in bottom-up innovation and help others to create their first prototype.
- Our goal is the democratization of digital manufacturing technologies to provide access to personal and collaborative invention and innovation using digital technologies.
- We have a strong cooperation with the Moholy-Nagy University of Art and Design. In this cooperation we try to foster students of traditional craftsmanship to enter into the 21st Century with digital manufacturing technologies and start their own design brand.
- We provide a comprehensive education program on design thinking, digital manufacturing, robotics, embedded systems (design hardware and software) and DIY biology.
- We also do R&D, prototyping and manufacturing for companies, including start-ups as a service.
- In the past years we had a small technological incubation programme where we helped start-ups to develop their product or service. Our own developments which are under capitalization to enter to the market.
- We are work package leaders in the Central Europe Program granted project called FabLabNet.

Secondly we introduced the project FabLabNet using the slides provided by ROGLAB (PP7). We highlighted:

- The project aims to foster international networks and links both with schools and businesses.
- The project joins a number of FabLabs into a central European network: 9 project partners - inspired by and strictly connected to 11 associated partners - share experiences and develop activities to boost their knowledge and capacity
- Following trends set by the European movement that emphasizes new business models, and marks the difference in current cultural & business world.



- The work plan of the project

Thirdly we started a conversation about the national S3 strategy, and we asked the stakeholders their opinion what synergies we could find in the strategy itself. We also asked the stakeholders to highlight how the bottom-up innovation initiative FabLab Budapest could and should cooperate with that specific field they represent in the ecosystem. Below we summarize the output of these discussions by each stakeholder group:

3.1 S3 Strategy Makers

There is an “Open Laboratory” in the national S3 Strategy. This is a pilot which hasn’t implemented yet. Stakeholders suggest to propose a work plan how FabLabs could become part of this pilot or could fulfil it completely.

In the Strategy: an “open lab” and - for the use of it - a so-called “voucher” system will be introduced in the framework of the “pilot” project to be established along the national priorities developed in the smart specialisation process. A laboratory with a research direction or technological tools specified in the national priorities can become an “open lab”.

The essence of an “open lab” is that a laboratory or research infrastructure operating at a public research site³⁰ or a big company, and the associated research services, can be used by anyone, ranging from private individuals through private entrepreneurs to SMEs. This allows an optimized access to the equipment, where new technologies, products and services can be developed. The “pilot” would be created by opening an existing laboratory or research infrastructure. The “open laboratory” promotes the networking and partnering between higher education institutions, academic research organisations, public non-profit research organisations, other public research organisations, research and technological centres, large enterprises and micro-, small- and medium-sized enterprises. They support the innovation activities of undertakings (mainly SMEs) that are either inadequately or not equipped with modern equipment. The introduction of “open laboratories” will significantly increase the number and success of undertakings and organisations engaged (also) in R&D and innovation. “Open laboratories” enable a local content, which is higher than the current one, and the increase in Hungarian value-added deliveries to multinational companies.

Furthermore, “open laboratories” could be an implementation site for “open innovation” efforts (they can also play the role of a so-called “living lab”). This includes in particular the cases where a company opens up a problem to be solved or a research and development task. The SMEs can carry out their research and development tasks in the innovative “open lab”.

Another aim of the “open laboratories” is to support the studies and researches and contribute to the education and training of the “personnel” working in the laboratory, i.e., the talented students, doctoral students carrying out their research there. As a result of the research and development made in the “open lab”, new undertakings, spin-offs and start-ups can be set up.



The "open labs" should operate on the basis of a public and transparent operation method and management. The operation of the "open labs" is controlled by a professional supervision. The "open laboratories" will continue to satisfy the needs of the owner/maintainer institution (e.g., research, education, etc.). In addition, external partners, in particular micro-, small- and medium-sized enterprises can use their research and development services. This could be the use of tools or causing the performance of a research project. Any micro-, small- and medium-sized enterprise can apply to use RDI services; it is the aim that this opportunity will be available to the broadest possible target group.

The small- and medium-sized enterprises could win vouchers by tendering procedure, which would serve as a means of payment in order to obtain various RDI services (order of R&D, measurements, support for the development and market introduction of a new prototype, ensuring technical/engineering background) from the "open laboratories". The resources necessary for the expansion and maintenance of the "open lab" would be covered from the operating income from the voucher system.

Open laboratories induce the following positive changes:

- *the R&D infrastructures become more widely visible,*
- *the SMEs are given an access (in a regulated and transparent manner) to tools of adequate capacity and quality, which they could not afford so far,*
- *a partnership is built between the different actors of RDI, thus promoting open innovation processes.*

3.2 Education (Schools and Universities)

Education stakeholders suggested the following:

- **Provide mobile manufacturing infrastructure devices for students;**
- **Host after-school STEAM¹ clubs or programs;**
- **Create STEAM curriculum;**
- **We should launch again our ambassador programme;**
- **Try to open new labs at universities and schools;**

3.3 Clusters

Barnabás MÁLNAY suggested **becoming member of Mobility and Multimedia Cluster (MMCLUSTER)** where bottom-up innovation is not yet represented. It was formed in 2007

¹ STEAM is an educational approach to learning that uses Science, Technology, Engineering, the Arts and Mathematics as access points for guiding student inquiry, dialogue, and critical thinking. The end results are students who take thoughtful risks, engage in experiential learning, persist in problem-solving, embrace collaboration, and work through the creative process.



with the purpose of bringing together the most dynamic actors in the field of mobile technology and new media in Central Hungary, mix and match their R&D and innovation capacities, and help the fruits of their cooperation succeed on the market. Their main objective is to foster innovation and entrepreneurship. By today, MMCluster has grown to be one of Hungary's most significant institutions in the digital industry with close to 70 members. They have connections to Hungarian and international fellow business clusters, companies, NGOs, and government agencies.

3.4 RDI Companies

FabLab has a competitive infrastructure for prototyping and small scale manufacturing. Presently we are providing 3D printing and CNC milling services for SIEMENS.

Business stakeholders suggested the following:

- Be more visible for companies;
- Do marketing and presales;
- Cooperate with their RDI units;
- Create special membership for those company employees you are working for;
- Clarify IPR at the FabLab;
- Team up with Hungarian equipment manufacturers;

3.5 Business Accelerators, Venture Capital

Business Accelerator and Venture Capital stakeholders suggested the following:

- Look for strategic partnership with one business accelerators or venture capital firm who invests into hardware start-ups or and try to convince them that FabLab is a great place for those projects they have invested;
- Try to be part of their selection process by validating applicants;
- Understand their investment requirements and input and prepare project within the FabLab for investments process;
- Use the international FabLab Network more;

3.6 Start-up companies and Entrepreneurs

Start-up stakeholders suggested the following:

- Create special incubation programme for hardware start-ups;
- Works as a think-tank and expert pool for project;
- Do more education regarding development processes;
- Do better marketing for FabLab visibility;

3.7 Co-working and Co-making Spaces

Co-working spaces are part of sharing economy. In other countries co-working spaces and FabLabs are often under one roof. Co-workers have an easy access to the Fab Lab, which is perfect for quickly developing their prototypes. Presently in Budapest located Co-working spaces there are few hardware developer or designer start-ups or entrepreneurs. The reason behind is that without an access to prototyping or manufacturing infrastructure they won't benefit from moving to a Co-working office. It is also true that there are possible makers and users of the FabLab at these offices and we should attract them somehow.

Co-working stakeholders suggested the following:

- Launch cooperation with the Co-working players by offering special packages and discount to their users;
- Find a strategic partner and be their “white label service” for prototyping and education so they could attract hardware developers;
- Promote yours services (especially education) and products developed/manufactured in the FabLab “bellow the line” to the co-workers;

3.8 Academia

Academia stakeholders suggested the following:

- Try to promote science and engineering in the education
- Scientists need often instruments for their research, which does not exist. They are makers without access for manufacturing equipment. FabLab should consider them as possible users!



4. References:

National Smart Specialisation Strategy (S3): <http://nkfih.gov.hu/policy-and-strategy/national-strategies/s3/national-smart-specialisation>

The national innovation ecosystem in Hungary: <http://nkfih.gov.hu/international-activity/zoltanperedy-nih-2014-09>

National Digital Start-up Strategy (NDIS):
<http://www.kormany.hu/download/d/8c/e0000/Magyarorsz%C3%A1g%20Digit%C3%A1lis%20Startup%20Strat%C3%A9gi%C3%A1ja.pdf>

CREATING LINKS TO SMART SPECIALISATION STRATEGIES AND RELEVANT POLICY PLAYERS

D.T.1.2.1

Series of Consultations / PP5

Version 1

05 2017



This report summarizes major conclusions and outcomes of consultations with regional stakeholders with regard to FabLab influence on the local ecosystem and its possible key medium to long term objectives. For the purpose of this report we have interviewed 11 companies and agencies.

INTRODUCTION OF CZECH RIS3

1.1. National RIS3 and regional implementation structures

The Ministry of Education, Youth and Sports was responsible for preparing the National RIS3. After the approval, the responsibility for managing the National RIS3 was transferred to the Office of the government of the Czech Republic - Science, Research and Innovations Section Regional level, Regional Councils for Innovations.

At the level of regions, coordination authorities were established for RIS3 in the given region, which are an analogy to the RIS3 National Coordination Council and RIS3 Management Committee.

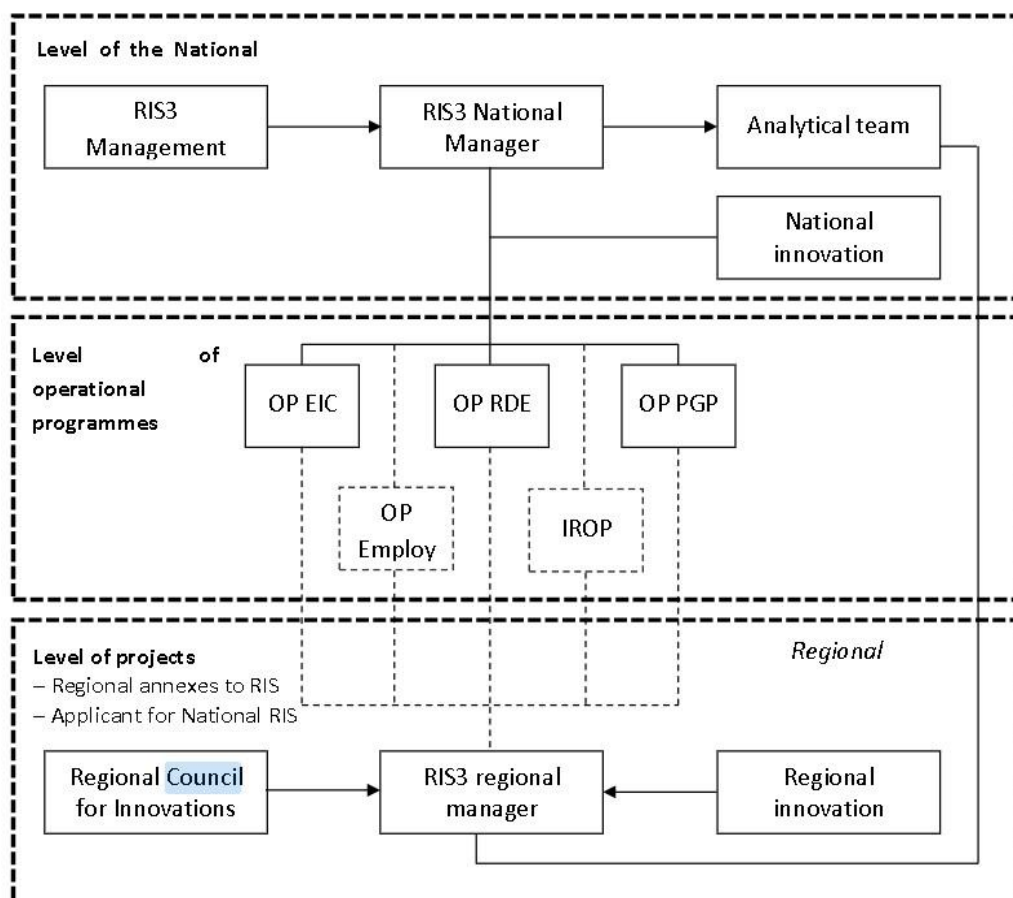


Figure 1: RIS3 management structure



1.2. Regional South Moravian RIS3

The region of South Moravia holds its Regional coordination platform with its main partners being:

Masaryk university, Mendel University in Brno, University of defense, University of Veterinary and Pharmaceutical Sciences Brno, BUT Brno, Association of Moravian Institutes of the CAS, JIC, Regional Chamber of Commerce for Southern Moravia, Regional Development Agency South Moravia, South Moravian center for international mobility, The South Moravian Region, Department of regional development of KrÚ JMK, City Brno, Honeywell, Alta, FEI, RedHat, BioVendor and Tescan Orsay Holding.

1.3. Stakeholders in South Moravian Region (SMR)

The innovation ecosystem is described in SMR RIS3 and is formed and characterized by private corporations, universities and research centers. For clarity we have divided the main players into six categories:

1.3.1. Mechanical Engineering

Královopolská RIA, Unis, Ekol, Alta, ABB, Zetor, Minerva, OTIS, BMT, LAC, RoMill, T-Machinery, TOS Kuřim, Šmeral, Walter, ČKD Blansko, MetalPres, Gemax, Aroja, Jihomoravská armaturka, ZKL, Královopolská, Fritzmeier, Signum, AG Watteew, Kovolit, Metaldyne Oslavany, Železářny Veselí, Šroubárna Kyjov, Ferex, Feramo, DSB-Euro, Slévárna Kuřim

1.3.2. Electrotechnics

FEI, Tescan, VF, Metra, Delong Instruments, PSI, Mesing, ABB, JM montáže, ESB rozvaděče, Siemens, Daikin, Alstom, Startech, DI Industrial, Siemens, Kollmorgen, ABB, EMP, Franklin electric, EM Brno, VUES, JULI Motorenwerk, kabely, svazky, konektory, zdroje: Tyco, Egston, Griller Kabeltechnik, Maehler, RME - spoj

1.3.3. Software development

Y Soft, Cígler Software, Kentico, Vema, NetSuite, AIS Software

1.3.4. Universities

Masaryk university, BUT Brno, Mendel University in Brno

1.3.5. Research centers

AdMaS, AdmireVet, ALISI, CMV VUT Brno, CEPLANT, CV VOZE, CETOCOEN, Dopravní VaV centrum, NETME Centrem, RECAMO, SIX Research Centre

1.3.6. Centers of excelent

CEITEC, CzechGlobe, FNUSA-ICRC, IT4Innovations



Brno municipality is the second largest city environment in the Czech Republic. With over half million citizens, number of established and startup companies and over 100 thousand students it represents one of the fastest developing economic-subsystem in the country.

1.3.7. Relevant key stakeholders for FabLab activities:

- o Students organizations
- o Secondary schools
- o Universities
- o SMEs
- o Agencies

1.4. Thematic specialisation and “areas of change” of S3

The National RIS3 strategy concept focuses on interventions aimed at completing the innovation system of the Czech Republic (i.e. horizontal interventions) and interventions aimed specifically at strengthening selected specialization domains (i.e. vertical interventions). In other words, “vertical interventions” means gradual prioritization, i.e. the narrowing of interventions to themes that are defined within each smart specialization priority, whereas horizontal interventions will support the given activity without thematic restrictions. What follows is a brief identification of the alignment of the FabLab project with both horizontal and vertical interventions of the national RIS3 and relevant objectives of the project addressing the RIS3 strategy.

1.4.1. Horizontal strategy of RIS3 of the Czech Republic

RIS3 defines six key horizontal areas in which the Czech Republic must achieve significant changes in order to strengthen the knowledge-intensity of the economy and to facilitate the development of the selected specialization domains and their gradual refinement. The key four horizontal interventions which FabLab project aligns with in general are:

- o Higher innovation performance of companies
- o Improved quality of public research
- o Improved economic benefits of public research
- o Better Human Resources, in both quality and quantity, for innovative enterprise, research and development

These key areas of change are further structured into strategic and specific objectives, the results of which will contribute to achieving changes at the level of the key areas. Due to space limitations within this report, we will only briefly touch the relevant horizontal areas of change relevant to FabLab and the University environment:



1.4.2. Entrepreneurship and innovation - Area of Change A: Higher innovation performance of companies

The Smart Specialization Strategy of the Czech Republic in the field of enterprise and innovation focuses on the following three strategic objectives:

1. Increasing the innovation demand in the business and public sectors. The ambition of FabLab support in general innovation demand in the business and public sectors. As such, Fablab Czech Rep. would strengthen already active university businesses activities in supporting and providing opportunities to test their innovations in a supporting infrastructure. Secondly, the FabLab summer courses will improve the technical and non-technical competencies of its graduates, which will have the necessary skills to further increase the demand for hi-tech innovative solutions in the companies. Lastly, FabLab will strengthen multifaceted open-innovation trends in the local environment and hence increase innovation demand.
2. Increasing the level of enterprise in society, with an emphasis on establishing knowledge-intensive companies in fast growing areas. Entrepreneurship is at the core of the FabLab vision and the pillar of the associated-partner JIC strategy with the creation of new start-ups as a key performance indicator (not to be confused with FabLab VUT, JIC is an associated partner organization). Due to VUT FabLab access to a large pool of technically oriented research staff and students, we modestly estimate this partnership of FabLab JIC and VUT will help with creating of at least three hi-tech start-up companies originating as a result of the FabLab project. Further to this, FabLab has potential to act as an Innovation HUB by providing a coherent innovation ecosystem with high-quality consulting and infrastructure.

1.4.3. Research and development - Area of change B: Improved quality of public research

Strategic objectives relevant to FabLab activities in this key area of change are - providing stable conditions for the long-term development of high quality research facilities. FabLab provides the potential to improve research infrastructure further by helping the students and research staff to “make” things on demand previously unachievable by available infrastructure.

1.4.4. Research and development - Key area of change C: Increasing the economic benefits of public research

Specific objective C.1.1. is to increase the interaction between research organization and public. With typical activities, such as summer schools in cooperation with research organization and private sector; educational programs focused on additive manufacturing and digital technologies and industry 4.0 or building up an educational center in additive manufacturing FabLab project ideally fulfills required objectives of this area of change “C”. It is also important to note, that our analysis came with conclusion, that necessary condition for increased economic benefits of FabLab is better motivation based on success stories, medialization and PR activities.

1.4.5. Human resources - Key area of change D: Improved availability of HR, in terms of both quality and quantity, for innovative enterprise, research and development

This area of change has a number of subcategories and specific objectives which FabLab complies with accordingly, however, due to space limitations, provided here is a general statement complying with this area of change. The Czech partner VUT Czech academic partners of this consortium educate 4,500



mechanical engineers annually (38% of the whole country of Mechanical Engineers) and thus is the primary source of the qualified workforce in this field. VUT also serve as the country's source of HR resources both in terms of quality and quantity. RIS3 identifies three HR levels as a key determinant of competitiveness in a knowledge-intensive economy.

Firstly, HR with a general level of education and skills realistically translates into the ability to create commercially useable innovation; however, availability of soft-skills such as entrepreneurship, co-operation, flexibility or customer orientation are identified as largely missing in the qualified population. Here FabLab provides a clear platform for change in two of its three key objectives. Educational activities at the FabLab will be strongly focused on entrepreneurship, co-operation and flexibility. Regarding the entrepreneurial objective of FabLab we would work very closely with associate partner JIC with an emphasis on the creation of new hi-tech businesses and business education.

Secondly, RIS3 specifies the need for identification and development of natural talents, where the entrepreneurial talent, technical talent and the talent for research and development work are the most important for the key area of change. This is possibly the main area of focus of the Czech partner and our FabLab is planning a program for the identification of new talents to embark on their own early academic or entrepreneurial carrier. The selection process would base on tools such as summer school, educational programs, project and problem based learning activities and non-frontal form of learning. We aim for identification of number of talents from the above discussed activities.

The FabLab model to innovation and education could provide an open platform based on individual approach. One of the key instruments is access to shared FabLab facilities.

1.4.6. Vertical Strategy of RIS3 of the Czech Republic

RIS3 defines Advanced Manufacturing Technologies and Materials as two of the five thematic (vertical) research priorities (generic knowledge domains) of the Czech Republic. The contents of these vertical interventions are defined relatively broadly and are necessarily viewed mostly as a framework than as concrete areas within this knowledge domain. However, FabLab provides open platform to enable introduction of advanced manufacturing technologies and new materials to wider public, students and future researchers in general.

Importantly, FabLab not only provides direct vertical intervention in R&D infrastructure in the above two priority areas but also indirectly ensures high-quality graduates that are able to develop their skills and knowledge in the long term. This concerns both the quality of graduates in the respective fields and also providing an entrepreneurial ecosystem enabling those graduates to create new companies and jobs. In conclusion, our consultations with relevant stakeholders has shown that FabLab has exceptional potential to align with strategic and specific objectives of national and regional RIS3 strategy.

Opportunities for FABLAB according the RIS3

The consultation reports clearly indicated need of a focus on the following three topics:

1. Entrepreneurship and innovation - Area of Change A: Higher innovation performance of companies
 - a. Fablab could be shared infrastructure for prototype manufacture and development (BUT BRNO, JIC, MCAE, Solidify 3D)
2. Research and development - Key area of change C: Increasing the economic benefits of public research
 - a. Strengthening the co-operation and interaction between research organizations and the application sector
Summer schools and special courses, information and cooperation platforms
3. Human resources - Key area of change D: Improved availability of HR, in terms of both quality and quantity, for innovative enterprise, research and development
 - a. Increasing the level of entrepreneurship and other soft competencies project
base learning, project management
 - b. The implementation of activities leading to the practical orientation of teaching
support team work, practical oriented learning, internships
 - c. Creating a system for identifying and developing natural talent
Talent identification and work with talents, mentoring and other tools
 - d. Enhanced public and student awareness about digital technologies and fabrication
FabLab platform established together with associated partner JIC Brno, C-agency and MCAE systems / joint platform
 - e. Educational activities supporting out of box thinking using non-conventional manufacturing technologies via continuous professional development (public and professionals from industry)
 - f. Improve the high-quality student pool
Support activities with secondary schools, public relations (roadshows) with young people and open platform for innovation via secondary school competition programs

CREATING LINKS TO SMART SPECIALISATION STRATEGIES AND RELEVANT POLICY PLAYERS

D.T.1.2.1

Series of Consultations / PP6

Version 1

05 2017





1. Defining national and regional strategies of creating innovation ecosystem

National Smart Specialization points out preferences in providing support to development, research and innovation. It is designed to contribute to the transformation of the economy through the modernization, structural transformation, diversification of products and services and creating innovative socio-economic solutions, also supporting the transition towards resource-efficient economies, including natural resources.

The process of identification smart specializations is dynamic. It involves wide spectrum of partners - economic and scientific, but also civil society.

Decisions about smart specializations aren't undertaken top-down - by the representative of governmental administration - Ministry of Development. They are effects of in-depth analysis in terms of endogenous economic advantages and cooperation with socio-economic partners. The National Smart Specialization is an open document, that will be subject of constant review and actualizations on the basis of monitoring and evaluation system and socio-economic changes noticed.

Financial perspective 2014-2020 has two main priorities: thematic concentration and innovations.

Poland National Smart Specializations are orientated on the following thematic areas:

1. Healthy society
2. Bioeconomy agro-food, forest-wood and environmental
3. Sustainable energy
4. Natural resources and waste management
5. Innovative technologies and industry processes

Regional Innovation Strategy of Slaskie Voivodeship 2013-2020 is the first innovative strategy in Poland, which is in line with "Europe 2020" strategy. This document includes latest European Commission regulations about development programming in period 2014-2020 concerning necessity of identification of regional smart specialization (thematic concentration mentioned above).

Main goals of RIS are concentrated on two priorities of innovative development of the region, which are:

1. Increase and integration of existing potential of the region
2. Creating smart markets for technologies of the future

Assumption of RIS for years 2013-2020 is strengthening of regional system of innovations and its conversion to **ecosystem of innovations**.

Moreover, in line with the idea of smart specializations, regions are supposed to concentrate their resources on few key areas and based on them, they should develop their competitiveness.

Technology foresight for Slaskie Voivodeship altogether with Slaskie Voivodeship RIS is a guide for development of specific sectoral technologies which are:

1. Medical technologies
2. Technologies for energy and mining sectors
3. Environmental technologies
4. ICT technologies



5. Production and processing technologies
6. Transport and infrastructural technologies
7. Technologies for mechanical, mining, aviation and automotive sectors
8. Nanotechnologies and nanomaterials.

RIS identifies three main key smart specializations of Slaskie Voivodeship:

1. Power industry - which is an important economy sector of the region and of national economy. Due to existing infrastructure equipment and high density of population and localizations of industry in region, Slaskie Voivodeship is a perfect background for testing and full-scale implementation of innovative solutions
2. Medicine - which is one of the factor differentiating the Slaskie Voivodeship from the rest of the country for its perfection in numerous fields of prevention, therapy, rehabilitation and recognition of medical engineering products
3. Information and communication technologies - that have a horizontal meaning for technological, economic and social development thanks to the increase of knowledge accessibility and enabling the creation and distribution of goods and services.

RIS opens development perspective for SME's, research and development institutions, support organizations as well as organized and individual users of innovations focused on specific topics, regardless of field. Key is the ability to join the value chains characteristic of particular thematic solutions, both on the regional and most importantly on the global scale.

Silesian Ecosystem of Innovations is a structured and organized activity with identified priorities for the overall growth:

1. Growth and internal integration of innovative potential of the region.
2. Creation of intelligent markets for technologies of the future.

As a strategic areas of interventions following had been identified:

1. Creation of knowledge and innovation communities
2. Development of networks of innovative public services
3. Modern infrastructure as a base for scientific and R+D activities
4. Inclusion of SME into the global innovation chains
5. Talent creation and competence building as a driving force of all innovative processes in the region

During our consultations, we considered both documents - national and regional innovation strategies. On the basis of the questionnaires filled by chosen stakeholders, we find links between smart specialization strategies and activities that will be provided in FabLab Bielsko-Biała. All of them are described later in this report.



2. Regional consultations

2.1 Stakeholders who participated in the consultations

As a result of internal consultations, main stakeholders, who in our opinion can have impact on the actions carry out by FabLab Bielsko-Biała and with whom laboratory can potentially cooperate in future in line with realization of RIS assumptions, have been chosen. Those are:

1. Local authorities - The Department of Strategy and Economic Development of the City of Bielsko-Biała
2. Multinet Infrastructura - ICT company
3. Academic Business Incubator - ATH Bielsko-Biała
4. Electrical, Electronic and Mechanical High School
5. Startup Podbeskidzie Association
6. University of Bielsko-Biała
7. Faculty of Mechanical Engineering and Computer Science of University of Bielsko-Biała
8. Technical and Commercial High School
9. InnoCo - strategic consulting (Regional RIS consultant)
10. Innovation and Technology Transfer Centre
11. University of Economics in Katowice
12. Marshal Office of Slaskie Voivodeship.

All of them participated in the RIS consultations, for the purposes of this report. After making analysis of their survey answers, we can indicate the main directions of FabLab development, institutions to cooperate with and how activity of FabLab could contribute to create a local innovation ecosystem and thereby to realization of regional development strategy.

Template of the survey is attached to the Consultation Report.

2.2 Key area of changes - in connection with FabLab Bielsko-Biała

According to the answers of the survey respondents, the key areas in which FabLab should take actions in, are in line to those indicated in national and regional innovation strategies and also to local smart strategies, characteristic to south sub-region of Slaskie voivodeship - Podbeskidzie.

Consulted parties paid attention to the possibility of use actions provided by FabLab Bielsko-Biała in medical industry (use of 3D printing, f. ex. modelling of bone structure and their three-dimensional printing in the purposes of post-traumatic reconstruction) and also in terms of ICT.

It was also indicated the possibility of use new composite materials, support process of modelling, prototyping and testing, in range of automation and robotics as well as smart creative technologies, including design.

Besides regional and national specializations indicated above, respondents also point out local specializations, where actions provided by FabLab could be useful. First of all, it was automotive sector, which plays a key role in the sub-region, but also air industry and recovering after a temporary pause - but historically connected to the city - textile manufacture.



2.3 FabLab specialization in line with regional innovation strategies

- involving new actors

As it was already mentioned above, the main goal of RIS is to create an innovation ecosystem. From the economic point of view ecosystem is treated as economic community supported by cooperating organizations and individuals - organisms of the business world.

The stakeholders chosen has indicated components - institutions, enterprises, associations - with which, in their opinion, FabLab should cooperate and the aspects of this cooperation that should be strengthen in order to increase efficiency.

Generally, it can be divided in following groups:

- institution connected with broadly defined education and scientific sphere - schools, universities, education and training institutions, research centres, career counselling;
- enterprises and institutions in field of promoting entrepreneurship and innovation - laboratories, companies concentrated in technological clusters, start-ups, SME's, business environment institutions, business incubators, technological parks;
- public authorities - government administration, local authorities, education management.

Stakeholders have also indicated particular companies from the region, with which FabLab should cooperate, such as Bosmal or Evatronix.

If FabLab cooperate with all of those institutions, it will be the best example of local innovation ecosystem creating, in line with assumptions of RIS.

2.4 FabLab as an efficient tool for decreasing regional departies

- how FabLab can contribute to RIS realization?

Selecting the appropriate directions of development, in line with RIS and on the base of the experience in supporting and creating innovative ideas gained so far, activity of the FabLab can contribute to eliminating development differences between the sub-regions.

However, to make it possible, the idea of FabLab should be disseminate properly and as many stakeholders as possible should be involved.

An important aspect of the promotion of FabLab will be the dissemination of its activities to the widest range of recipients. For this purpose, an efficient Internet and social media marketing will be useful.

Cooperation with appropriate institution - as indicated above, both local and national, joint organization of open workshops, participation in thematic meetings and events, conducting pilot projects with the use of FabLab infrastructure, exchange of good practices both local and abroad - those are main tasks which FabLab has to fulfil to became a competitive innovation centre.

Moreover, FabLab should be open to everyone. There should be organized courses of the practical use of 3D design, both for children and youth and for students and lecturers, to promote vocational training in this direction.

Courses of 3D design should also be available for entrepreneurs, who can contribute increase of the competence in broadly defined planning, design and prototyping, before providing the product on the market.



In the FabLab offer, besides those mentioned above, should also be training courses for all participants of local innovation ecosystem. For Local authorities, showing how 3D design can be used in municipal economy and prototyping spatial plans and for R+D companies - special, dedicated offer about how can they use FabLab infrastructure in their activities.

To all those assumptions to be feasible, both equipment that will be bought in the FabLabNet project and all hired staff, must be at the highest level.

3. Summary and recommendations

As pointed out in the upper sections, in our opinion and in the opinion of our stakeholders, FabLab can support and push forward some of the elements of regional and national smart specialization strategies. With its interdisciplinary, open access and open knowledge approach it is exactly this kind of network and platform described in RIS as main element of innovation ecosystem.

A place like FabLab Bielsko-Biała as a collaborative network that provide access to new possibilities for production and innovation, can also support the vision of the region with optimal conditions for innovation potential.

According do regional S3 strategy, the ambition of the region should be focusing all main players - science, business, institutions of business environment, NGOs and local authorities. FabLab, where all those institutions could cooperate, can contribute to the accumulation of high-quality competences. Furthermore, FabLab can overcome the gap between the ability to create ideas and their implementation and commercialization.

Besides, the internationalization of good practices and long-term cooperation, in connection with FabLaBNet project, is not to be underestimated.

Summarizing, the main objectives to achieve by FabLab Bielsko-Biała - in our opinion and in reference to the survey answers of stakeholders - are:

- increasing access to knowledge and enabling the creation and distribution of goods; actions increasing the level of awareness - workshops and trainings
- participation in local innovative networks and management of smart markets
- building long-term cooperation in the area of research, development and innovation between academic sector, business, industry, public sector and civil society
- activating public and private sector, to enhance the market potential of products and services by supporting the implementation of innovation using f. ex. design
- initiating actual design projects related to the implementation of innovative products and services.

CREATING LINKS TO SMART SPECIALISATION STRATEGIES AND RELEVANT POLICY PLAYERS

D.T.1.2.1

version 01

Series of Consultations / PP7

02 2017





1. Introduction

One of the aims of FabLabNet project is for each partner to analyse its own local innovation ecosystem and to define a strategy which will give a long-term perspective for the innovation potential and specialization that fablabs/makerlabs can fulfill on country level. As a first step towards defining this strategy, Roglab started in November 2016 a series of consultations in order to start active networking with the Slovenian Smart Specialization Strategy (S3) stakeholders: public authorities, innovation agencies, etc. This paper presents a synthesis of these consultations and is available for any fablab/makerlab manager in Slovenia to help him define its own strategy and optimize its role in the Slovenian innovation ecosystem.

2. Methodology

As a preliminary phase, we analysed the Slovenian S3 to find the mapping areas between fablabs activities and Slovenian S3 (*cf. report DT1.1.2 Mapping local ecosystem challenges of Slovenia*). The first consultations we conducted was therefore with the authors' team of the S3 policy, from the Slovene *Government Office for Development and European Cohesion Policy (GODECP)*, to know their point of view about the role of fablabs in the innovation ecosystem in Slovenia. They confirmed that the activities of fablabs are right in line with the S3, since it concerns new technologies, youth and education. They encouraged us to link with other fablabs. We also met two representant of the *Technological Parc of Ljubljana*, which includes a startup incubator. They would be interested to have a network of Slovenian fablabs as a partner. We also met with the Regional Agency of development *Ljubljana Urban Region*, who also is part of an Interreg project. Besides these formal consultations, we had several informal exchanges with our traditional partners (others makerspaces from Ljubljana, our AP in FabLabNet, Faculty of Technical Sciences, Faculty of Electrotechnics) and we decided to gather all these stakeholders in one single consultations, to debate of the roles of fablabs/makerlabs within the Slovenian innovation ecosystem.

3. Consultation

- Title of the event: “Role of fablabs in the (Slovenian) innovation ecosystem”
- Location: Ljubljana, Ljubljana City Museum and Galleries
- Date: 31.01.2017, 10:00 - 13:00
- Number of participants: 20
- List of participants:

Name	Present	Organization	Type of stakeholders
Marko Hren	Yes	Government Office for Development and European Cohesion Policy	National/Local policy makers
Eva Sever	Yes		
Mojca Štepic	Yes	Ministry of Economic Development and Technology	
Staš Ravter	Excused	Ministry of Culture, Directorate for creativity	
Aleš Ojstersek	Invited	Ministry of Education, Science and Sport	
Borut Campelj	Invited		
Nada Pozar	Invited		
Marija Fabčič	Excused	City of Ljubljana	
Uroš Grilc	Yes	City of Ljubljana	
Barbara Bregar-Mrzlikar	Invited	CEED Slovenia	Development agency / clusters / hubs
Tone Sagadin	Excused	Toolmakers cluster of Slovenia	
Anja Zorko	Excused	Museum of Architecture	
Marko močnik	Excused	Technologic parc Pomurje	
Mateja Prinčič	Yes	Technologic parc Ljubljana	



Jure Jamšek	Yes	Long Life Learning Center Cene Štupar	Educational organizations
Majda Jurkovič	Yes	Primary School Tone Čufar	
Karin Košak	Yes	Faculty of Natural Sciences in Engineering	
Deja Muck	Yes	Faculty of Natural Sciences in Engineering	
Luka Mali	Yes	MakerLab Ljubljana, Faculty of Electrotechnics	Fablabs/makerlabs
info@kreatorlab.si	Invited	Kreator lab	
Petra Milič	Yes	Zavod Kersnikova	
Maja Sande	Yes		
Barbi Seme	Yes	Zavod 404	
Igor Trupina	Yes	Poligon MakerLab	
Luka Frelj	Invited	Ljudmila Art and Science Laboratory	
Igor Križanovskij	Invited		
Tomaz Breznik	Yes	E-post Slovenija (EPPS)	Private companies
Ivan Turk	Yes	RPS	
François Friderich	Yes	RogLab, Museum and Galleries of City Ljubljana	FabLabNet - PP7
Tomo Per	Yes	RogLab, Museum and Galleries of City Ljubljana	
Meta Štular	Yes	RogLab, Museum and Galleries of City Ljubljana	
Blaž Peršin	Yes	Museum and Galleries of City Ljubljana	



3.1. Meeting's minute:

Blaž Peršin and Meta Štular (Museum and Galleries of City Ljubljana)

Blaž Peršin presents RogLab as part of the Museum and Galleries of City Ljubljana (MGCL). MGCL cares indeed about all problematics related to the city and one of them is »how should we live in the city in the future«. Production centres, in its most modern form, must be brought back to the cities.

Meta Štular (RogLab / Museum and Galleries of City Ljubljana):

RogLab has been established in 2011 in this perspective, while the City of Ljubljana had been focusing on the revitalization of the former bicycle factory Rog in the frame of a project in partnership with MGCL. RogLab is actually a prototype of what could be this future Center Rog. Last year, RogLab has joined the FabLabNet project, which enables 9 fablabs across central Europe to look for solutions how to foster grassroots innovation. Three pilots programs will be implemented to test the solutions on the three target groups: local community, business area and education sphere. Thus any enthusiast or young entrepreneur in all partner countries will have an opportunity -if selected- to concretize their ideas via a mentorship program of fast-prototyping. Besides, In Italy and Hungary, a coaching program will enable to bring selected prototypes toward business implementation. Four selected concepts and prototypes will be then presented at the pioneer festival in Vienna. Finally, an educational/training portfolio will be jointly designed by all the partners and each Partner will implement a local pilot in partnership with educational institutions. Besides these 3 pilots, several tools will ensure sustainable effects to the project: "fabboxes" (fablab in a box that can be used at any remote places for educational purposes) "Fabevents" (sort of maker-faires), high Level Training for adults and an online platform dedicated to fablabs managers and users. This project is therefore a great opportunity to create a European network of fablabs, while the concept of fablabs only started to be implemented 5 years ago in Europe.

Several fablabs/makerlabs have been coexisting in Slovenia for few years, each having its own specificities. Several initiatives have been already jointly organized. Some way of financement exist, though it is rarely namely dedicated for fablabs/makerlabs. Similarly, in the Slovenian Smart Specialization Strategy (S3) there no direct mention of fablabs/makerlabs, though 4 of the 9 areas of priority of the S3 overlap with fablabs/makerlabs activities.

How fablabs can foster the comeback of the productions to cities? What can be their economical, social and cultural impact? What role can fablabs play within the regional innovative ecosystem? These are the problematics that need to be debated during this meeting.

Marko Hren (Government Office for Development and European Cohesion Policy):

One of the ambitious of the Government Office for Development and European Cohesion Policy (GOEDCP), says Marko Hren, is to increase the entrepreneurial and innovation culture in Slovenia. All the following levers have their function in the innovation ecosystem, from kindergartens to companies, within the classroom and all what happens outside of it. Here is the list of all financial tools that are at fablabs disposal:

- From Ministry of Economy, the investment efforts that were made last year to foster learning environments, will be continued this year;
- The Ministry of Culture is preparing a project of Centre of Creativity, led by the Museum of Design and Architecture. All creators, entrepreneurs, start-ups can have their place in this platform for which a big amount of money is reserved;



- On the other side, at the same Ministry, a *Platform for modern investigative art* is in preparation with a similar amount of money;
- A Centre of Sciences -a similar concept than Museum of Science in Trento, the lead partner of FabLabNet- is also planned to be established. The existing House of experiments will play an important role in it.

All these processes converge and are in a phase of “concept cleaning” for the investments to be optimal and effective. Effective investments means that it will be dedicated to structures with equipment’s and learning contents which will be full time opened (16 hours a day, 350 days a year). Concerning target group, the risk is to oversize. Slovenia is small. Some projects have already failed in Slovenia, because of oversizing. People around this table can help for this phase of “concept cleaning”, so that there won’t be any issue concerning the implementation. [Ed: How?]

Concerning the S3, a call was open concerning each of the 9 areas of priority, which just closed. We got 9 candidates. Partnerships are around 40-150 actors. Here there is room for any institution to bring its competences to formally join any of these teams, even if they were not part of the application process. During the first half of this year, these 9 lead partners must define their action plan: concrete activities with concrete deadlines. This platform is also available for fablabs/makerlabs, it is officially established and it will facilitate the work of the GODECP. Fablabs/makerlabs are encouraged to go to these lead partners and ask them for any national matter concerning their related area.

The ambition of this strategy is to build, influence and embed the ecosystem for business and innovation for the generations to come.

Magda Jurkovič (Primary School Tone Čufar - Associated Partner of FabLabNet):

Tone Čufar, as a primary school, is part of the RogLab’s activities. Among all the teachers informed about RogLab’s program, only two decided to let them enter into their educational sphere, for it concerns competences that teachers don’t have: new technologies. Children are very enthusiastic about these workshops. They go by groups of 12. Nothing is charged to the school or the parent. All institutions that organize such outsourced workshops should be aware that teachers have to present in August the details of their annual plan, to get it accepted and financed.

- **Additional comment of Meta Štular (RogLab):** It is indeed important to include the school in the phase of development of the program. RogLab actually learned a lot from this cooperation. RogLab cooperate also with the *Lifelong Learning Cene Štupar* within FabLabNet. There is a real need for adult education in this field of fablab technologies, as it can be seen by the number of unemployed people going to RogLab’s trainings.

Igor Trupina (MakerLab/Poligon):

Igor Trupina expresses his gratefulness for all investments that the state foresees in this field and wishes that there would be more school like Tone Čufar. He wishes as well that there would be more transversal projects which would include several schools, high schools and Faculty. Fablabs/makerlabs should be more visible for schools as an option for partnership and for children as a center for concretizing ideas. Maybe by getting the Ministry of Education involved?



Deja Muck (Faculty of Natural Sciences in Engineering):

A revolution, or at least an accelerated evolution, is on-going. From Deja Muck's experience with presenting her book about 3D printing at various schools, it is clear that there is a real interest from teachers and pupils concerning these new technologies. The problem is that it is very hard to integrate them into the existing curriculum. The *Faculty of Natural Sciences in Engineering* (FNSE) has a wish to open a maker-space, which would be dedicated for scholars and students. FNSE is included into one of the project of the S3, concerning developing new materials for 3D printing. Researchers are working on this project but those who can make a change within this project are students. Deja Muck expressed her positive feeling about fabLabNet and her wish to be informed about its development. Thematic, activities, workshops shall be announced in advance. Managing such a project, so that we build a synergic network, so that we foster this creativity potential present in school, so that everyone gets from it, is a big challenge.

Tomaž Brežnik (Electronical services of post Office Slovenia):

Electronical services of post Office Slovenia will soon offer some new 3D printing services: an online service of 3D-printing targeted to young entrepreneur and startups for fast prototyping and a showroom in Ljubljana exposing items printed with the latest technologies (SLA where schools and tourists will have the possibility to discover this technology. These two services will be available within a month or two. A third service, planned for after a year, is an online platform to link providers of 3D-printing services and their potential customers. Here fablabs could find an opportunity to expand their influence.

Luka Mali (MakerLab Ljubljana, Faculty of Electrotechnics, University of Ljubljana):

At the Faculty of Electrotechnics (FE), young teachers realized that the whole studying process is too much unidirectional. This is not efficient, especially for the best individuals. For this reason the fablab MakerLab has been established within the faculty. MakerLab offers a more convenient frame to develop the potential of certain students. There, most motivated student work on interdisciplinary projects. Teachers become mentors. MakerLabs offers them equipment and space. For Luka Mali, this is the future way of teaching. The problem is that it requires 5 times more human resources. Focusing on students is necessary though it is not enough to make this change. An effort of education has to be done on high-school's teachers, for they are key influencers on young's carrier and motivation. FE has thus started to conduct workshops for teachers in the field of Internet of things. FE also offers free workshops for students, also from other faculty. These workshops are mentored by FE students. This is a way to motivate them and to make this system sustainable.

Karin Košak (Faculty of Natural Sciences in Engineering):

How new technologies and creative industry can create new jobs for our students and children? The school system is very demanding for children, yet too much theoretical. There are absolutely not enough of these interdisciplinary projects in schools. There are also not enough of knowledge about business, marketing and finance. Students from the Faculty of Natural Sciences in Engineering often work on projects that lead to a prototype. Then they don't have sufficient knowledge to enter the market with it or even about how to run a business. According to Karin Košak there is today a great poverty among the creative professions: designers, architects, culture facilitators. Some public effort, maybe from the ministry of Economy, should be conducted to help these young graduated during the first year.



Maja Sande (Zavod Kersnikova):

At Zavod Kersnikova, which conduct various program focused on children related to new technologies with an artistic way of thinking, they also noticed, as it was already mentioned by others, that the school system is very closed and very much focused on marks, on success to Matura (Ed: high school's final exam). There is a great interest for the programs that ZK offer. Workshops are full in an hour. They don't have enough capacity to fulfil that demand and they are calling for teachers and private companies to join and find a solution with them. Mentors are hard to find as well, for they have to have a wide spectre of competences. The vision of ZK is to train the children to become mentors, so this knowledge spreads out and to include private companies in the process.

Barbi Seme (Zavod 404):

Zavod 404, which established 3 years ago, shares the same observations. They don't have enough capacity and resources to cope with the demand on children side. Their 3 level workshops related to fablab technologies are always full. There is a need to train new mentors. One of ZK goals is to make children autonomous enough to conduct their project themselves, realized a prototype and be able to promote it in order to get investors.

Mojca Štepič (Ministry of Economy and Technology):

Mojca Štepič shares the observations of others that there is not enough of entrepreneurial knowledge in schools, for she have experience in running workshop on this subject at schools. The subventions for fablabs which were engaged last year was a response of the market demand. Some companies from certain domain (wood, energy, etc.) at regional or local level could not find human resources with adequate competences. Three schools centres were supported in this way. The next subvention for fablab will be available in February and open to public and private structures. The aim is to support fablabs from all Slovenian regions.

Meta Štular / François Friderich (RogLab):

A mailing list will be established to make a step toward this network of Slovene fablabs. Within the project FabLabNet, an online platform will be set up, where will be centralized all materials from the project (research studies, best practices, video tutorials, etc.). One of the aim of the FabLabNet project is to share all outputs and make them available for all stakeholders.



4. Conclusion / Key statements:

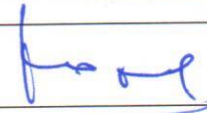
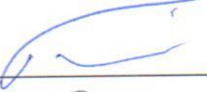

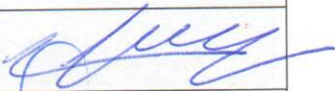

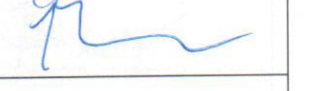
- Some massive investments are in preparation at the state level to support activities related to education, new technologies, and any initiatives that fosters innovation;
- Fablabs/makerlabs have definitely their role in this process, and can help in the phase of “concept cleaning”;
- The implementation of S3 is now launched. Nine lead partners - one for each areas of priority- are at disposal of fablabs/makerlabs for any opportunity of cooperation;
- There is a big demand from the new generation for this way of learning through fablab, through project works, through new technologies. They seem also to be an efficient way of evangelization”;
- Many stakeholders wish the scholar system would be more flexible to enable such programs to be included in the curriculum;
- Including teachers in the process of preparation of fablabs program (workshop, projects) is appreciated by schools. Teachers must present each year in august their plan concerning outsourced activities.

POSVET IZDELOVALNIŠTVO IN INOVACIJSKI EKOSISTEM

PROJEKT FABLABNET - LISTA PRISOTNOSTI

Mestni Muzej Ljubljana, pedagoška učilnica, 31.01.2017, 11h00-13h00

Št.	IME IN PRIIMEK	ORGANIZACIJA	PODPIS
1.	Jerneja Batič	Mestna občina Ljubljana	
2.	Tomaž Breznik	Elektronsko pismo Pošte Slovenije (EPPS)	<i>Breznik</i>
3.	Uroš Grilc	Mestna občina Ljubljana	<i>Grilc</i>
4.	Marko Hren	Služba vlade za razvoj in evropsko kohezijsko politiko	<i>Hren</i>
5.	Jure Jamšek	Javni zavod Cene Štupar	<i>Jamšek</i>
6.	Majda Jurkovič	OŠ Toneta Čufarja	<i>Majda Jurkovič</i>
7.	Karin Košak	Naravoslovnotehniška fakulteta, UL	<i>Košak</i>
8.	Luka Mali	MakerLab Ljubljana, Fakulteta za elektrotehniko, UL	<i>Mali</i>
9.	Petra Milič	Rampa Laboratorij, Zavod Kersnikova	<i>Milič</i>
10.	Deja Muck	Naravoslovnotehniška fakulteta, UL	<i>Muck</i>
11.	Tina Pezdirc	Regionalni center kreativne ekonomije	<i>Pezdirc</i>
12.	Mateja Prinčič	Tehnološki park Ljubljana	<i>Prinčič</i>
13.	Maja Sande	Zavod Kersnikova	<i>Sande</i>
14.	Barbi Seme	Zavod 404	<i>Seme</i>
15.	Eva Sever	Služba vlade za razvoj in evropsko kohezijsko politiko	<i>Sever</i>

16.	Mojca Štepic	Ministrstvo za gospodarski razvoj in tehnologijo	
17.	Igor Trupina	Poligon MakerLab	
18.	Ivan Turk	RPS	
19.	Peter Wostner	Služba vlade za razvoj in evropsko kohezijsko politiko	
20.	Anja Zorko	Muzej za arhitekturo in oblikovanje	
21.	François Friderich	RogLab, Muzej in galerije mesta Ljubljane	
22.	Tomo Per	RogLab, Muzej in galerije mesta Ljubljane	
23.	Meta Štular	RogLab, Muzej in galerije mesta Ljubljane	
24.	Blaž Peršin	Muzej in galerije mesta Ljubljane	
25.			
26.			
27.			
28.			
29.			
30.			

CREATING LINKS TO SMART SPECIALISATION STRATEGIES AND RELEVANT POLICY PLAYERS

D.T.1.2.1

Series of Consultations / PP8

Version 1

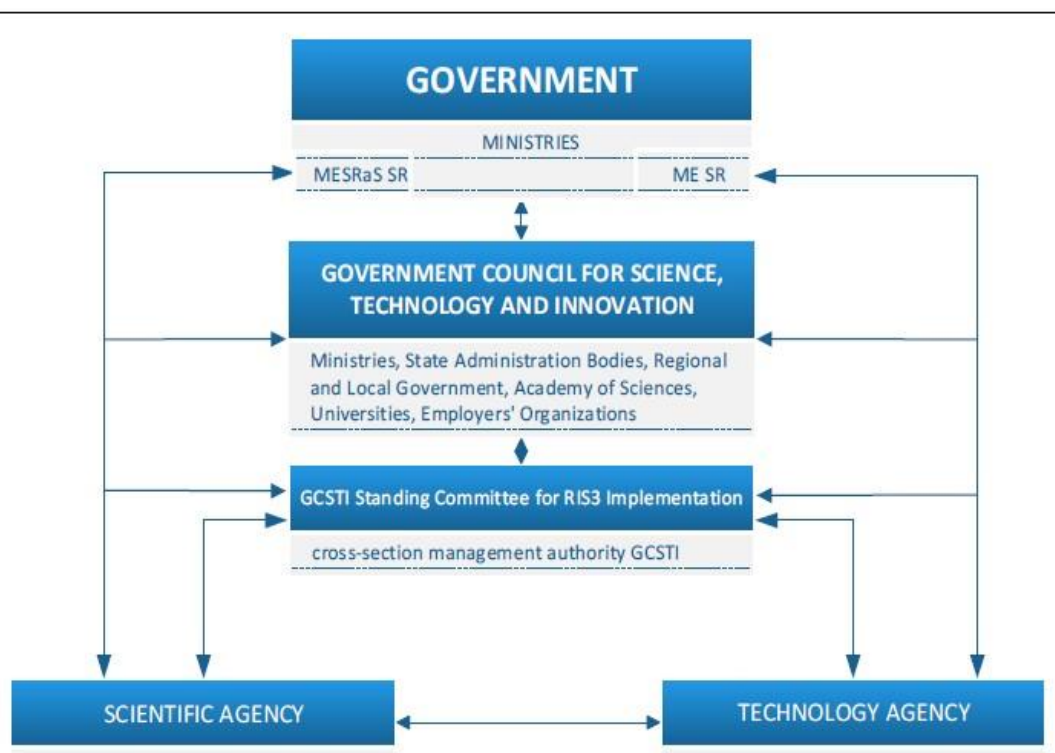
05 2017



1.INTRODUCTION OF SLOVAK RIS3

RIS 3 management

Organisational scheme of institutional management of Strategy of smart specialization implementation until 2020:



Scheme 1: Organisational scheme of institutional management of RIS3, RIS 3 p.56,

Note: Technology Agency - the role is fulfilled by the Slovak Innovation and Energy Agency (SIEA)¹

RIS 3 stakeholders and ecosystem

The innovation ecosystem is described in RIS 3 by characteristics of the innovation environment in Slovakia, evaluation of innovation performance, funding of research and innovations and tools of funding of research and development as well as by characteristics of representatives of innovation ecosystem, which are (p.21-38): Business sector and innovations, represented mainly by Small and medium enterprises which presents 99.9% of Slovak enterprises and creates more than 70 % of the jobs, large companies, clusters (mainly 2 types of clusters are formed in Slovakian regions, based on bottom up approach: organizations - in tourism and technological cluster organizations), venture capital and incubators. On the other hand, The RIS 3 describes the research and development potential of the Slovak republic represented by the Slovak

¹ <https://www.siea.sk/siea-technologicka-agentura/>

Academy of Science, Universities, Sectoral research organizations (established by Slovak ministries), Business R&I institutions.

The main stakeholders from point of view of FabLab Bratislava are:

- Governmental institutions
- Municipalities
- NGOs
- Interest groups (focused on youth, creativity, scientific skills, improving quality of life)
- Universities
- Innovative companies
- Innovation support organizations.

IDENTIFIED AREAS OF THE SLOVAK SPECIALISATION IN RIS3: ²

AREAS OF SPECIALISATION FROM THE POINT OF VIEW OF AVAILABLE SCIENTIFIC AND RESEARCH CAPACITIES:

- Research of materials and nanotechnology,
- Biomedicine and Biotechnology,
- Environment and agriculture,
- Sustainable energy.

AREAS OF ECONOMIC SPECIALISATION:

- Automotive and mechanical engineering industries
- Consumer electronics and electrical equipment
- ICT and Services
- Production and processing of iron and steel

PROSPECTIVE AREAS OF SPECIALISATION:

- Automation, Robotics and Digital Technology,
- Processing and increasing the value of light metals and their alloys,
- Production and processing of plastics,
- Creative industry,
- Increasing the value of domestic raw material base.

RIS3 Strategic objectives:³

1. Deepening integration and embeddedness of key major industries increasing local value added through the cooperation of the local supply chains and turning local supply chains into embedded clusters,
2. Increased contribution of research to the economic growth via global excellence and local Relevance,
3. Creating a dynamic, open and inclusive innovative society as one of the preconditions for the increase in the standard of living,
4. Improving the quality of human resources for an innovative Slovakia.

2. CONSULTATIONS AND FABNET EVENT (SK)

Introduction:

The consultations were conducted during the FabNet Event to selected participants Fablab employees prepared and outline/agenda for discussion based on Slovak smart strategy.

Date: November 3th, 2016

Location: University Science Park of Comenius University, Ilkovičova 8, Bratislava

2.1 SUMMARY OF THE FABNET EVENT

The Fabnet event as defined in AF is an event for building links to S3 Strategies through engagement of policy players (public authorities, innovation agencies) to help define how Fab Labs can contribute to S3 strategies via thematic specialization. The event is about active networking with S3 stakeholders: public authorities, innovation agencies, etc.

The FabNet event in Slovakia was organized as the 2nd Anniversary of the establishment of FabLab in Bratislava and this offered a huge opportunity to invite mainly the S3 stakeholders as policy makers, representatives of municipalities, state, universities, researchers, SMEs and on the other hand the creators and visitors of fablabs, as well as the nearby project partners. The event offered opportunity to bring together various representatives of S3 strategy at one place.

The event was composed of 3 main parts:

Part 1: Speeches of high representatives of innovation and R&D area:

- J.E. p. Christophe LEONZI; French ambassador in the SR
- prof. RNDr. Karol MIČIETA, PhD.; rector of the Comenius university in Bratislava:
- prof. Ing. Pavel Čičák, PhD.; vice rector of the Slovak Technical University
- prof. RNDr. Ján TURŇA, CSc. Director general of SCSTI

The 2nd part of the event was the presentation of Fablab and its equipment to small groups (10 people) and simultaneously the projects of creators.

The 3th part was dedicated to consultation of FabLab and SCSTI employees and with selected representatives on RIS and Fablab.

Results:

The event was attended by more than 70 participants and was accompanied by exhibition of products and creators who meet in Fablab and craft their ideas there. At the event the project FabLabNet was presented in speech of the director general of the Slovak Center of Scientific and Technical Information prof. Turňa. The project was further disseminated by means as posters, leaflets, as well as personal discussions to guests and stakeholders of S3. The event was attended by representatives of policy makers (representatives of ministries and municipalities), innovation ecosystem and business supporters (as co working support organization, mentors, investors, etc...), educators and organizations focusing on development of skills of youths, research organizations, high representatives of academia, researchers, small and medium business.

The main benefit of the event was an opportunity for networking of different sides of the S3 strategy stakeholders: policymakers, universities, researchers, talented students, business supporters, municipalities, representatives of business sector (SMEs). The Slovak Center of Scientific and Technical Information would like to try to make this event regular since organization during the anniversary offers room to share and exchange news, possibilities to cooperation, expectation of the stakeholders from Fablab. Anniversary is a good opportunity to bring different interest groups together and involve them into discussion on their needs and learn their expectations.

Very important is, the event offered also room for presentation of Fablab outputs and works to main stakeholders for better understanding of fablabs and so potential incorporation/usage of roles of fablab not only in S3 implementation but also in other areas of society and industry.

2.2 CONSULTATIONS DURING THE EVENT

Consultation to:

1. Mr. Jan Masaryk - IoT Bratislava

IoT Bratislava is an informal community of professionals promoting benefits, use cases, solutions and technologies from the world of Internet of Things in the CEE region.”²

2. Mr. Peter Chudy - CE Investment

² <http://www.meetup.com/IoT-Bratislava/>



3. **Mr. Maroš Schmidt - Slovak museum of design**
4. **Mr. Peter Pišteň - vicedean of Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava**
5. **Mr. Igor Kollárik - NGO vedecká hračka**

A scientific toy is a voluntary association, which aims to develop a leisure interest, technical and artistic activities, particularly for children and youth in the field of design, development, manufacturing and promotion of scientific toys and games with an emphasis on their use in education.³

6. **Mr. Jalub Šimek - Nadácia Pontis (foundation)**
7. **Mr. Ján Pernecký - Rese Arch (NGO supporting architectural theory and education in the region of the Central Europe)⁶**
8. **Mr. Vlado Vaculík - Connect (company focused on coworking and business support)**
9. **Mr. Marin Kuštek - Rada mládeže Bratislavského kraja (Council of Youth Bratislava region)**
10. **Mr. Svoboda, Mr. Ďuriš - 3 dimenzia**
11. **Mr. Martin Benko - Slovenský hydrometeorologický ústav (Slovak Hydrometeorological Institute)**
12. **Ms. Dagmar Cagánová - Faculty of materials science and technology in Trnava, Slovak University of Technology in Bratislava**
13. **Ms. Zuzana Lajgútová - Alphaset (private company)**

Purpose of Consultation: Creating Links to S3s and relevant policy players within innovation ecosystem

Define thematic specialisation and “areas of change” of your S3 and link it to your national or regional FabLab.

AGENDA/OUTLINE OF CONSULTATION LEAD BY CONSULTANTS:

**THE CONSULTATION WAS FOCUSED ON PRIORITY AREAS OF COOPERATION TO FABLAB
BRATISLAVA, THESE AREAS ARE WERE PRESELECTED BASED ON S3 STRATEGY**

1. **Workshop and personal consultation/guidance on digital production equipment for people of all ages:**
 - CNC milling and lathe
 - 3D printer
 - Laser cut vinyl and machinery
 - Laboratory electrical machinery (Arduino ...)

³ <http://www.vedeckahracka.sk/vedhracka/ovh.html>

⁴ <http://www.rese-arch.org/about/about/>



- Robotic arm
- Electronic embroidery machine - for creative industries (Lilypad Arduino-...)
- Programming tools for modelling 2D as well as 3D models Robotics and Digital Technology

2. Transfer of the best practices - the best practices from EU Member States participating in the project Fablanet

3. Technology transfer and protection and of intellectual property

- Identification and evaluation of innovations, assessing the novelty and uniqueness of the idea and its competitiveness
- Marketing strategies of innovation and selection a process for protection of innovation.
- Presentation of supporters of start-ups and incubators in Slovakia

4. Development of human resources

- Extension of the formal and informal education
- Support of development of digital skills in less developed regions
- Technologies and services to active living and aging
- assist in achieving a positive effect and addressing societal issues, such as: involvement of young people in changing circumstances, aging of the population and quality of life, marginalized groups and social inclusion.

5. Support for start-up and spin off businesses

- Rapid prototyping

2.3 Main outcomes from consultations

The consultation group were asked to indicate where they see the possibilities for cooperation to FabLab, so FabLab can support their innovation and innovation support activities. The participants were introduced with machines available in FabLab and asked if they would see opportunities for cooperation. Most of participants choose the machines that are most usable for them and their community, overall the participants see the opportunities for cooperation in workshops and personal consultation/guidance on work to various machines as CNC milling machine and lathe, 3D printers, tools for programming and modelling of 3D models, design and production of advertising materials, separation of the future - forecasts shape the future through historical continuity shapes, teaching workshops focused on 3D software and digital fabrication, design and research workshops.

Possible cooperation is also in developing contacts with universities focused mainly on technical and design areas in Slovakia and abroad, identification and evaluation of innovations, assessing the novelty and

uniqueness of the idea and its competitiveness, presentation of supporters of start-ups and incubators in Slovakia.

Also the possible area of cooperation is in areas as: development of human resources by expansion of non-formal education, use technologies and services for active life and aging, population aging and quality of life, local support activities, and support of start-ups and spin offs by rapid prototyping.

Most of partners who were involved in consultations were also interested in transfer of best practices from other EU participating countries in the project FablabNet.

For instance, Slovak museum of design also mentioned the Fablab services could be useful for future cooperation in prognosis of shapes of the future based on historical continuity of the shapes, e.g. development of software for this. Vice dean Mr. Peter Pišteš of the Faculty of Informatics and Information Technologies STU in Bratislava has proposed the following possibilities for cooperation to the Fablab

Bratislava: development of a new course which would be focusing on work to technologies placed in Fablab, possible cooperation with automotive company, Open source material could be used for teaching in the Slovak Republic and CC - license to the library Fablabnet - where also possible documentation about Robolab4 projects could be placed. Lectures at FabLab for Robolab could be organized. NGO vedecká hračka (in English: scientific toy) also sees opportunity for cooperation in increasing of e-skills of preschool children in symbiosis with seniors. Rese Arch mentioned as the possible areas of cooperation to Rese Arch are workshops focusing on 3D software and digital fabrication, design and research workshops, lectures and conferences, networking, international activities, support of cooperation to architectural, artistic and design oriented universities and colleges in Slovakia and abroad. Possible cooperation is also in proposals, prototyping and producing artistic and design objects and minor architectures.

3. Opportunities for FabLab Bratislava contribution to RIS3

Based on desk research of RIS 3, overview of Fablab Bratislava activities and consultations we identified the possible inputs and areas where Fablab can contribute. FabLab can support the knowledge and skills in areas of use of technology of the 21st century by organizing workshops and personal consultation on use of different technologies that can be used for creating new products, support business by make the rapid prototyping accessible, contribute to development of human resources of all ages.

FabLab Bratislava key roles in RIS 3 can be characterized as:

- Focus on activities on cooperation to high schools, and introduction of technologies to young people,

⁵Project at Faculty of informatics and information technologies, Slovak University of Technology in Bratislava



- Be involved in activities focusing on active aging (workshops, tools development, etc...),
- Promote rapid prototyping, prototypes created in fablab
- Prepare or be involved in development of handouts; concepts for courses at colleges and universities as the R&D representatives see the potential of use of all technologies available in Fablab in teaching process.
- Fablab can create links between the scientific-research institutions and businesses.

The role of Fablab Bratislava can be used in following areas of RIS 3 Specialization:

AREAS OF ECONOMIC SPECIALISATION: Automotive and mechanical engineering industries, Consumer electronics and electrical equipment, ICT and Services. And also PROSPECTIVE AREAS OF SPECIALISATION: as Automation, Robotics and Digital Technology,

Therefore, we assume the Fablab can contribute to following strategic objectives and their partial objectives:

1. Creating a dynamic, open and inclusive innovative society as one of the preconditions for the increase in the standard of living

Partial objectives:

- a) Creating conditions for enterprises (especially SMEs) to increase their innovation capacities - by supporting creation of prototypes and rapid prototyping and so support the development of spinoffs and start-ups.
- b) Increase the share of creative industry in GDP creation - by providing space for creativity, production and crafting, as well as organizing workshops and lectures
- c) Increase the share of KIBS in total production of business sector - by providing the society with possibility to gain skills in work with advanced Technologies and develop their technical skills and creativity.
- d) Support for the implementation of various kinds of innovations into practice for the needs of society - by support of professional communities and NGOs providing them with space for cooperation, knowledge sharing and technical equipment.

2. Improving the quality of human resources for an innovative Slovakia.

Partial objectives:

- a) Increase the employability of secondary school and university graduates - by development of technical oriented skills and knowledge and social abilities as team work are required on job



market. Fablab offers: Development of skills to work to machines of 21st century and programming, learning work with new technologies, exchange of experience in community (facilitate team work), fostering the problem solving skills, possibility to foster creativity.

- b) Improve linkages between educational system and practice - by organizing workshops, and provide space for meeting of students and representatives of innovation system.
- c) Lifelong learning - by providing workshops, lectures, attend conferences and exhibitions to promote the use of new Technologies and well as foster creativity and development of technical skills in any age.

4. Signatures of consultation partners

Projekt/Project: FabLabNet, Interreg Central Europe Programme, CE 283

Aktivita/Activity A.T1.2, Výstup/Deliverable D.T1.2.1: Fab Net Event - konzultácie/consultations

Dátum/Date: 3.11.2016

Miesto konania/Place: Univerzitný vedecký park Univerzity Komenského v Bratislave, Ilkovičova 8, Mlynská dolina, Bratislava

.....

Name

Institution

.....

name

institution

.....

name

institution

.....

name

institution

.....

name

institution

.....

name

institution



CREATING LINKS TO SMART SPECIALISATION STRATEGIES AND RELEVANT POLICY PLAYERS

Deliverable D.T.1.2.1
RIS3 Series of Consultations
PP 9/ FLZG

Version 1
01 2017





T1 | Capacity Building and Networking of Fab Labs

A.T1.2 | Creating Links to Smart Specialisation Strategies and Relevant Policy Players

D.T.1.2.1 | Consultation Reports RIS3

Version:	1
Due Date:	31 December 2016
Delivery Date:	28 February 2017
Date and location of survey:	15.12.2016-28.02.2017/Online
Nature:	Report
Dissemination Level:	Internal
Lead partner:	FLCZ
Authors:	Roberto Vdovic (FLZG), Maja Gložinić (FLZG)
Internal reviewers:	/



Version Control

Version Date	Author	Author's Organization	Changes
15/02/2017	Roberto Vdovic	FLZG	First draft
18/02/2017	Melita Šobot	FLZG	Internal review
20/02/2017	Roberto Vdović	FLZG	Second draft
15/03/2017	Maja Gložinić	FLZG	Review
20/03/2017	Roberto Vdović	FLZG	Final report, review merge

Annexes

No	File Name	Title
I1	PP9_DT1.2.1_Apendix_I.PDF	Consultations minutes

Details

Deliverable Title	Consultation Reports RIS3
Deliverable Number	D.T1.2.1
Keywords	Smart Specialization, Stakeholders, Policy Players, Business, Local Community, Society

Executive Summary

WP T1 Capacity Building and Networking of Fab Labs includes activity A.T1.2. Creating Links to Smart Specialisation Strategies and Relevant Policy Players, one of deliverables being D.T.1.2.1 RIS3 Consultations Report. The scope of delivery is to make linkage with important policy makers and other players important for FabLab's local ecosystem. It is targeting different stakeholders in smart specialization. In case of the Croatian partner, three consultation meetings have been conducted. Consultations show that all stakeholders find FabLab activities interesting, and some of them emphasized the importance of community activities and social impact.

1. RIS3 Report for Croatia

1.1. National RIS3 and regional implementation structures

On March 30th, 2016, the government of the Republic of Croatia has decided to implement Smart Specialization Strategy for Croatia from 2016 to 2020, as well as an Action plan for implementation of Smart Specialization Strategy from 2016-2017. The strategy is one of the preconditions to apply for EU funds, and it includes goals and priority activities related to commercialization of research, development, and innovation.

This document is a response to the document from European commission - Strategy Europe 2020 and one of the key preconditions for drawing resources from European structural and investment funds within Thematic objective 1: Enhancing research, technological development and innovation of Operational program “Competitiveness and Cohesion” 2014.-2020.

1.2. Stakeholders in Croatia

The consultation meetings of Croatian PP were organized for different stakeholders:

Ministry of Economy, Entrepreneurship and Crafts; The City of Zagreb and Croatian Chamber of Commerce and CIRAZ. Details of these meetings are available in Appendix I.

The aim was to include stakeholders from different sectors, government and non-government, business, education, as well as incubators.

1.2.1. Croatian S3 objectives

The goal of Smart Specialization is transformation of Croatian economy and the increase of its competitiveness. This is to be achieved by concentrating knowledge resources and linking them to a limited number of priorities, which will in turn be beneficial both to public and to private sector. This initiative will help Croatia become a country of well-educated and skilled citizens capable of innovation.

In order to achieve that, Croatia needs to improve its innovation infrastructure, like technology parks and business incubators. Croatia also needs to address the issues of decreasing interest of potential students for STEM subjects, as well as high university drop-out rates in STEM areas.

In creating the smart skills, the main driving force of the S3 in Croatia will be the skilled workforce and the



ability to understand future skill needs, to translate them on time into relevant training programmes and to deliver training to relevant groups of population, both employed and unemployed.

2. Opportunities for FABLAB according the RIS3

FabLabs activities are in many respects complementary to the findings of the Smart Specialization document. Areas where FabLab could contribute to the S3 is through a wide array of activities, particularly the ones related to popularization of STEM, as well as STE[A]M areas. Another opportunity would be to contribute in education and training of different social groups, with special emphasis on socially vulnerable groups. In addition to the above, FabLabs can have significant impact in facilitating development of entrepreneurial mind-set from very early ages on.

3. Consultation Meetings - general information

From the beginning of 2017, FabLab has conducted several consultation meetings with different stakeholders: Ministry of Economy, Entrepreneurship and Crafts; The City of Zagreb and Croatian Chamber of Commerce and CIRAŽ. More details about the meetings are available in the Appendix I, but some general information is provided herewith.

FabLab team has delivered comprehensive presentations to the S3 stakeholders, providing them with information about the activities and mission of FabLab Croatia. The stakeholders were given insight into the maker movement as well as into the maker's philosophy, the availability of tools and know-how to anyone interested. FabLab explained the missions of the association, and its potential impact, such as Create@School, where different education levels are vertically linked, i.e. the older participants are helping the younger ones. The stakeholders were also familiarized with the fact that design thinking is used in these processes to help participants improve their STE[A]M skills.

FabLab presented its other goals and missions, such as Give-A-Hand, which aims at helping local community to use technology, as well as the mission to promote entrepreneurship among its members and the notion of global reach and global impact of the ideas.

The stakeholders were introduced to the FabLabNet project, and its goal to achieve greater linkage of FabLabs in Central Europe with the local ecosystems, in order to facilitate innovation and to contribute to the goals of S3 strategies through the dissemination of best practices across the region. Fablabs have the unique position as educational platforms which can successfully complement the traditional education systems. The stakeholders were also informed about the specifics of project, the pilots, milestones, mentoring & coaching programmes, as well as with the upcoming events and publications.

Appendix 1

Consultation I minutes

Stakeholders

Ministry of Economy, Entrepreneurship and Crafts focuses on development and promotion of Croatian economy, businesses and industries, as well as resource management, through policy-making, campaigns and facilitation of international collaboration. It focuses on innovation and application of modern technologies, and it encourages creativity and innovation in industry and trade.

Representatives at the consultation meeting:

1. Marija Rajaković (Directorate for Industry, Investments and EU Programmes and Projects, Head of Sector for Preparation and Implementation of EU projects), S3 appointee for Croatia
2. Goran Basarac (Policy expert - Smart Specialization Framework and R&D investments)
3. Tatjana Kovač Klemar (Head of SME Financial Support Sector at Ministry of Economy, Entrepreneurship and Crafts)

Location:

Ministry of Economy, Entrepreneurship and Crafts, Zagreb

Date:

25/01/2016 - 10:00-11:00

Conclusion:

Roberto Vdović, as the FabLabNet appointee, presented the ideas and missions of FabLab and FabLabNet, as per point 3 of this report, as well as some ideas on how the two organizations and their activities overlap with the ideas introduced by the Smart Specialization.

The stakeholders present at this meeting were already familiar with the role of FabLab, and have some general idea of the maker movement. They had already visited the MIT Medialab, and were familiarized with the ideas stemming from Medialab's activities.

The tone of the meeting was very positive throughout, and the participants showed genuine interest in the ideas. Their recommendations were for FabLabHR to be very diligent in applications to EU Funds, since

there are funds that FabLab may be eligible for, especially social funds and re-education funds. They have also stressed out the importance of different innovative activities, not only for business and economy, but also the importance of social responsibility.

Consultation 11 minutes

Stakeholders

The City Office for Economy, Labour and Entrepreneurship of the City of Zagreb is in charge of the City's economic growth and development, investments, entrepreneurship, tourism, hospitality and other economic branches. It collaborates with City's Development Agency, as well as with other bodies in order to foster innovation and advancement.

Representatives at the consultation meeting:

1. Mirka Jozić, Head of City Office for Economy, Labour and Entrepreneurship, City of Zagreb
2. Marko Helfrih, Head of Centre for Development Project, Development Agency Zagreb

Location:

City Office for Economy, Labour and Entrepreneurship, Zagreb

Date:

13/02/2016 - 12:00-12:30

Conclusion:

Roberto Vdović, as the FabLabNet appointee, presented the ideas and missions of the FabLab and FabLabNet, as per the point 3 of this report, as well as some ideas on how the two organizations and their activities overlap with the ideas introduced by the Smart Specialization.

The stakeholders at this meeting were actually familiar with the FabLabNet project because they also applied for InterReg, but their application had not been accepted. They have presented the ideas behind the Technology Park of the City of Zagreb and the Development Agency, and they pointed out that they have undertaken a large number of development activities. However, there was no pronounced intention to start the cooperation with FabLab.

Consultation III minutes

Stakeholders

The Croatian Chamber of Economy is an independent professional and business organisation of all legal entities engaging in business. Every company registered with the Commercial Court is a member of the Chamber. The activities and interests of CCE Members are carried out through professional associations. Its aims are promotion of Croatian economy.

Its newly established Centre for Industrial Development (CIRAZ) is in charge for implementation of two strategic projects financed from the ESI Funds: Strategic project for support of competitiveness cluster initiatives and Strategic project for support of the establishment of innovation network for industry and thematic innovation platforms.

Representatives present at the consultation meetings:

1. Domagoj Topić, Senior Adviser at CIRAZ,
2. Mateo Ivanac, Development Agency Zagreb, Head of Centre development projects
3. Marko Rajković, Senior Advisor, Centre for Industrial Development (CIRAZ)

Location:

Croatian Chamber of Economy, Zagreb

Date:

14/02/2016 - 12:00-12:45

Conclusion:

The meeting with Croatian Chamber of Economy and CIRAZ went particularly well. The FabLab team, Roberto Vdović and Melita Šobot, presented the ideas behind FabLab and FabLabNet project, as per point 3 of this report.

CIRAZ expressed particular interest in FabLab's activities. As a platform collecting information on research potential on the one hand, and production potential on the other, they realized that there is an opportunity in considering the third segment - socially responsible practices.

The stakeholders showed considerable amount of enthusiasm for the topics presented at the meeting, as well as for identification of specific areas for future collaboration.

CREATING LINKS TO SMART SPECIALISATION STRATEGIES AND RELEVANT POLICY PLAYERS

D.T.1.2.1

Series of Consultations / PP10

Version 1

06 2017





This document will outline the essential conclusions and key-outcomes of a series of consultations with local stakeholders in matters of how FabLabs and MakerSpaces are currently influencing the local innovation-ecosystem, as well as possible long-term goals in that context.

The following stakeholders have been interviewed in single-session interviews:

1. Stakeholders

1. Fabian Kyrein, Bavarian Ministry of Economic Affairs and Media, Energy and Technology, Department for Structural Policies
2. Peter Bruchner, Bavarian Ministry of Economic Affairs and Media, Energy and Technology, Department for Innovation, Research and Technology
3. Dr. Klaus Funk, Zentrum Digitalisierung.Bayern (ZD.B), Koordinator der Themenplattform Digitale Produktion
4. Dr. Andrea Niedzela-Schmutte, Bavarian Ministry of Economic Affairs and Media, Energy and Technology, Department for Design, Culture and Creative Industries
5. Jürgen Enninger, Leiter des Kompetenzteams der Kultur- und Kreativwirtschaft der Stadt München
6. Jan-Ulrich Bittlinger, Wirtschaftsförderer der Gemeinde Markt Murau und Vorsitzender des Murnauer MakerLab e.V.
7. Dr. Birgit Seeholzer, Wirtschaftsförderungs GmbH Landkreis Traunstein
8. Christian Lindener, Geschäftsführer der Wayra Akademie (Startup Accellerator der Telefonica)

2. Implementation Smart Specialization Strategy S3 in Bavaria

The Smart specialization platform (S3) homepage of the European Commission in charge of Bavaria (<http://s3platform.jrc.ec.europa.eu/regions/DE2/tags/DE2?rel=1>) refers to the following document “Gesamtkonzept für eine Forschungs-, Technologie- und Innovationspolitik der Bayerischen Staatsregierung” (overall concept of the Bavarian government to create a political environment for research, technology and innovation) from 2011. This concept was developed under the influence of the former Bavarian Minister for Economics, Infrastructure, Transport and Technology, Martin Zeil, as well as the Bavarian minister for Research and Development, Dr. Wolfgang Heubisch.

Even though the document suits thematically neither “RIS3” nor “S3” are mentioned in the document. A document that is more interesting and which offers more content for that



context is the accompanying document to the overall concept for Research, Technology and Innovation which was released shortly after the election of the Bavarian Parliament in September 2013. The document with the subtitle “RIS3 Regionale Innovationsstrategie für Bayern - Strategie für Innovationsstrategie für Bayern” (RIS3 regional innovation strategy for Bavaria - strategy for an “intelligent specialization”) was released by the Bavarian government in December of 2013.

The accompanying document originated in the Bavarian Ministry for Economics, Media, Energy and Technology, which is headed by the State Minister, Ilse Aigner, since September 2013 and which is leading the implementation of RIS3.

Our consultations have shown that the terms “Smart Specialization” or RIS3 are not yet commonly used. As regards content, the strategy is fixed within the ministry and other programs like “Zukunftsstrategie Bayern Digital” (Future Digital Strategy Bavaria) from July 2015 and “Bayern Digital II” (May 2017).

The RIS3 strategy is split into two main topics, “innovation” and “regional development/EFRE”, which, presumably, is linked to big EU programs, on the ministry’s webpage.

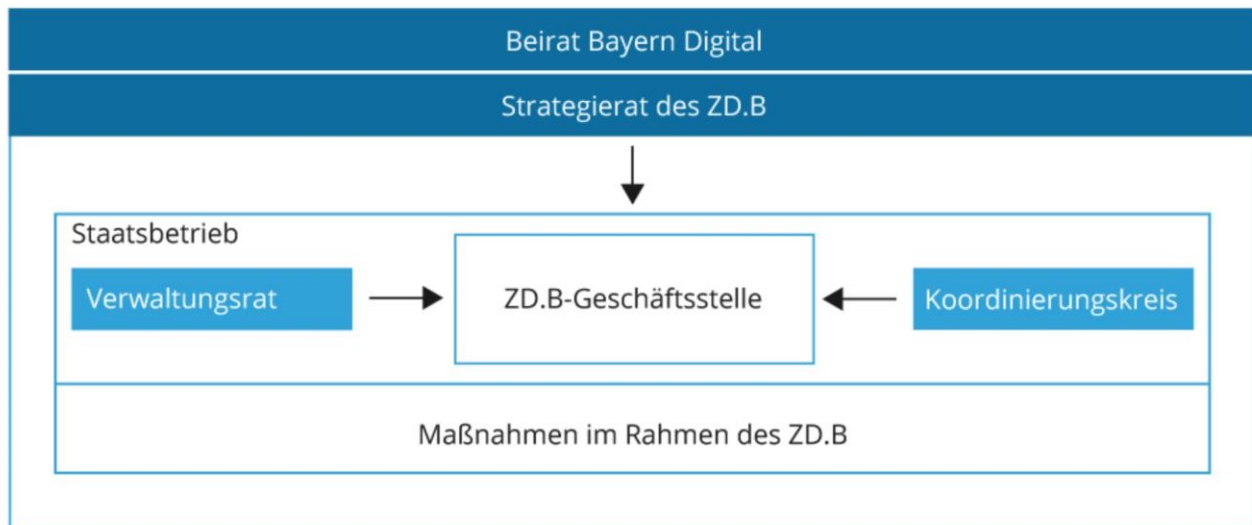
The public enterprise “Zentrum Digitalisierung.Bayern - ZD.B (Center for Digitalization.Bavaria)” represents a leading and central institution when it comes to boosting “Smart Specialization” and regional innovation in Bavaria. It portrays a unique Research-Cooperation and Foundation-Platform that serves as an impulse generator for collaboration projects with the economy, science, unions and public means.

The project is supposed to further strengthen Bavaria’s research competencies in the field of digitalization and eventually boost the speed of digital development. The activities are focused on expanding cooperation and cooperation opportunities between the economy and science. Activities are also aimed at intensifying start-up promotion and support as well as the establishment of regional foundations and furthering a societal dialog concerning digitalization.

Considering the scope and objective of the project the ZD.B’s organizational structure is shaped to easily integrate relevant actors of the digitalization in Bavaria and secure a



smooth and fast implementation of important activities in that pioneering field:



The public enterprise's management consists of one scientific and one commercial CEO. These two management organs support the ZD.B as well as an administrative board and coordination circle.

The “Verwaltungsrat” (Administrative Board) represents an interdisciplinary mixture of high-level representatives of the following ministries:

- Bavarian Ministry for Economics and Media, Energy and Technology
- Bavarian Ministry for Education, the Arts and Science
- Bavarian Ministry for Finances, State Development and Homeland

The “Koordinierungskreis” (Coordination Circle) supports the management as an advisory organ as well as in the various operations activities that the ZD.B is integrated in. The Coordination Circle consist of university professors, which are responsible for so-called thematic platforms, like, for example, “Themenplattform Cybersecurity” (Specialization).

The “Strategierat” (Strategy Council) makes up another general organ of the ZD.B which consists of personalities from politics, science, economy and society that overlook the direction and development of the whole initiative.

Finally we would like to present to you an assessment by the Technology Group about the implementation of the accompanying RIS3 document about the general concept for Research, Technology and Innovation Policies by the Bavarian State (p.55) in Bavaria:

The following states the conclusions about the analysis of the Bavarian Research, Technology and Innovation Policies by the authors of the Regional Innovation Monitor - Regional Innovation Report (Bavaria):

“As regards “Smart Specialisation” in Bavaria, the following can be stated: Starting from a very narrow approach that focused on certain key sectors and technologies, innovation policies today are characterised by a rather broad sectorial approach. However, the



sectorial focus is not arbitrary but elaborated according to regional needs and potentials and more importantly, it is revised on a regular basis in order to acknowledge regional and technological evolution.

To conclude: Although the sectorial focus is rather broad, the region has been working on and according to smart specialisation principles for more than 15 years.”

*Technopolis Group, Maastricht University, Fraunhofer ISI, Regional Innovation Monitor, Regional Innovation Report (Bavaria), To the European Commission, Enterprise and Industry Directorate-General, Directorate D - Industrial Innovation and Mobility Industries, April 2012, S. 26

<http://ec.europa.eu/enterprise/policies/innovation/policy/regionalinnovation/monitor//index.cfm?q=p.file&r=ecffb85db63fd691487d79c349162988>

3. Conduction and Results of Consultations

Each of the consultations started with asking the stakeholders whether and how much they are familiar with the Maker Movement, “bottom up innovation” and FabLabs/Makerspaces in general. Every participant has heard about the UnternehmerTUM MakerSpace in Garching. However, many stakeholders were not familiar with the term “Maker Movement” and the philosophy behind it. As a foundation for following collaboration efforts it seemed important to us to enlighten them on the issue. A typical FabLab phenomenon is the “bottom up innovation” and describing the maker as a creative prosumer who is an enthusiast and buyer of new technology and solutions. Prosumers make use of new technology in order to, create, produce, and sometimes even market, independently from traditional industries, innovative solutions and products. The concept of the Maker Movement, as well as the introduction of the FabLabNet-Project has been received very well and with great interest.

Generally the consultations took place in single-sessions with each of the participating stakeholders. In the following the results are summarized into various stakeholder groups:

3.1. Stakeholder Group 1: “The RIS3 Converter”

Participants: Stakeholder 1 to 3: Fabian Kyrein and Peter Bruchner of the Bavarian Ministry of Economic Affairs and Media, Energy and Technology and Dr. Klaus Funk of the Center for Digitalization.Bavaria (ZD.B).

The first group combines stakeholders that are directly involved with putting into practice the RIS3 strategy, even though, as mentioned above, the terms RIS3 and “Smart Specialization” are not used in Bavaria anymore.

All of the stakeholders of this group were very well informed and even knew about the special constellation and partnership of PP10, UnternehmerTUM MakerSpace, with the industrial partner BMW. However, most of them misunderstood the Maker Movement as some kind of Start-Up Support and did not know about the diversity and the Maker-Varieties relating to bottom-up innovation and digital small-scale-production.



Typically, stakeholders were rather involved with big-scale top-down approaches to support and promote regional innovation. Also, what we discovered through our consultation efforts was that the term digitalization, how the ministry is using it, is more focused on broadband-infrastructure and software and not too much on hardware.

When further describing the local Maker Community and what it was about

On the basis of some central points of the new “BAYERN DIGITAL II”- program we tried to point out possibilities of how to involve maker-activities, maker-spaces and fablabs into the subordinate planning objectives.

The following can be considered the main tasks of the “BAYERN DIGITAL II”- program:

BAYERN DIGITAL II 2018 - 2022

1. Wir schaffen die digitale Infrastruktur für die Gigabit-Gesellschaft. - *Create the digital infrastructure for the Gigabit-Society.*
2. Bayern wird europäische Hochburg für Sicherheit in und mit IT. - *Make Bavaria the European stronghold for and with IT security.*
3. Bayern setzt neue Maßstäbe in der digitalen Bildung. - *Setting new standards for digital core disciplines.*
4. Wir stärken den akademischen Nachwuchs in digitalen Kerndisziplinen. - *Strengthen academic youth in digital core disciplines.*
5. Wir stärken die digitalen Kompetenzen im bayerischen Mittelstand. - *Strengthen digital competencies throughout Bavarian middle-class.*
6. Wir erobern Schlüsselfelder digitaler Technologien und Anwendungen. - *Conquer key fields in digital technology and applications.*
7. Bayern wird Leitregion für intelligente digitale Mobilitätskonzepte. - *Leading region for intelligent digital mobility-concepts.*
8. Bayern wird weltweit Spitzenstandort für Digitale Medizin und Pflege. - *World's leading location for digital medicine and care.*
9. Mit E-Government wird Bayern Spitze bei moderner und digitaler Verwaltung. - *Leader in modern and digital administration through E-Government*
10. Wir stellen den Menschen in den Mittelpunkt der digitalen Welt. - *People as center of digital world.*

Points 3, 4, 5, 6 and especially 10 were identified as possible connecting points. It was surprising to us that an extensive structural program such as “BAYERN DIGITAL II” was still taking the human factor into account.

Considering FabLabs and MakerSpaces as a center of gravity for the “digital humus formation” you can derive many connecting points and opportunities for collaboration.

UnternehmerTUM MakerSpace Garching's close proximity to the Zentrum Digitalisierung.Bayern (ZD.B) will promote future collaboration efforts.

3.2. Stakeholder Group 2: “Representatives Culture and Creative Industry”

Participants: Stakeholder 4 and 5: Dr. Andrea Niedzela-Schmutte of the Bavarian Ministry of Economic Affairs and Media, Energy and Technology, Department for Design, Culture and Creative Industries and Jürgen Enninger, Head of the Cultural and Creative Industry Competence Team of the city of Munich.

Both of the above stakeholders are, within their division - the State of Bavaria and the city of Munich - responsible for the promotion of the “Cultural and Creative Industries” (Kultur- und Kreativwirtschaft - KuK). Our consultations showed that both participants were very well informed about the FabLab landscape and the Maker Movement and showed interest in hearing about future developments.

We believe that the Cultural and Creative Industries are of high relevance to us when it comes to spreading the idea of the Maker Movement. It is important for the Maker Movement to not only get perceived as a purely technically motivated trend but, more general, as a movement for creatives and Do-It-Yourself makers and inventors.

In the past the Cultural and Creative Industries have shown that traditional economic areas can be linked and connected to new technology and modern ways for information- or communication transmission (e.g. the internet paved the way for creative sub-branches like web-development or UX-design). Since the 80s the development within the fields of Cultural and Creative Industries have been developing to become one of the most dynamic economic sectors in the world's economy. In 2015, the industry obtained around €150 billion in turnovers**. This makes up for about €65 billion (2.2%)** of the national accounts (gross value added) in Germany, making it comparable to big industry sectors like the automobile, mechanical engineering, chemistry, financial services or energy supply sectors. What differentiates the two sectors is that the Cultural and Creative Industries can be described as rather small-scale when comparing it to the others. This means that a company with 100 employees would be considered one of the bigger ones.

Accordingly the stakeholders of this group were, in comparison to the participants from group 1, more used to small-scale structures. Ms. Niedzela-Schmutte is organizing to launch a study about Maker- and Innovation Spaces around the world, which is currently carried out by our Associate Partner, the Hochschule Coburg.

Both of the stakeholders are interested in being informed about future FabLabNet activities.

**Die Zahlen beziehen sich auf Deutschland. Quelle: <http://www.kultur-kreativ-wirtschaft.de/>

3.3. Stakeholder Group 3: “Business Developers / Regional Developers in regional areas”

Participants: stakeholder 6 and 7: Jan-Ulrich Bittlinger, Business Developer Municipality Markt Murnau and chairman of the Murnauer MakerLab e.V. and Dr. Birgit Seeholzer, Business Development GmbH Traunstein County.

Jan-Ulrich Bittlinger, the business developer of the little town of Murnau (12.000 inhabitants) successfully initiated and promoted the opening of the Murnauer Makerlab e.V. as an initiative to promote business development in regional areas.

There was a rise in the creation of Start-Ups and new business areas only half a year after opening the Makerspace and making its possibilities and technology open for public use. Bittlinger calls it a “Micro-Economic-Miracle in the town of Murnau”. This depicts a great example of how regional promotion efforts can change the business landscape within a short amount of time. Dr. Birgit Seeholzer heard about the success of the Makerspace in Murnau and is now determined to promote similar development and innovation efforts in Traunstein.

The opening of FabLabs/Makerspaces, particularly in rural areas, can have a high impact through creating possibilities and channels to communicate with local stakeholders and also actively taking action against rural depopulation in times of demographic changes. The fact that rural Makerspaces have a tendency to rather be small creates a need and appreciation for knowledge exchange. Both of the stakeholders were very interested in FabLabs.

3.4. Stakeholder Gruppe 4: “Startup Incubator / Gründerzentren”

Participants: Stakeholder 8: Christian Lindener, CEO Wayra Akademie (Startup Accellerator Telefonica)

The Munich Start-Up scene is full with promising places, protagonists and funding programs. UnternehmerTUM MakerSpace GmbH itself is a subsidiary of UnternehmerTUM GmbH which is one of the biggest Start-Up incubators in Europe. However, most of the incubators and accelerators in Munich are specialized in software products and do not focus on hardware which would be very helpful for makers. The Wayra Telefonica Academy represents one interesting exception to the missing hardware focus and alignment therein. CEO Christian Lindener explicitly ordered to change the focus of the accelerator into the direction of IoT. Therefore Telefonica hired a Community Manager in Berlin. According to the company’s experience and interest in this field they were very interested in the FabLabNet project in order to timely connect with (potential) Start-Ups in that area.

References:

“Gesamtkonzept für eine Forschungs-, Technologie- und Innovationspolitik der Bayerischen Staatsregierung, hrsg. vom Bayerischen Staatsministerium für Wirtschaft, Infrastruktur, Verkehr und Technologie”, May 2011:



http://www.stmwi.bayern.de/fileadmin/user_upload/stmwivt/Publikationen/Forschungs_und_Technologiestrategie.pdf

“Begleitpapier zum Gesamtkonzept für die Forschungs-, Technologie und Innovationspolitik der Bayerischen Staatsregierung (RIS3 Regionale Innovationsstrategie für Bayern (Strategie für „Intelligente Spezialisierung“), December 2013:

https://www.efre-bayern.de/fileadmin/user_upload/efre/themen/IWB/Programmdokumente/Begleitpapier_zum_Gesamtkonzept_oeffentlich.pdf

Smart specialization platform S3 of the EU Commission:

<http://s3platform.jrc.ec.europa.eu/regions/DE2/tags/DE2?rel=1>

“Zukunftsstrategie Bayern Digital”, July 2015:

<https://www.bayern.de/wp-content/uploads/2014/09/2015-07-27-Zukunftsstrategie-BAYERN-DIGITAL.pdf>

“Bayern Digital II” - Strategy, May 2017:

http://www.bayern.de/wp-content/uploads/2014/09/17-05-30-masterplan-bayern-digital_massnahmen_anlage-mrv_final.pdf

“Aufbruch Bayern”:

<http://www.bayern.de/politik/initiativen/archiv/aufbruch-bayern-fuer-ihre-zukunft/>