WBCInno

Strategic Development Plan for Business Incubators and Science and Technology Parks in Western Balkan Region

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List of Abbreviations

ADA	Austrian Development Agency
ADT	German Association of Innovation, Technology and Business Incubation Centers
AP	Autonomous Province
B2B	Business-to-Business
BAT	British American Tobacco
BBI	Building Business Incubators
BI	Business Incubator
BIC	Business Innovation Center
BITF	Business Technology Incubator of Technical Faculties Belgrade
BH	Bosnia and Herzegovina
BSO	Business Support Organization
CDC	Creativity Development Committee
CONUS	Conference of the Universities of Serbia
DDSME	Directorate for Development of Small and Medium-sized Enterprises
DFI	Development Finance Institutions
EBN	European Business and Innovation Center Network
EC	European Commission
EU	European Union
EEN	Enterprise Europe Network
GDP	Gross domestic product
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
HE	Higher education
IASP	The International Association of Science Parks
ICT	Information Communication Technologies
IPR	Intellectual property rights
IT	Information technology
LID	Location independent working
LLL	Lifelong learning
M	Measure
MD	Doctor of Medicine
MNE	Montenegro
NGO	Non–Governmental organization
OSCE	Organization for Security and Co-operation in Europe
PhD	Doctoral degree
R&D	Research and development
RDI	Research, Development and Innovation
RDS-PC	Regional Committee for Strategy Development
RS	Republic of Serbia
RSEDP	Regional Socio-Economic Development Programme
SME	Small and Medium sized Enterprise
SPICA	Science Park and Innovation Center Association
SRB	Serbia
SSL	Secure Sockets Layer
STP	Science and Technology Park
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TAM/BAS	Turn Around Management (TAM) and Business Advisory Services (BAS)
TP	Technology Park
TTO	Technology Transfer Office
UK	United Kingdom
USA	United States of America
US AID	U.S. Agency for International Development
VBI	Virtual business incubator
VI	Virtual incubator
VTÖ	Association of Austrian Technology Centers
WB	Western Balkans
WBC	Western Balkans Countries

Tables

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1 Executive Summary

Following the trends in development and modernization of universities in Europe and world, their transformation from purely educational institutions, across the strengthening the research towards entrepreneurial universities, the last mentioned is closely linked with their key role in development of Science and Technology Parks and Business Incubators. The best way to transform the research into innovations on the market, when ideas come from university staff, researchers and students, is to incubate them in above mentioned institutions. This is why one of the objectives of WBCInno project is to support the development of BIs/STPs in Western Balkan region through modernization of university mechanisms and structures for knowledge transfer, research and innovation. In elaboration of this strategic document, five WBC universities, one EU university and five WBC BIs were involved, but during the elaboration and in the last phase of public debate, the opinion, suggestions and recommendations of the wider target groups of stakeholders in the region were taken into account.

Introduction gives the general preview of the Business Incubators and Science and Technology Parks as efficient structures for supporting local economic development. It describes the history of their development in Serbia, Montenegro and Bosnia and Herzegovina. It also includes description of objectives and applied methodology for the development of Strategic Development Plan and some definitions.

Chapter 3 provides some useful information regarding the directions in which BIs/STPs has been developing in the world, as well as the current demands for development of specific BIs/STPs models in accordance with the business and technology trends.

Chapter 4. *Current state of BI/STP in WBC* tells story about beginnings of BIs/STPs in WBC, history of their development and list of institutions which supported their establishment and development. Within the WBCInno project, a questionnaire was developed and benchmarking survey was conducted with the aim to analyze the current state of BIs in three countries of WB region. Quantitative data were collected from 17 BIs which are presented in details in this chapter. Besides, at the end of the chapter, some perceived problems and challenges were highlighted.

The key part of the Plan is the Chapter 5, which provides the description of ten strategic measures for sustainable development of BIs/STPs in the region. Most of the measures are elaborated with list of objectives and recommended support actions for their achievement during the Plan implementation, as well as expected impact. Key actors and stakeholders are also defined.

Here is the list of recommended strategic measures with associated supporting actions:

1. Improvement of organizational and financial framework of BIs/STPs
2. Infrastructure development that suited to meeting start-up and spin-off needs
3. Application of ICT tools and e-cloud platforms for improved communication and innovation management
   - Initiating of online platform for innovation management meeting BIs/STPs requirements
   - Promoting the platform in order to collect larger number of ideas
   - Providing efficient online tools for selection of promising ideas and candidates for tenants by stakeholders

- Development of specific tools for monitoring, control and generation of progress reports
- Providing high level of security (access and data protection) and efficient documentation management
- Using innovation management software system for control and monitoring of BI/STP performance

4. Improvement of services for tenants of BIs/STPs
   - Development of service program
   - Improvement of the delivery of service program
   - Capacity building trainings of BIs/STPs staff
5. Application of new incubation models – virtual business incubators
   - Implementation of the capacity building program on entrepreneurship for students, graduates and entrepreneurs and facilitation of the creation of start-ups
   - Improve the competitiveness of enterprises in selected regions and implement new technology and services to reduce costs
   - Improving area-based partnerships for development and/or employment
6. Establishment of creative and entrepreneurial framework with schools and universities
   - Providing structural institutional framework for enhancing cooperation with the universities and schools on institutional level
   - Developing set of awareness raising activities from both types of institutions
   - Involving BIs/STPs in the education and research process
   - Additional activities that would involve all the stakeholders and lead to the improvement of the cooperation
7. Creation of mechanisms and structures for high-tech innovations in cooperation with universities and research centers
   - Using university resources for strengthening of innovation potential of BIs tenants
   - Providing logistic support by experienced university staff and its knowledge transfer units during the initial development phase of STPs in WBC region
   - Encouraging and motivating students, young researchers and university staff to be involved in entrepreneurial and innovative ventures

- Engaging experienced university teachers/experts for delivery of professional specialized trainings to BIs/STPs tenants
- Developing entrepreneurial and practical skills of students through volunteering and practical placement program
- Providing additional funding of BIs/STPs and their internationalization through joint project applications and establishment of new partnerships

8. Organization of competitions and awards for best business plans, best student's/researcher's ideas
   - Promoting entrepreneurial spirit and culture among the students and researchers at university centers in WBC region
   - Motivation and support for researchers from universities for the development of spin-off companies
   - Connecting BI/STP with the academic community and successful entrepreneurs with the goal of exchanging experiences
   - The support for the pre-incubation process of business incubators
   - Securing additional finances for start-up projects via the competition award money
9. Improving visibility, promotion and internationalization of BIs/STPs for their sustainable development
10. Networking among BIs and with STPs and universities on local, regional and EU level
    - Map of BIs/STPs in WB countries
    - Facilitation of business-to-business relations and R&D collaboration
    - Handling of benchmarking data for BIs/STPs

Having all necessary information about world trends in development of BIs/STPs, their current state in Western Balkan region and set of measures for identified shortages, the Chapter 6 gives the recommendation for next steps in implementation of the Plan with special attention on linking stakeholders within Triple helix framework, especially emphasizing the role of the state. Besides, long-term action plan for next five years summarizing the list of proposed strategic measures with their support actions, estimated progress indicators and expected impacts.

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2 Introduction

The development of Business Incubators and Science and Technology Parks is one of the most efficient instruments for boosting the local economic development. Generally speaking, in the Western Balkans Region there are a number of Business Incubators (BIs) that are active and successful in providing the support to young innovative companies. Although there are few STPs in the establishing phase with already built working space, only the Science and Technology Park in Rijeka is active (*www.step.uniri.hr*). Accordingly, the focus is on the improvement of the BIs capacities as well as facilitating the development of new Science and Technology Parks.

Although at first sight, it can be easily seen that the WBCInno project is related to modernization of university and university's mechanisms and structures in the area of knowledge transfer, research and innovation, exactly those structures (both existing and new ones) can be used and mobilized for logistic support and development of BIs/STPs in the WBC Region. It is the fact that for both BIs and STPs, provision of high quality service program for their tenants is more important than their physical facilities. Having in mind that most of these institutions are public body, their development is conditioned by links with stakeholders, mainly from public sector. Out of all public stakeholders who contribute to the development of BIs/STPs the most important contribution is that of the universities, since they are generators of knowledge and research. Also, if we consider innovations and knowledge-based economy development, it is absolutely clear that universities and BIs/STPs should cooperate closely. For BIs, it is important that young researchers and students from universities apply for new business ideas and participate in their competitions, as potential tenants. The university staff expertise in the area of advanced research and technology transfer can be engaged in the development of logistic services of STPs, especially in the first phase of their development. There are a lot of ways in which BIs/STPs and universities can improve their cooperation and jointly contribute to the development of innovation region. That is why the WBCInno project indirectly supports the development of BIs/STPs in the region, first through the elaboration of this Strategic Development Plan and implementation of suggested strategic measures.

This Plan is not the only strategically significant document for the WBCInno project, its target groups and end users of project results, considering that during the project other important documents have been or will be developed, such as University Innovation Platform, Methodology for Innovation Management and Sustainability Strategy for WBC Universities. Besides, through development and launching of the software platform for innovation management, implementation of these strategic documents, including this Plan, will be facilitated and the expected impact on target groups will be more significant.

The elaboration of this Plan was preceded by the establishment of the Regional Committee for BIs/STPs development that has 15 members from three WBC countries: five university representatives and five BIs representatives included in the Consortium as well as five representatives of student organizations. In this way, it included representatives of all relevant actors not only for the development of the Plan, but for its implementation in WBC region as well. Besides, the EU partners on the project also significantly contributed to its development by providing suggestions for some strategic measures and their elaboration, review and final improvements of the publication.

In order to identify the current state of BIs in the region, besides using relevant documents and sources regarding their facilities and offered services, within WBCInno project questionnaires were developed by

Graz University of Technology as Task leader and data was collected from 17 incubators in the Region (nine from Serbia, six from Bosnia and Herzegovina and two from Montenegro). The results of this survey are presented in Chapter 4. Additionally, the best practice in the EU and the world related to the development and activities of incubators was identified through gathering relevant documents from various sources. In this way, the trends in development of business incubators, new incubation models and start-ups/spin-offs creation were identified and are described within the Chapter 3. A core part of this report is Chapter 5 that includes the description of ten strategic measures to be implemented not only by BIs and universities on the project, but also by other relevant stakeholders in Triple Helix framework in order to create the environment where the development of entrepreneurship, start-ups and spin-offs can be facilitated and include young people with their ideas.

Definitions:

- **Business Incubators (BIs)**

Business incubators are programs designed to support the successful development of entrepreneurial companies through an array of business support resources and services, developed and orchestrated by incubator management and offered both in the incubator and through its network of contacts. Incubators vary in the way they deliver their services, in their organizational structure, and in the types of clients they serve. Incubators differ from research and technology parks through their dedication to start-up and early-stage companies. Research and technology parks, on the other hand, tend to be large-scale projects that house everything from corporate, government or university laboratories to very small companies. Most research and technology parks do not offer business assistance services, which are the hallmark of a business incubation program. However, many research and technology parks also house incubation programs [1].

Business Incubator is considered to be a „convenient" space for potential entrepreneurs to start their business, or a place where very young micro, small and medium enterprises can continue their business (usually older than 6 months). Convenience of space implies: the favorable conditions for its use, business advisory services and other services offered to the tenants, and also, the assistance to the beneficiaries of services provided by the incubator management.

The business incubator has to have at least three important components:
- Building (business premises),
- Business advisory services and other services,
- Services by management.

Business incubator provides an opportunity to micro, small and medium enterprises (SMEs) to do their business at one place and to share the common premises in a new and unique way. The incubators are designed to support the needs of the local community, and as a result of this approach, they have a very individual style and focus. Creating of a business incubator is needed if:

a) There is a mood within the local government and the wider community (commitment of local stakeholders) to support the work of an incubator,

b) There is the understanding within the local community or institution, which establishes an incubator, about the work substance of the business incubator, and if it is possible to create good management in the incubator,

c) It is needed (by entrepreneurs, potential entrepreneurs, a development institution) to have such an instrument of local economic development,

d) There is a suitable infrastructure, or the assessments favor the new investments in physical infrastructure, which will serve for the business incubation,

e) Money investments are justified (it is necessary to answer the question whether the sum of money which will be used for preparing the physical infrastructure and operation of incubator could be spent on financing other types of support for developing new or existing businesses, and would it give greater effect).

f) The financial sustainability of incubator is possible after some period from its establishment (5 years, for example).

Entrepreneurial incubators are forms of entrepreneurial infrastructure, and their main activity is to provide services by making available, with or without compensation, office space, administrative, technical and other services to the newly-established companies, entrepreneurial activities or innovative organizations, typically for a maximum period of five years, maximally, after their establishment [2].

- **Science and Technology Parks (STPs)**

A university research park, science park, or science and technology park is an area where innovation is key. It is a physical place that supports university-industry and government collaboration with the intent of creating high technology economic development and the advancement knowledge. There are many approximate synonyms for "university research park", such as "science park", "technology park", "technopolis" and "biopark". The appropriate term typically depends on the type of affiliation the park has with an institution of higher learning and research, and also perhaps the sort of science and research in which the park's entities engage.

These parks differ from typical high-technology business districts in that university research parks and science and tech parks are generally more organized, planned, and managed. They differ from science centers in that they are a place where research is commercialized. Typically businesses and organizations in the parks focus on product advancement and innovation as opposed to industrial parks that focus on manufacturing and business parks that focus on administration.

The parks offer a number of shared resources, such as incubators, programs and collaboration activities, uninterruptible power supplies, telecommunications hubs, reception and security, management offices, restaurants, bank offices, convention centers, parking, internal transportation, entertainment and sports facilities, etc. In this way, the park offers considerable advantages to hosted companies.

Science and technology parks are supported by universities in order to bring in industry with which they can collaborate, and by local government, in order to improve the prosperity of the community. Incentives to attract companies to the area are often offered as part of the entire package [3].

The International Association of Science Parks (IASP) defines a science/technology park or science-technology park (STP) as an organization governed by the professionals-specialists, whose main task is to enhance the well-being of the community by promoting the culture of innovativeness and competition of associated entrepreneurs and research institutions. For reaching these goals, a science-technology park stimulates and manages the flow of knowledge and technology among universities, R&D institutions, SMEs and the market; a Park helps the creating and growing phases of innovation-based companies via incubation and spin-off mechanisms, and it ensures the various kinds or servicing in order to enlarge the added value together with the services of high-quality ambiance and equipment placed in the STP".

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3 Trends in Development of BI/STP in EU and in the World

The support provided by the incubator (pre-incubation – incubation – post-incubation) can be directly related to the cycles of business (idea – start-up – expansion - maturity). Most incubators are not single-purpose and may provide assistance to very early stage companies (pre-incubation) as well as mature companies (post-incubation). This mixed use model is particularly appropriate where a diversified revenue model is required. The appropriate model should be chosen in such a way to allow flexibility both in terms of what type of incubation is provided, and to what kind of companies are incubated. This flexibility is often not associated with classical models of incubation, but it is often appropriate bearing in mind that incubators are set in very diverse circumstances (depending on incubator's funding model, available support from the state and other stakeholders, availability of infrastructure to businesses in the local area, availability of seed funding for start-ups, level of culture of innovation in the community, key industries developing in the area, policy framework, economy growth tendencies etc.).

Since 2010 there is an emerging trend of establishing 'accelerators'. Accelerators support start-ups with funding, mentoring, training and events for a short period (usually between 3 and 12 months), usually in exchange for an equity share of the business. The experience of accelerators in Europe [4] has shown that the short period of incubation and support to start-ups is not appropriate for the business environment in Europe with the large amount of bureaucracy and much longer exit time (as opposed to USA, where the start-up cycle is faster and acquisition comes usually after 1 year). The valuable asset of this concept is early stage funding and intense mentorship in every field of entrepreneurship, thus enabling start-ups to focus on rapid product development and less on bureaucracy. Also, this model of business support is mostly applicable to IT based start-ups, because it allows rapid product development. Opposed to that, fields of biotech, medtech, biomed etc. often require longer development cycles. Therefore this model is not appropriate for university-based incubators, because it requires the accelerator to invest in start-ups and because of the short period of incubation. A period of incubation with duration of 3-5 years is recommended [5].

The case study of Austria presented - AplusB [6] (Academia plus Business) – is a business incubator program funded by the Austrian Federal Ministry of Transport, Innovation and Technology (bmvit), together with the federal states from 2002 to 2012. AplusB supports innovative, technology-oriented spin-offs from the academic sector. The programme funds the so-called AplusB Centers, providing professional support for scientists in the difficult process of turning a good idea into a viable business. This involves not only counseling and assistance during the actual start-up phase, but also in establishing the idea of entrepreneurship more firmly in academic theory and practice. Nine AplusB Centers were established in which start-ups are qualified, counseled and coached. Based on the analysis of quantitative performance indicators the AplusB objective of ensuring an increase in the number of academic spin-offs has been achieved. One third of the companies would not even exist without AplusB support, and half of them would have been realized at a lower quality level. It is essential for high-tech innovative start-ups to have access to seed funding for research and development of innovative products that make them competitive in the market.

Because of the high risk of investment in start-ups the state needs such programs to encourage start-up creation and innovation, facilitating the overall country's economy becoming competitive.

Research-oriented start-up companies in the post-incubation period, after the end of the incubation process, continue their further development in the science and technology parks, which is not the latest trend, but the long-standing practice in developed countries. Regardless of their location, size and area they are related to, the main objective of a STP is to create an environment and supporting infrastructure in order to boost the creation of technology and science-based companies that can commercialize the research results from universities and research institutes. In this way, they are influencing the overall economic situation in a country; since through creation of necessary infrastructure for technology transfer and research commercialization, they have direct impact on creation of small innovative companies and jobs. [7]

The first technology park in the world was a research park established in the early 50s near Stanford University. Since then, STPs have become the centers of entrepreneurship, innovative potential and a place where industry and academia can work side-by-side. Today, there are more than 500 science and technology parks around the world and their number is constantly increasing [8]. The most STPs have been established in the Europe (230), America (90), Asia (145), etc. [9], which clearly indicates the close connection of innovation-based economies with establishment of strong support structures. Out of European countries, the most STPs have been established in UK (63) and France (60).

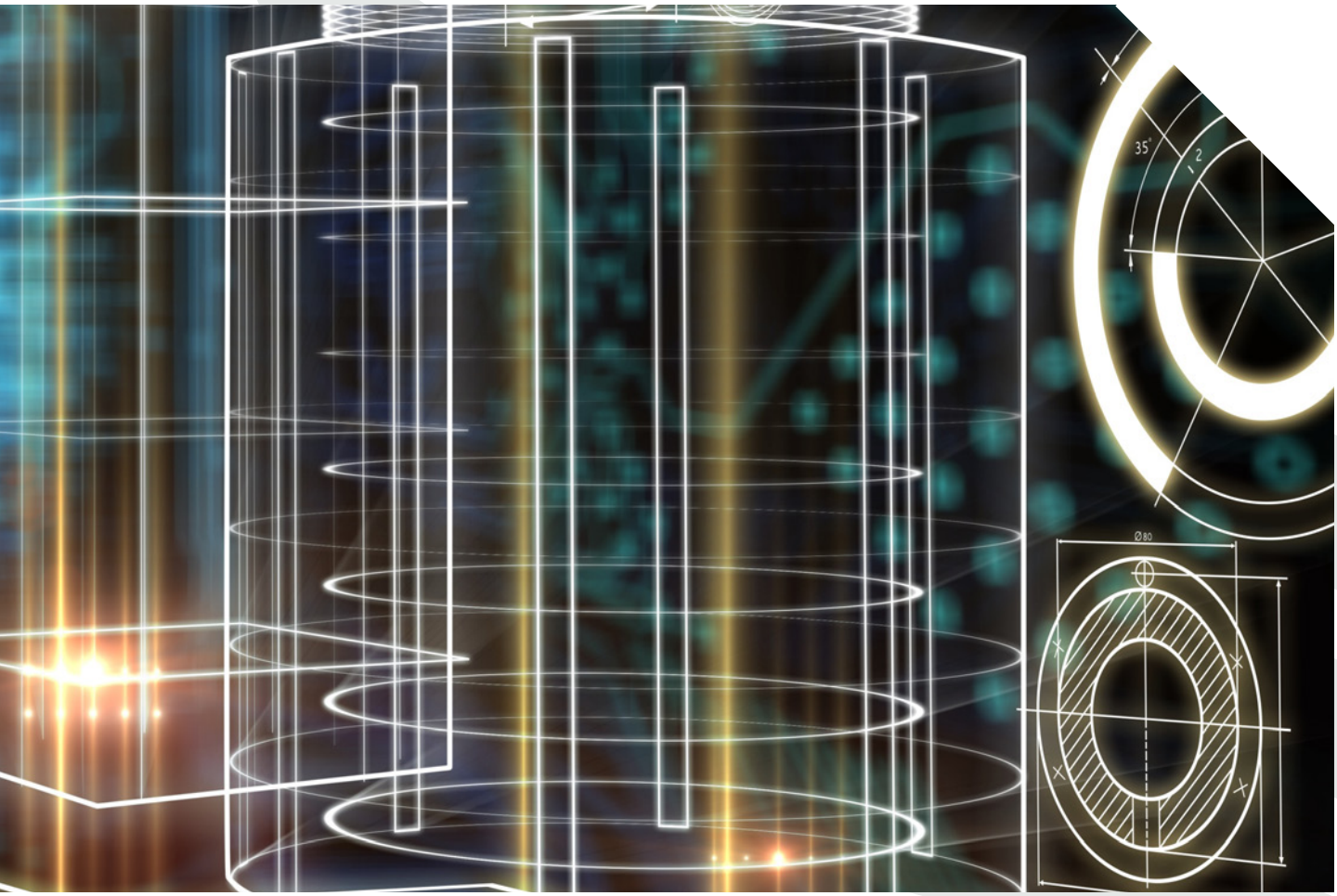
Depending on their geographical position, economic and industrial surrounding and current technological trends, STPs can have different focuses. Recently, areas such as robotics, nanotechnology, environmentally sensitive product design, telecommunications and satellites, biomedicine, etc. have become increasingly popular in the scientific community which led to the establishment of STPs based on these particular disciplines [10]. Hence, today we have several trends in development of STPs recognized as necessary for triggering the innovation potential and economic growth of specific areas.

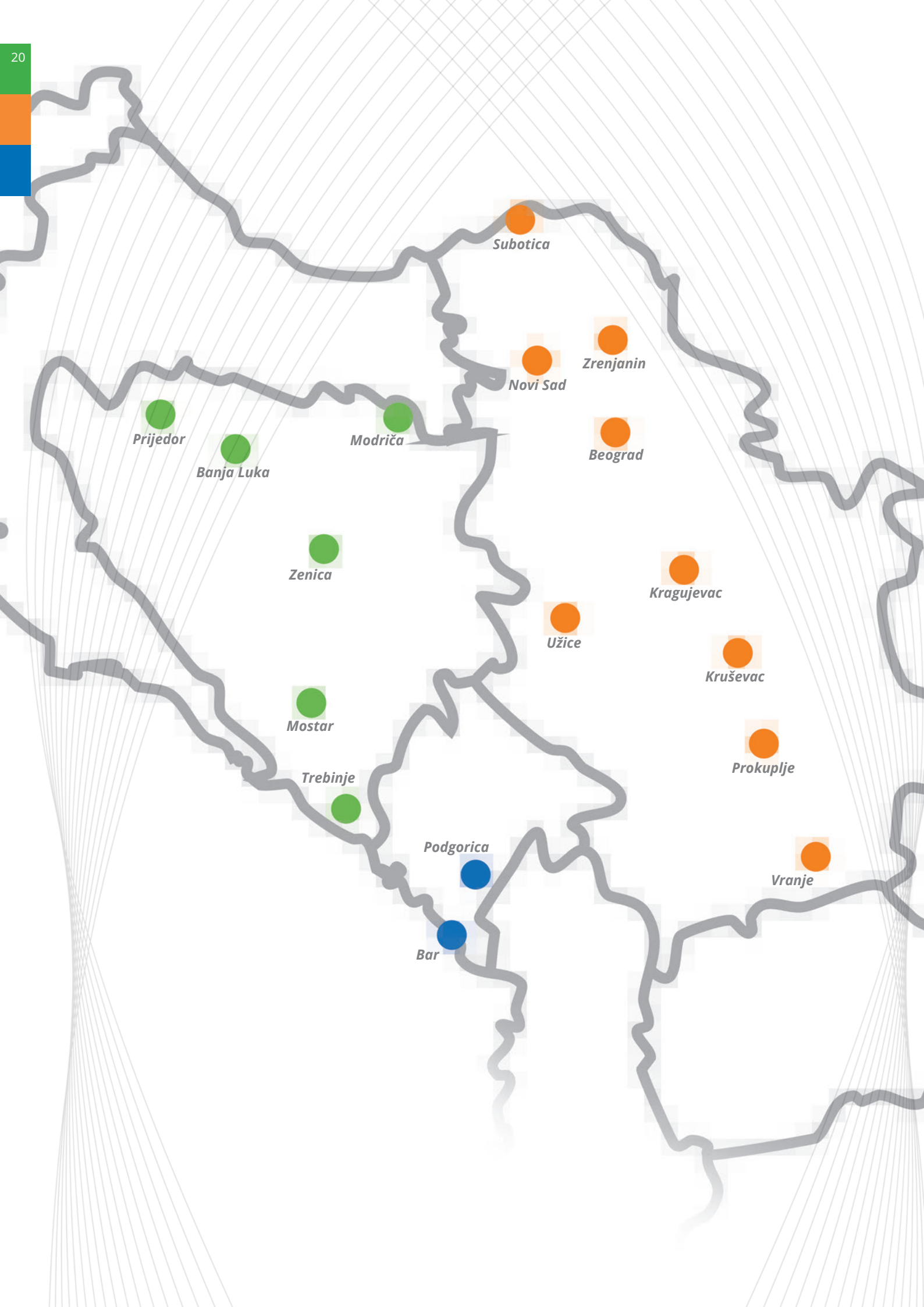
One of the trends in the health sector is the development of STPs in close relation with academic medical centers, in order to facilitate the knowledge transfer in the area of translational health science. In this way, the strong links between private sector companies and research groups (MDs and PhDs primarily) are created where both sides can benefit from the new technologies.

In recent years, we have also witnessed the rapid boost in development of social networking and online communication. Evolvement of these technologies has made a deep impact on the communication means, thus it is natural that at one point the knowledge transfer will be brought to this level, as well. In this context, STP could be organized as virtual science park offering a wide variety of information technologies and infrastructure that would support the networking of universities and companies, collaborating within the shared space and thus overcome already expensive technology-based transfer.

In terms of new scientific research and breakthroughs, it is necessary to establish so-called next generation laboratories as space to socialize, which motivates researchers to work together. The trend in this aspect is moving towards more "storage-like" spaces that makes communication and cooperation between people easier and more flexible, and encourages the interaction between them.

Some of the STPs in the world have established „sister park" relationships in order to exchange knowledge and improve the sector networking. This type of link among STPs is recommended to be promoted in the developing countries through organization of various events, research mobilities and lectures, etc. This kind of cooperation among STPs can be a solid ground for different STPs to work jointly on solving more complex problems of today's society [10].

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Mostar
Prokuplje
Trebinje
Podgorica
Vranje
Bar

4 Current State of BI/STP in WBC

4.1 Current state in Serbia

According to the comprehensive analysis conducted in 2011 and presented in the publication *Analysis of Business Support Infrastructure in the Republic of Serbia* [3], the first initiative for the development of BIs in Serbia started through the ENTRANS Programme, funded by the Government of the Kingdom of Norway. The programme was implemented in cooperation with the Serbian Agency for the Development of SMEs and Entrepreneurship and the Ministry of Economy and Privatization of the Republic of Serbia, as beneficiaries. One of the results was the establishment of the Center for Support to Business Incubators in 2006 and the Programme for Development of Business Incubators and Clusters. The program included the recommendations for establishment of 15 BIs and the national association of BIs.

With the support of the ENTRANS programme, the first BI in Serbia was established in Nis in 2004, with 14 incubation units and a 4 year incubation period. In the next year, the association of citizens "Timok Club", with the support of the Organization for Security and Cooperation in Europe (OSCE), initiated the establishment of the Business Incubator Center in Knjazevac which was the first private initiative for development of the BIs in Serbia.

In 2006, the first Belgrade incubator the Business Technology Incubator of Technical Faculties Belgrade (BITF) was established with the support of OSCE. In the following period, several incubators were established in Subotica, Zrenjanin, Prokuplje, Vranje, etc.

Besides the ENTRANS programme and OSCE, significant support in the process of development of BIs in Serbia came from the Austrian Development Agency (ADA). Through the Building Business Incubators (BBI) initiative, ADA helped creation of fund which provided the financial support for BIs in Vojvodina. After the completion of this initiative, the financial support was continued by the Government of AP Vojvodina, which opened a new call for grants to finance establishment and development of BIs in this region.

The U.S. Agency for International Development (US AID) also took an active part in supporting the establishment of BIs in Serbia. As the result of its financial support, space and technical equipment for incubators in Kruševac, Zaječar, Prokuplje, Novi Sad and Kragujevac were provided. The project activities of incubators in Vranje, Belgrade and Kragujevac were financed through SPARK initiative, while the Republic of Slovakia supported the development of BI in Bački Petrovac. The National Investment Plan of the Serbian Government provided the funds for facilities development of BIs in Kruševac and Užice, as well as for reconstruction of some more incubators' facilities.

As a result of all of this, a total of 23 incubators were established in Serbia, with initiatives to establish additional five BIs. As the result of substantial support of BI Programme, the majority of BIs were founded and initiated in Vojvodina (eight BIs: Novi Sad, Subotica, Zrenjanin, Bački Petrovac, Pančevo, Senta, Kanjiža and Beočin), while in Eastern and Southern Serbia region there are eight BIs (Niš, Vranje, Zaječar, Boljevac, Bor, Knjaževac, Prokuplje and Medveđa, with initiatives for another two in Majdanpek and Kladovo), in Šumadija & Western Serbia region there are six BIs (Kragujevac, Rača, Kruševac, Užice, Valjevo and Kraljevo) and three already established BIs and one initiative for BIs establishment in Belgrade (Palilula, Zvezdara, Rakovica and Savski Venac).

After initial support in the establishment phase, a large number of incubators in Serbia faced the problem of long-term and stable funding, which resulted in serious difficulties in functioning and development of services for small companies, the incubators tenants. Apart from the initial proposals of ENTRANS Programme and support of the National Investment Plan, there was no support from the state program, and the consequences of this are that a number of the above mentioned incubators are not functional at all (no tenants), and those who work have serious problems in developing their services and making a full contribution to the development of SMEs sector.

A number of incubators have their calls for incubation constantly open and once they complete the admission phase, the new tenants can take advantage of the variety of services offered by BIs, such as administrative and technical services, space renting, support in marketing, trainings, participation in relevant events (fairs, seminars, conferences, study visits, etc.)

Some incubators even offer their services through virtual incubation, such as one in Belgrade and the virtual incubator that existed within the Faculty of Technical Sciences, University of Novi Sad and the incubator in Kragujevac which received funds from the EU RSEDP 2 Programme to start a virtual incubator[1]. At the same time, some of them provide their services externally, i.e. to the companies which are not their tenants, in the area of business planning, start-up trainings and development of entrepreneurial skills.

4.2 Current state in Bosnia and Herzegovina

Official information related to the introduction of business incubators in BH first started in 2001 as a joint initiative of group of non-governmental organizations in close cooperation with municipal governments. This activity has been initially supported through international funding organizations and programs (EUQIF, NGO COSPE, NGO CISP and US AID) whose presence is still important for project support of existing incubators and planned initiatives for the new ones. The process of establishing incubation support in BH has been financed, and in most cases implemented, by the public institutions on Republic of Srpska, cantonal or municipal level. Initiative came primarily as a recognized mechanism for local economic development. Through this initiative concepts of business incubation have been introduced (Brčko, Jablanica, Modriča, Prijedor, Sarajevo, Trebinje, Tuzla, Zavidovići, Zenica, Zepče) within existing municipal government institutions or non-government organizations. Due to limited funding resources most common support was based on securing early stage incubation services through incubation premises, followed with externalized soft skills support provided by existing local capacities (consultancy/ intermediary/maintenance services).

The first institutional approach in building contemporary based model of business incubation appeared in 2005 through project BIT center Tuzla launched by Municipality of Tuzla, University of Tuzla and Norwegian SIVA and SINTEF. Followed by that positive example the Innovation Center Banja Luka was established in 2010 as a result of joined agreement of Government of Republic of Srpska and Norwegian ministry of foreign affairs (later on implemented by City of Banja Luka, University of Banja Luka, Ministry of Science and technology of RS Government, Republic Agency for development of SMEs and Norwegian private company Athene Prosjekledelse). In 2012 Norwegian ministry of foreign affairs supported a private initiative in Mostar where Foundation Intera Techno Park was established.

Active involvement of universities in supporting incubators through taking a direct stakeholders' role contributed significantly in creating new regulatory frameworks for future development of R&D and

1 http://www.virtualbic.rs/

innovation environment in BH. Adoption of the laws was initiated during the past 6 years simultaneously on state and Republic of Srpska level. It has come to a common position among law makers and regulators that precise definition of strategic objectives and policy of scientific and technological development in BH, as well as instruments for their implementation, are key prerequisites for the reintegration of research areas in BH as well as for putting science in the overall economic and social development of the country.

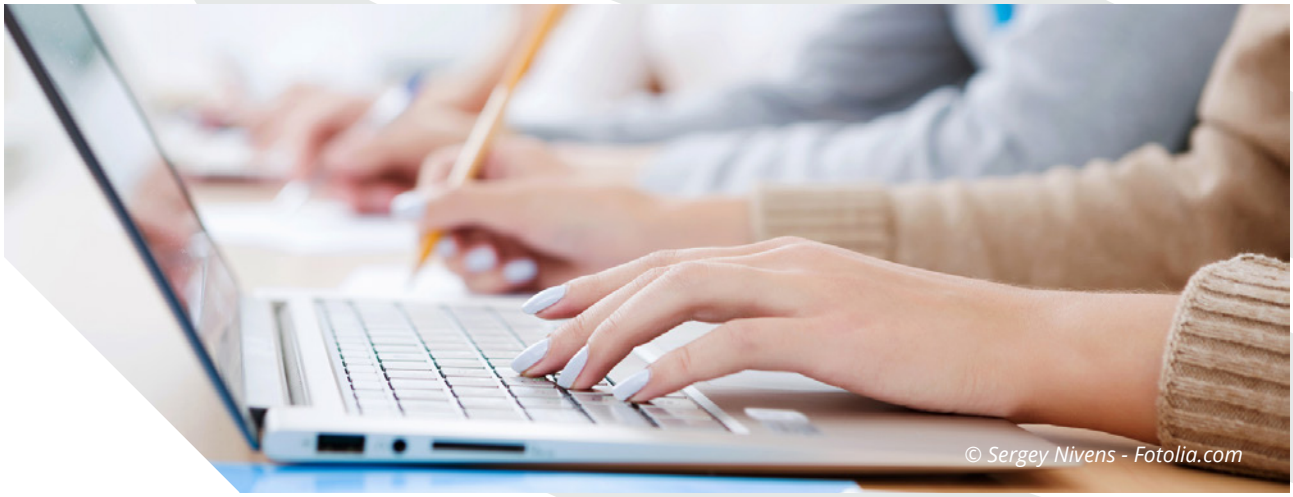
Within the Act for scientific-research activities adopted during year 2009, Republic of Srpska has anticipated ability and procedures of establishment of science and technology parks, and provided access to institutional support for the development of scientific research. This Act has also included framework for establishing goals of existing and future facilities within this area.

In the operationalization and implementation of the policies adopted in the Republic of Srpska there is significant work on strengthening existing capacities of Innovation Center Banja Luka, University Enterprise Center of Banja Luka, as well as the final preparations for the launch, by the scope of the most important project of the Technology Business Park Banja Luka.

4.3 Current state in Montenegro

Business Incubators exist in following municipalities: Podgorica and Bar. There is an initiative for forming another Business Incubator in Berane.

In December 2008, DDSME[1] and the Capital City of Podgorica established the first business incubator in the field of information technologies (IT). D.o.o. Inventivnost started its work in March 2009 and plays an important role in the process of founding companies, intensifying the transfer of know-how and creating highly qualified personnel. Further partners in the project are the University and Municipality of Podgorica, GIZ, TAM/BAS and the organization SPARK. The Business Incubator in Bar has operated from 2008 and supports students, young graduates and young potential entrepreneurs (up to the age of 35) in starting their own small and medium enterprises (SMEs) in Montenegro. The project is financed by the Ministry of Foreign Affairs of the Netherlands, and co-owned by local stakeholders represented in the Coordination Committee of the Center.



1 Directorate for Development of Small and Medium-sized Enterprises

4.4 Benchmarking surveys of BI/STP metrics in WBC region within WBCInno project

With the aim to map and benchmark the capacities of the BIs and STPs in the Western Balkan region, a specially designed questionnaire was developed by the Graz University of Technology within the WBCInno project (see Annex 1). Nine BIs in Serbia responded on invitation and provided the relevant data in the questionnaire. This includes incubators in nine towns and municipalities in Serbia: Subotica, Novi Sad, Zrenjanin, Belgrade (Palilula), Kragujevac, Užice, Kruševac, Prokuplje and Vranje.

In Bosnia and Herzegovina there are 11 established BIs, with six of them being interviewed (Banja Luka, Modriča, Prijedor, Zenica, Mostar and Trebinje).

In Montenegro, both BIs participated in the research and answered the questionnaire (Podgorica and Bar).

Data in Table 1 shows the number of tenants and their employees, divided into academic and technical staff, as well as number of employees in the BI management. The average number of tenants in Serbia and in Bosnia and Herzegovina is 15, while in Montenegro it is 25. The average number of tenant's employees in Serbia is 62, in Montenegro is 80 and in Bosnia and Herzegovina is 92. Incubators in Belgrade, Zrenjanin, Podgorica, Bar and Trebinje have the majority of employers with academic graduates in the tenants' workforce. All incubators have seven or less employees in the BIs management.

Table 1: *Number of tenants and employees in business incubators*

Country	Incubator	No. of tenants	No. of employees (tenants)	No. of staff[1] (academy)	No. of staff[2] (tech.)	No. of employees[3]
SRB	Subotica	14	52	5	30	3
	Novi Sad	10	35	5	30	2
	Zrenjanin	13	32	21	9	2
	Beograd	20	50	50	45	5
	Kragujevac	11	50	5	12	7
	Užice	12	60	-	15	4
	Kruševac	21	39	14	22	5
	Prokuplje	11	41	13	12	5
	Vranje	24	198	5	3	3
MNE	Podgorica	12	40	20	30	2
	Bar	39	120	20	30	3
BIH	Banja Luka	32	130	-	-	7
	Modriča	11	202	-	3	3
	Prijedor	7	36	-	-	-
	Zenica	29	129	-	-	3
	Mostar	4	28	11	19	7
	Trebinje	8	27	15	15	1

1 academic graduates in the tenants´ workforce
2 with a technical qualification in the tenants´ workforce
3 center management

Table 2 represents performance since establishment. Together, all 17 interviewed BIs in WBC incubated 385 firms, created and supported 216 new businesses and created 1275 jobs at client or graduate companies.

Table 2: *Performance since establishment*

Country	Incubator	Year of establishment	No. of firms incubated	No. of new businesses created and supported	No. of jobs created at client or graduate companies
SRB	Subotica	2006	32	32	60
	Novi Sad	2010	12	13	43
	Zrenjanin	2005	24	30	82
	Beograd	2006	35	35	200
	Kragujevac	2008	31	9	100
	Užice	2008	32	6	80
	Kruševac	2008	51	-	-
	Prokuplje	2007	11	13	45
	Vranje	2006	24	20	123
MNE	Podgorica	2009	15	12	30
	Bar	2009	-	-	-
BIH	Banja Luka	2010	32	-	-
	Modriča	2005	11	-	-
	Prijedor	-	7	-	-
	Zenica	2004	56	40	500
	Mostar	2011	4	-	-
	Trebinje	2009	8	6	12

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Business Incubators in Western Balkan Countries have occupancy rate higher than 60%, half of them even more than 90%. As it can be seen in Table 3, length of tenancy is between two and five years, with the most common being – three years. Survival rates of all interviewed incubators are more than 70 %, most frequently more than 90%. BIs in Serbia developed six patents granted for clients or graduate companies of the BI, while BIs in Bosnia and Herzegovina developed three patents.

Table 3: *Other key figures*

Country	Incubator	Occupancy rate [%]	Length of tenancy [months]	Survival rates of tenant firms[1] [%]	Patents[2]
SRB	Subotica	70	36	70	-
	Novi Sad	60	36	-	1
	Zrenjanin	75	36	85	0
	Beograd	100	36	95	5
	Kragujevac	70	28.5	90	-
	Užice	100	24	97	-
	Kruševac	90	24	82	-
	Prokuplje	90	24-48	90	-
	Vranje	80	36	93	-
MNE	Podgorica	100	48-60	90	-
	Bar	100	36-60	95	-
BIH	Banja Luka	60	36	-	3
	Modriča	95	36	60	-
	Prijedor	-	-	-	-
	Zenica	100	60	81	-
	Mostar	-	-	-	-
	Trebinje	-	-	-	-

1 in 5 years period
2 patents granted for clients or graduate companies of the BI

Table 4 shows main economic activities in BIs in WBC expressed in percent. As it can be seen, most BIs provide information and communication technologies and some help on sales marketing and distribution. Other economic activities vary from one to another BI.

Table 4: *Main economic activities of BIs in WBC*

Country	Incubator	Main economic activities of the tenants								
		Sales, marketing and distribution	Business and financial services	Advanced manufacturing	Information and Communication Technology	Research and Development (for others)	Biotechnology / Pharmaceuticals	Knowledge based industries	Other manufacturing activities	Other service activities
SRB	Subotica	15%	4%	43%	0%	4%	0%	4%	15%	15%
	Novi Sad	10%	0%	0%	80%	0%	0%	10%	0%	0%
	Zrenjanin	10%	10%	0%	60%	0%	0%	10%	0%	10%
	Beograd	0%	0%	14%	43%	6%	3%	23%	0%	11%
	Kragujevac	0%	12%	0%	45%	0%	0%	18%	0%	25%
	Užice	0%	0%	0%	0%	0%	0%	17%	83%	0%
	Kruševac	9.6%	14.2%	0%	19%	4.7%	4.7%	9.6%	14.2%	24%
	Prokuplje	25%	25%	0%	0%	0%	0%	0%	0%	50%
	Vranje	0%	0%	60%	0%	0%	0%	5%	35%	0%
MNE	Podgorica	10%	0%	0%	50%	10%	0%	0%	0%	30%
	Bar	0%	30%	0%	30%	0%	0%	0%	0%	40%
BIH	Banja Luka	no valid data								
	Modriča	no valid data								
	Prijedor	no valid data								
	Zenica	0%	0%	39%	43%	0%	0%	0%	0%	18%
	Mostar	0%	0%	0%	50%	0%	0%	0%	0%	50%
	Trebinje	no valid data								

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Infrastructure and "hard" services of BIs can be seen in Table 5 for Serbia, Table 6 for Montenegro and in Table 7 for Bosnia and Herzegovina.

Table 5: *Infrastructure and "hard" services of BIs in Serbia*

Country	Incubator	Available space in m^2	Building arrangement incubator (m^2)	Physical and industrial infrastructure	IT Services	Offices services, usage of equipment	... other "hard" services
SRB	Subotica	1600 m^2	Office 300 m^2, production 1300 m^2	-	ADSL	Copy, printer	Van, forklift
	Novi Sad	800 m^2	24 offices (12-26 m^2), 4 meeting rooms	-	Servers, storage, ...	Copy, printer, scanner	-
	Zrenjanin	900 m^2	22 offices (13-30 m^2), 2 meeting rooms	-	Servers, storage, ...	Copy, printer, scanner	-
	Beograd	570 out of which 300 is available for incubation office space	2nd floor in the old building or Faculty of Mechanical Engineering, campus of technical faculties	Office space, training hall, joint meeting room, kitchen	Broadband internet connection	Office space, printer, scaner, copy	Reception area, telephone network, and hardware, car park, security system
	Kragujevac	2690 m^2	-	4500 m^2	IT training center	PC, personal lap top for each tenant, copy, scanner, multimedia equipment, telephone, internet, fax	-
	Užice	-	1650 m^2	1650 m^2	IT training center, Broadband internet connection	PC, printers, copy, telephone, fax, multimedia equipment (video projector and screen, smart board)	-
	Kruševac	1632 m^2	971 m^2	-	Broadband internet connection	PC, printers, copy, telephone, multimedia equipment (video projector and screen)	Fire alarm system, video surveillance, parking space, cafe for tenants and guests
	Prokuplje	1300 m^2	-	-	IT training center, internet connection	PC, printers, copy, mail, telephone, fax, multimedia equipment (video projector and screen, smart board)	Fire alarm system, parking space, dressing room, restaurant
	Vranje	2690 m^2	-	4500 m^2	IT training center	PC, personal lap top for each tenant, copy, scanner, multimedia equipment, telephone, internet, fax	-

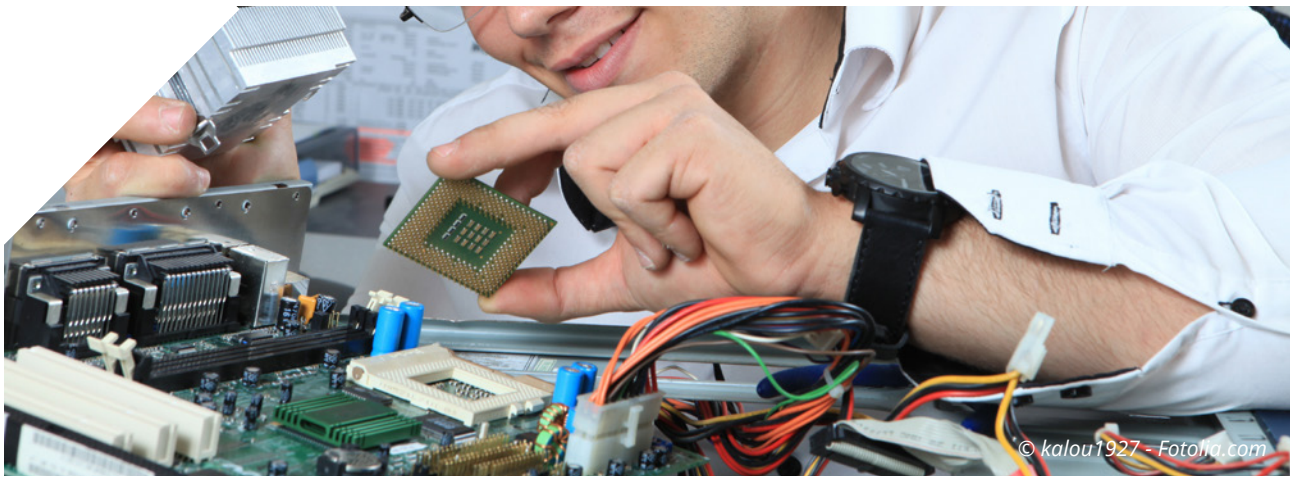

Table 6: *Infrastructure and "hard" services of BIs in Montenegro*

Country	Incubator	Available space in m²	Building arrangement incubator (m²)	Physical and industrial infrastructure	IT Services	Offices services, usage of equipments	... other "hard" services
MNE	Podgorica	200 m²	All office space	-	Broadband internet connection	Office space, printer, scanner, copy	Telephone network and hardware
	Bar	1100 m²	Whole 5th floor and 50% of the 2nd floor in the 30 year old building, reconstructed in new office spaces	Office space, training hall, joint meeting rooms, computer rooms, small cafe	Broadband internet connection	Office space, printer, scanner, copy	Reception area, telephone network and hardware, car park, security system

Table 7: *Infrastructure and "hard" services of BIs in Bosnia and Herzegovina*

Country	Incubator	Available space in m²	Building arrangement incubator (m²)	Physical and industrial infrastructure	IT Services	Offices services, usage of equipments	... other "hard" services
BIH	Banja Luka	900 m²	Offices 30m²	-	-	-	-
	Modriča	2760 m²	-	-	-	-	-
	Prijedor	1381 m²	-	-	-	-	-
	Zenica	3000 m²	BIZ buildings: 25 of manufacturing premises, 8 offices	Parking places, toilets	Broadband internet connection	PC, printers, copy, telephone, multimedia equipment (video projector and screen)	Fire alarm system
	Mostar	2300 m²	690 m²	-	Data center with cloud infrastructure, optic fiber internet connection	Audio - video equipment, video conference equipment	-
	Trebinje	535 m²	Ground floor with exterior	Office spaces	Full IT services	Available	-

"Soft" services provided by BIs in WBC are listed in Table 8. Green check mark indicates that service is available for tenants and others, blue check mark tells that service is available for tenants only and an empty field specifies no service at all.

Table 8: "Soft" services provided by BIs in WBC

Country		SRB									MNE		BIH					
	Incubator	Subotica	Novi Sad	Zrenjanin	Beograd	Kragujevac	Užice	Kruševac	Prokuplje	Vranje	Podgorica	Bar	Banja Luka	Modriča	Prijedor	Zenica	Mostar	Trebinje
"Soft" Services	General start-up advice	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
	Business plans	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	General advice	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓
	Assistance in the preparation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Market analysis	✓	✓	✓						✓			✓					✓
	Search for personnel	✓	✓	✓			✓									✓	✓	✓
	Technology consulting	✓	✓	✓									✓		✓			✓
	Identification of cooperation partners	✓	✓	✓					✓	✓	✓	✓	✓		✓	✓	✓	✓
	Legal advice	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
	Patent advice				✓					✓			✓		✓			✓
	Financial advice	✓	✓	✓	✓					✓	✓	✓	✓	✓	✓			✓
	Insurance advice									✓				✓	✓			✓
	Search for funding	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Public funding	✓	✓	✓	✓	✓	✓	✓		✓			✓			✓	✓	✓
	Equity	✓	✓	✓	✓					✓			✓					✓
	Borrowing					✓	✓	✓	✓	✓	✓	✓	✓					
	Accounting	✓	✓	✓	✓			✓		✓				✓				✓
	Marketing consulting	✓	✓	✓		✓	✓	✓		✓			✓			✓	✓	✓
	Exhibition organization	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓				✓	✓	✓
	Organizational consulting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	Outsourcing of certain work areas		✓	✓		✓	✓	✓	✓	✓	✓	✓				✓	✓	✓
	Public relations	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓				✓	✓	✓
	Framework contracts								✓	✓								
	Further education	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓				✓	✓	✓
	... other "soft" services (Joint promotion)				✓						✓	✓						

4.5 Perceived problems and challenges

Based on the previously presented data, it can be deduced that Business Incubators in Western Balkan Countries are in the beginning phase of development. Although, there are 41 Business Incubators in Western Balkan Countries (23 of them are in Serbia, 15 in Bosnia and Herzegovina and two in Montenegro) only a very small number of them is entirely functional. Some of them are only partially functional, others are registered but not working, several are in preparation phase, and one is not yet registered as incubator (working as an office within a municipality).

The biggest BI problem in WBC region (except Slovenia and Croatia) is that there is no sufficiently developed institutional state support as in most developed countries, thus their management is forced to provide the financial sustainability on their own. Thus, the first and basic challenge is to define the state program and establish the fund for the incubators development, for every country separately.

Challenges:

Challenge 1	*Increasing level of understanding of roll and importance of business/technology incubators and science parks among states and local decision makers. Getting better understanding of importance of innovations for developing new, based on knowledge, world economy*
Challenge 2	*Motivate young and well educated people to invest their energy and potentials in starting new jobs in their native regions, preventing brain drain*
Challenge 3	*Prepare and adopt legal framework for strong development of innovative companies and their export possibilities and system of subsidies for developing innovation projects*
Challenge 4	*Improvement of networking at all levels (local, national, WBC and Europe)* *1. among business incubators* *2. between BIs and STPs* *3. between BIs/STPs universities*
Challenge 5	*Improvement of visibility and promotion of existing BIs using of power of electronic and social medias. Preparing advertising call for tenants supported by on-line applications, forming waiting list, wider range of information availability, downloadable promotional material / newsletters / brochure etc.*
Challenge 6	*University support through development and implementation of courses in area of entrepreneurship, BIs, STPs, start-ups and spin-offs*
Challenge 7	*Establishment of Creativity Development Committee (CDC) and development of mentoring program for inventive students whose ideas can be incubated in BIs; their ideas can be elaborated within their graduation or master thesis, and afterwards presented to CDC, which can recommend them to join BIs/STPs*
Challenge 8	*Establishment of the evaluation system for monitoring of BIs/STPs performances*
Challenge 9	*Organization of joint competitions and awards:* *1. for the best BIs in the country or / and region* *2. for the best tenant ideas on national/regional level*

Also, there are several more reasons why the BIs in the WBC region are not developed at the satisfactory level:

- They were created ad hoc since there was no strategic plan for their establishment and development taking into consideration geographical and economic aspects, and even regional development
- Within the structure of the incubators, "production" incubators are prevailing, especially in the sectors of low and medium technology level
- A small number of incubators are connected with universities and support the development of start-up companies in the high tech sector
- Since there is no state program or fund for BI support, this resulted in incubators failing to develop adequate management teams that could provide good services to tenants
- There is lack of understanding of the importance of BI development on a national, regional and local level
- The brain-drain from the whole region causes the lack of high-tech businesses initiated by young people as possible tenants in BIs

The main goal for the establishment of a STP is to increase the number of small and medium knowledge-based enterprises. Developing countries, which are lacking the knowledge in the field of high technologies, can use the STPs to attract the foreign investments, to enhance the regional competition, and also, the state competition, and to ensure new jobs and increase the state budget. A very important reason for creating a STP is to keep the best young professionals, while they will be provided the opportunity to do the attractive jobs, which are well paid, in their country. A STP can significantly influence the process of transformation from the "lecturing" to an "entrepreneurial" university.

Lecturing and research are usually the main contents of the mission provided by the most universities around the world. However, a new economic development brings a new mission, which transforms the lecturing universities into the entrepreneurial ones. This transformation originates from the increased importance of knowledge/science and RDI in the current economic environment, on the one side, and the financial need of universities, on the other. The entrepreneurial universities have a key role in the regional development via establishment of innovative units and structures, such as BIs and STPs, which are more or less associated to these universities.

„The University of Novi Sad has fully grasped the idea. Professors/researchers have an active role in establishing companies upon their research. As a result, 77 spin offs are established at the University of Novi Sad, which produced 44.40 million Euros in 2011, and created 1267 direct jobs, as well as more than 800 indirect ones (honorary engagements, internships, fellowships, contracted R&D, etc.). Predominately, these spin offs are in the ICT sector and come from the Faculty of Engineering (aka Technical Sciences)."

Source

National Platform for Knowledge Triangle in Serbia – KNOWTS, June, 2013 [11]

The WBC region suffers from the systematic devaluation of knowledge and science (the best examples are allocations from budgets, which are below 1% GDP in almost all WBCs); political instability additionally burdens the underdeveloped economy, and young people after graduation do not want to stay in these countries (the largest scientific diaspora in the world is the one from Serbia and Bosnia and Herzegovina).

Starting the establishment of the STP in the university environment can be, in this unfavorable situation, understood as "light at the end of a tunnel". Making profit in a STP is a long-term category, but in the short term, in such an environment, respectable enterprises can be established as start-ups, or spin-offs, based on technology transfer and innovation. These enterprises will be the framework of economy development of the whole WBC region, and as well, of each country in particular. This is not a new idea, but a very good model of success, which the most developed European countries have applied for many years.

Considering that it is difficult to find industry partners interested in commercialization of scientific and research results generated at the university, the best solutions prove to be the high-tech spin-off companies,

initiated by the university teachers and researchers. Currently, at the universities and faculties in WBCs, there are no spin-off companies established, which is mainly the result of the lack of relevant legal regulations. These regulations need to define the terms and conditions for their establishment within universities, as well as financial and other obligations between the spin-off company and the university, in such a way that they both encourage the entrepreneurship among teachers and researchers, and also to protect the interests of the university. At the beginning, one possible mean of legalization is to introduce a rule that a certain percentage has to be paid from every job done, in order to stimulate the applicable scientific-research work and to renew the equipment and acquire the new pieces. Beside this, part-time work positions can be offered to professors/researchers, who run the business as a regular activity, but also want to be involved in the teaching and research process at the universities/faculties.

Some universities in the WBC region have the campus areas as unique spaces (Novi Sad, Zenica, Mostar, Banja Luka, Podgorica, etc.), where the scientific-research activities of faculties/institutes are integrated. In that sense, the university campus areas, especially those of faculties of technical sciences, should naturally incline towards the entrepreneurial university, acting as "natural" STP in its environment. This is especially important, since the establishment of a STP is a long and expensive process.

For initiatives for establishment of STPs in Serbia, Bosnia and Herzegovina and Montenegro, which are in the phase of building the physical space and facilities, it is important to provide logistical support from the universities in order to bring them to life and achieve their main function. At the same time it is very important, wherever it is possible, to apply a scaling-up model or, if there are well-developed incubators at universities (as BITF Belgrade) to use those local models and experiences in establishing a STP. This is a further reason why the WBCInno project supports the initial development of STPs in the region through development of university structures and mechanisms. Measures recommended in this Plan and their implementation should contribute to this goal and achieve the expected impact in the region.

The best example of transformation in this sense is Turkey, which from 61st economy of the world becomes today the 16th economy with the trend to be the sixth largest economy of the world in 2020-2022. In the past 10 years Turkey started with 78 universities and came to almost 180 universities superbly equipped to the highest standards of the EU and the U.S. From the country that 7-8 years ago did not have any STP/TP has come to a situation that almost every university has or works on establishing of STP/TP, BIC or TTO. For example, at the Yildiz Technical University exists a Technology Park, which today (at the end of year 2013) employs nearly 3,000 people in dozens of companies.

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5 Strategic Goals and Suggested Measures

5.1 Introduction

Taking into account the current state of BIs/STPs in WBC region as well as the perceived needs for their sustainable development, in this chapter a set of strategic goals and measures recommended by the WBCInno partners are presented in detail. The main grounds for these recommendations were examples of good practice in the EU and the world, analyses of various available documents, preview of online information, visits to European partner institutions, as well as meetings of the members of Regional Committee for Strategy Development – RDS-PC. Naturally, there are many mechanisms and measures that contribute to the development of Business Incubators and Science and Technology Parks that have been successfully implemented in the world. However, the members of RDS-PC tried to incorporate into this document only the recommendations and measures that have realistic ground for implementation during the WBCInno project and sustainability after its completion.

The intention of this document is to present each measure (M) in a similar way within a unified structure, so that it could be easily readable and understandable for readers and those who will implement those measures in the future.

Although the perceived needs and problems in the region are presented in the Chapter 4 along with current state of BIs/STPs, the description of each measure gives at the very beginning the background from which specific goals and suggested support actions were developed. For efficient implementation of the measure, expected impact and benefits as well as measurable progress indicators are given for every specific objective planned. All these will be very useful for stakeholders defined for each measure as guideline for the next steps of successful implementation.

BIs / STPs	
M1	*Improvement of organizational and financial framework of BIs/STPs*
M2	*Infrastructure development that suited to meeting start-up and spin-off needs*
M3	*Implementation of collaborative software platforms for improved communication and innovation management*
M4	*Improvement of services for tenants of BIs/STPs*
M5	*Application of new incubation models - virtual business incubators*

Universities	
M6	*Establishment of creative and entrepreneurial framework with schools and universities*
M7	*Creation of mechanisms and structures for high-tech innovation in cooperation with universities and research centers*
M8	*Organization of competitions and awards for best business plans, best student's/ researcher's ideas*
M9	*Improving visibility, promotion and internationalization of BIs/STPs for their sustainable development*
M10	*Networking among BIs and with STPs and universities on local, regional and EU level*

5.2 Improvement of organizational and financial framework of BIs/STPs

Due to the fact that most of the BIs and some STPs have a social mission, they are generally established as "not for profit" organizations established via form of public private partnership between several partners, including municipalities, governments, universities, research institutes, development agencies etc. The law on economic activities in the WBC region mostly does not have such a broad variety of business entity structures as in developed countries so therefore it might be necessary to adjust the laws and regulations to enable BIs and STPs to operate as "not for profit" organizations. This is very important due to the problems with number of EU funded programs where "not for profit" is one of the key eligibility criteria.

A BI/STP is a self-contained organization with an identity, set of routines, and a strategic core. It has an administrative center, a distinct mission, and interacts with the external environment as a unified entity. In many ways, the BI/STP (ignoring the differences across profit/nonprofit, university or company based, etc., for now) is really a company and it should be organized as such. This is very important since a number of BIs and some STPs in the region are organized as a NGO, which is not appropriate if we take into consideration the new trends in this particular development sector where these organizations have to consult real businesses and are not organized appropriately.

A BI/STP is part of the local business infrastructure, providing the basis for future private-sector led economic growth; and therefore, BI/STP should be part of a local development strategy. Organizational structures and the size of resident companies are varied (see Chapter 4, Table 1). Each concept of the BI/STP should meet particular local development needs, conditions and the goals. The experience of different countries suggests that such units should function in a similar way to companies and their tenants. Given their social mission, the involvement of a wide range of partners and stakeholders is also a defining characteristic of BI/STP.

When considering the business model and financial risks inherent in a BI/STP, it is worth remembering that it is not possible in the short term to generate the returns that would attract a private investor to own and manage this kind of organizations. The participation of public institutions interested in direct or indirect spin-offs is therefore necessary, but private investors must take their full place in the implementation and running of certain parts of the program.

The expertise and commitment of a BI/STP is critical to success. Good managers are essential in selecting suitable tenant firms, in providing business and managerial advice to these firms, and in creating links to investors and the wider business community. When a BI/STP makes a direct investment in the tenants, financially skilled managers are also important. The effectiveness of management can be strengthened through networks of business incubators in which best-practices are disseminated. The previous point suggests that a BI/STP can partly raise their own sources of income by renting out space and facilities or by selling at market prices their support services to external firms. However, this raises a tension between the role of an incubator as a financially self-sustaining venture and as a pure public policy tool. The region BI/STPs had significant difficulties in obtaining necessary funding for their operations and then turned dominantly to the writing of proposals for donor funded projects. As project financing has no continuity, some incubator capacity can be established this way, but it is almost impossible to maintain it and improve it, which reflects negatively on the development of services for small businesses - incubator tenants. This created a deflection from the BI/STP core activities related to development of micro, small and medium sized, knowledge and innovation based companies.

The funding options for infrastructure depend primarily on the institutional set-up of the BI/STP and the respective roles of the public and private sector. During the start-up phase the public sector often has the

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main role, in particular to ensure the funding for basic infrastructure such as roads, electricity, water and wastewater. In recent examples in the WBC region, the public sector has provided additional funding for research and training components as well as for buildings for BI/STP. Grant funds or (interest) subsidies can generally be well suited to the expensive start-up phase of a BI/STP, in particular for preparatory studies (technical assistance), support for research, and marketing initiatives. Technical assistance is considered crucial to ensure the sound development of new BI/STP in line with defined economic development criteria, which should reflect market demands and capacity requirements. Technical assistance (on a grant basis) at this stage can also be very useful. In particular, it is useful for:

- Improving the quality and development impact by strengthening the capacity of public and private sector partners / promoters;
- Financing upstream studies and activities focused on strengthening private sector growth directly or indirectly.

This is also valid for the start-up phases of individual companies seeking to prepare their business plan (feasibility studies, etc.) and to establish themselves within the BI/STP. For very young companies that cannot attract seed financing, national (start-up) grant funding may be the only source of funding available. The administrative process entailed in accessing grants can be onerous, but it is important to persevere.

When an established BI/STP has to diversify and expand their revenue model in order to become sustainable in the long run, this has to be comprised from two major sources: external and internal. Internal sources have to be funds obtained from the rent, selling of some business advisory services to the tenant companies and to the public, internal clustering projects, commission for networking that resulted with profitable business for its companies. External sources are mostly related to BI/STP stakeholders and its owners and national government funds.

A BI/STP is not an end in itself but a tool for development. Given the nature of the activities to be coordinated and the facilities to be financed, its development must have appropriate support from a broad spectrum of partners from the earliest stages. The stakeholders include public authorities in charge of land development or responsible for the land on which the BI/STP will be built. They also include higher education and research establishments looking to create value from their resources. Such resources need not be located within the BI/STP, but they should be related to the facilities or activities being developed within it. Companies also have a role to play, either individually or through their professional or commercial representatives. Finally, in the case of projects of national interest, government bodies often participate in financing these kinds of development projects for public interest. Hence a clear set of rules must be drawn up from the outset for the organizations in charge of development, marketing, promotion, and coordination. This has to lead to a clear structure of a financing model for existing and new BI/STPs in the WBC region. The overall model should be significantly improved in order to have more successful BI/STPs in the WBC region.

The goals of the improved model should be made explicit, based on a thorough analysis of local economic circumstances and of the problems which the BI/STP is intended to address. Setting clear goals beforehand will also ensure the proper monitoring and evaluation of the scheme.

Having in mind all above mentioned, the recommendations for establishing improved organizational and financial framework for BI/STP development in WBC region are:

- The BI/STP management should be of high-quality and consist of professional with business expertise and past work experience in the private sector

- The BI/STP range of services should complement the offer of support services locally available. There is no need for a BI/STP to replicate services already available and the final objective should be that tenant firms have at disposal the widest possible array of services, regardless of whether they are internally or externally provided, with the possibility of some being charged to the tenant companies

- As a result, close linkages with the local business community, training organizations and financial operators are all relevant to the success of an incubation program. In particular, the availability of equity and semi-equity capital can facilitate the development of growth-oriented companies

- When not established or directly promoted by universities, BI/STP should engage with local universities and thereby promote the transfer of knowledge from university to industry and the commercialization of university research

- There should be close links between public institutions that are dealing with the issue of economic, science and technology development with the clear model for both financial and non-financial support to BI/STP

- BI/STPs should also get more involved in regional cooperation and exchange of good practices. Whenever possible BI/STPs should regionally engage themselves to continuously promote and further develop new organizational and financial models for sustainability. This also includes better cooperation possibilities for external funding for projects such as EU, World Bank and similar institutions.

- National programs and funds to support BI/STP must be made with clearly defined objectives of these organization and the criteria for measuring success

- On the occasion of establishing and development of a STP, universities must be integrated and a process of knowledge and technology transfer provided in order not to fall into the trap to make science and technology parks out of science

The time frame for improvement of the current model of BI/STPs in the region, with clearly defined state program and funding in this area, is critical to be as short as possible in order to create an environment for further development of existing and the creation of new BI/STPs. This transformation should be done in a period not longer than 3 years because market oscillations are very intense and new trends can emerge in near future. In the next table we can clearly see some of the roles, activities and results of the parties involved in the BI/STP development and operations that should be intensified in near future.

Table 9: *Roles, activities and results of the parties involved in the BI/STP development*[1]

Sponsors and stakeholders	Characteristics	Possible objectives for involvement	Financial characteristics
Local regional and national government	- Can play a key role in partnership formation and organization and delivery of business support programs - Essential partner in applications for significant funding grants from central government or EU	- Economic development by increasing either the number of companies (business incubation and mentoring process) or the size of existing companies - BI/STPs are a key economic development tool and marketing asset	- Take the responsibility for the feasibility phase design - Long-term commitment required for construction payback - Overall legislative and financial framework can foster investment from private operators
University or other tertiary institutions	- A stable organization with a reputation for reliability - Likely to be short of funds to invest in development of an innovation pole - May have land adjacent to campus to be contributed	- Technology transfer - Move technology up value chain through spin-off companies - Income from contract research or consultancy	- In need of revenue-generating model to harness their potential - Major source of spin-off leads - International networking useful to collaborative projects
Research centers	-Government research centers might establish a park as part of a privatization processor to enhance commercialization activities	- Technology transfer to ensure government-funded science base connects more closely to business - Outsourcing of work to spin-off companies created as part of an Industrial restructuring activity	- In need of revenue-generating model for internal and external clients - Key player in collaborative projects origination and funding - Engineering and prototyping funding needs
Tenant companies	-Enhance image and reputation of the BI/STP - Accommodation to suit needs as appropriate to stage of development - Motivated to be in a like-minded community and close to host or affiliate university or research center - Customized development possible -Room for growth in a campus style environment	- Gain commercial advantage for company - Solve skills shortages - Ready access to technology transfer and problem solving	- Early-stage seed funds required - Strong demand for take-up services - Business models to be tested - Coaching services to be provided through innovation vouchers -IPR strategy assistance

1 Source: Kirk &Catts NZTE Science and Technology Park Scoping Study

5.3 Infrastructure development that suited to meeting start-up and spin-off needs

A BI/STP is much more than its physical facilities, since they are a program more than just a building. The facilities are just one element of a system of business support. However, the construction or renovation of premises may have an important role in the daily operations of the BI/STP and its services.

The real estate prices and rents represent a high cost for start-ups in many developing countries. A key value that can be provided by an incubator is thus subsidized office space. Acquiring telephone systems, internet services, fax and copy machines can also be costly, and in many instance unreliable, if an entrepreneur attempts to acquire them on their own.

Rice & Matthews in Growing New Ventures, Creating New Jobs (1995) [12] emphasize: "the right facilities can provide the basis for the self-sustainability of the incubator and an environment where entrepreneurs and incubator staff can work together to develop new business. Inadequate installations can lead to failure - and inadequate facilities are one of the reasons why incubators have not met expectations".

They also point out that the following set of issues can guide the choice of the most appropriate infrastructure:

- The space is suitable for developing requirements as indicated in the business plan and provide self-sustainability of the incubator
- Small reconstructions are needed
- There is some risk of environmental damage that could threaten the incubator later
- The structure is easy to maintain
- What will it cost to operate the structure
- The terms of the acquisition are favorable or long-term costs threaten the incubator
- The structure is flexible to allow for growth of the incubated companies and reconfiguration of spaces
- There is an appropriate common area (meeting rooms, library, kitchen, office equipment and basic furniture)
- The building and the surrounding incubator are safe and allow entrepreneurs to work during day and night
- Is there adequate parking

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Critical Factors

• Renovation / construction: there are advantages and disadvantages to choose to adapt a building to the needs of the BI/STP or build one specifically for the project. Regardless of whether the site will be designed or adapted, it is essential that an atmosphere conducive to business development is created. Also, it is important to provide space that is easy to reconfigure (with moving walls) to allow for growth of the incubated companies.

• Optimal size: The decision regarding the optimal size of the BI/STP is essential to ensure its independence from external resources and self - sustainability in the future. There can also be disadvantages in large buildings, since a low occupancy rate can be regarded as a sign of failure of the design. Finding the right size for the BI/STP is a challenge that a business plan well prepared can help overcome.

• Neighborhood: the location of the property is very important. The area surrounding the BI/STP should be carefully evaluated to identify the availability of transportation, parking, the existence of postal and banking services in the region and even the type of neighborhood to avoid future problems. For business technology BI/STP linked to university the proximity to university is essential, as it provides easier communication with the target groups - students, professors, associates (identification of possible technology transfer), university laboratories that can be used by the tenant companies, etc.

• Tenants/BI/STP: one of the major benefits offered to tenants is the opportunity to network with other businesses. The interaction between different companies and the BI/STP management team is a rewarding learning process.

• Facilities for research in STPs: for STPs it is very important to provide research facilities (space equipped for specific research equipment, its installation and storage of samples and material used in research for the scientific-oriented tenants).

For the development of start-up and spin-off companies it is necessary to develop a so-called soft infrastructure in parallel to the space conditions and surroundings, that is, a range of services, trainings and mentoring programs, and thus round off a system. Regardless of the area of start-up companies' activities, in order to grow and develop, they all need support such as:

- Administrative and secretarial support (starting from the receiving the phone calls, assistance in procurement and to the meeting and training organization)
- Information service (identifying and giving of all information related to start-up, such as the project calls, organized B2B meetings, etc.)
- Legal support
- Accounting and financial advices
- Promotion and Networking

This set makes the basic or the necessary level of services of each BI/STP. The next development level is the development of mentoring programs and counseling in the field of:

- Intellectual Property Protection
- Preparation of project applications
- Support in product development
- Fund raising
- Support in exports

All this represents the different levels of development of the BI/STP, and certainly that a great part of the mentioned services cannot be provided by the BI/STP management team, but the entire infrastructure

can be planned so that one part is realized through internal capacity, and the other through the external (continuously present) expert support.

It is important to note that the development of start-up and spin-off companies in the BI/STP depends directly on the above-stated factors and services that are available for them.

Experiences show that a lack of good space conditions may partly be compensated by services and small businesses can be quickly developed despite the lack of space, while the lack of services (especially the basic level of services) cannot be compensated for by the luxuriously made BI/STP space.

5.4 Implementation of collaborative software platforms for improved communication and innovation management

Current state and challenges

Currently most business incubators in Serbia are capable of providing their tenants with basic services such as building facilities for hosting of start-ups, financial support and training.

Analysis of the state of incubators in Serbia shows that providing only physical space with favorable price for tenants, after high investments in establishment of number of incubators, is not sufficient incentive for the development of entrepreneurship and micro and small enterprises. There is also the need to develop incubation services that will provide better sustainability and cost effective position of existing incubators.

Activities essential for the success of BI/STP include: continuous provision of business consultancy and innovation management consultancy, knowledge transfer, problem solving, performance monitoring, benchmarking and optimizing, networking.

Collaboration between BIs/STPs is mostly happening on specific cooperation-required EU funded projects and on occasional events where they are involved in networking and basic sharing of news and information in general. In some isolated cases BIs/STPs have some basic software support for monitoring of their activity and tracking key business parameters, but this mostly comes down to individual attempts to implement a solution rather than structured approach with clear business logic and metrics optimized for the economics of BIs/STPs. This is due to two factors: lack of such software solution targeted towards BIs/STPs and financial obstacles of purchasing/licensing software for this means.

In a nutshell, there is a lack of:

- means to support high-bandwidth brainstorming and idea exchange between tenants, management and external parties (students, researchers, investors)
- a structured way to monitor and benchmark performance of BIs/STPs services and performance of their tenants in real time
- means to support high-bandwidth brainstorming and idea exchange between tenants, management and external parties
- possibility to expand its network across municipalities or national borders
- single place to gather strategic initiatives, ideas, projects, people and reusable documentation

In order to increase the probability of the tenants' commercial success it is indispensable to develop different systems of supervision and control, starting with the activity of selecting the entrepreneurs in the pre-incubation stage to active supervision and control of their business performance during the incubation period.

Intention is to improve two key areas:

- communication between various parties, and
- management of innovation process

Goals and support actions

Specific objectives:

1. To promote the incubation concept and to encourage brainstorming and idea generation among university staff, students, researchers and graduates

2. To allow online, easy and efficient tool for collecting and selection of promising ideas and candidates for BI/STP tenants

3. To improve control and monitoring benchmarks of performance of innovation projects and tenants' businesses, followed by automatic generation of specific reports

4. To enable agile collaboration and inter-communication between BIs/STPs, university staff, students, researchers, investors

5. To provide reliable and efficient storing of documentation in the development of innovation

1. Initiating of an online platform for innovation management meeting BIs/STPs requirements

An online software platform will be initiated to help with innovation management efforts of BIs/STPs according to their specific requirements. The platform will be used to capture different proposals in one accessible place, and connecting different people to help work them through to complete concepts. All participants - such as university staff, students, researchers and graduates - will have a user account on this platform. They will submit their ideas in a simple form and then may continue to enrich them and challenge them with other participants on the platform. Proposals can be different items: simple suggestions for change, posted problems, incremental ideas, breakthrough ideas, research results that aim to be commercialized, business plans, etc. Participants will be able to enrich ideas: classification, tagging, finding similar ideas or duplicates, adding images and documents, inter-linking ideas, voting positive or negative, participating in idea discussions.

Expected impact and benefits

- Online platform for innovation management up and running as a cloud service
- Enhanced competitiveness and entrepreneurial climate

Efficiency indicators

- Lowered administrative burden of BI/STP staff and less coaching time spent due to process automation and document library
- Increased number of innovative products/services of BIs tenants with reduced time to market cycle due to using collaborative innovation software

2. Promoting the platform in order to collect larger number of ideas

In order for the platform to produce expected results, it must be promoted in BI/STP activities and event presence. BI/STPs should use their usual methods of promotion to include information about the innovation platform and inform potential new participants about the benefits of joining in and contributing their ideas and opinions. Also this initiative should be promoted towards existing and new

contacts from venture capital and other investing businesses. BI/STP staff will manage users on the platform. It will follow up after promotion efforts to invite and enable new users in the system, as well as to suggest modification or removal of existing users in the system that were introduced by them.

Expected impact and benefits

- Increased awareness on importance of brainstorming, open innovation and crowd sourcing with wider public
- Platform has active users from every segment (university, BI/STP tenants, business, investors)
- BI/STP perform user management of the users on platform
- Users are being motivated to contribute on an ongoing basis (e.g. organizing idea challenges on a specific problem-solving topic)

Efficiency indicators

- List and number of promotion efforts
- Number of new users invited to the platform
- Number of ideas submitted per month
- Number of challenges per time frame

3. Providing efficient online tools for selection of promising ideas and candidates for tenants by stakeholders

All collected ideas will be stored in the single environment with accessible listings. From this collection and enrichment phase, ideas will be transferred to management work flow (review, score, approval, prioritisation). The tool provides an efficient way for delegated users to review each idea for quality and opportunity. Reviewers can send idea back to the owner to rework, or they can send it forward to be scored. Scoring is via quantitative and qualitative assessment of the idea based on number of predefined factors (market success probability, feasibility, etc.). It is performed by delegated 'scorer' users. After scoring, it is decided whether the idea is stopped or allowed for approval. Approver user is looking at ideas ready to be approved and brings final decision if idea is stopped or will be allowed for execution. This is the process of review, scoring and selecting the best ideas and candidates.

Expected impact and benefits

- Idea management work flow with different user roles and stakeholders configured within the platform

Efficiency indicators

- Number of reviewed ideas per month
- Number of scored ideas per month
- Number of approved/parked/rejected ideas per month
- Top innovators per month/quarter/year
- Most popular ideas per time frame
- Most active ideas per time frame

4. Development of specific tools for monitoring, control and generation of progress reports

According to the platform setup that will be agreed with BIs/STPs, appropriate set of control and progress reports will be deployed that will enable real-time overview of the performance of complete idea management process.

Expected impact and benefits

- Specific set of performance and intelligence reports

5. Providing high level of security (access and data protection) and efficient documentation management

The innovation platform will provide a critical level of data and user details protection, as well as data retention. The access to the platform will be behind a secure internet line (SSL) and the data on the platform will be encrypted for total information security. Back-up will be performed on all data and files on a daily basis.

Document management will be performed in multiple ways. Every idea will be able to have documents and images attached. Every user discussion group will also be able to have documents and images attached. Documents will be attachable to every single comment, so that users can download the document right from where discussion about it is happening. Also, document library will be enabled so that all supporting documents, papers, knowledge articles, training materials, videos, etc. will be categorized and users can easily search, browse and find them within a simple document management section.

Expected impact and benefits

- Enabling secure environment with different access levels for users
- Enabling possibility for storing, sharing and finding documents

Efficiency indicators

- Number of user access attempts per month
- Number of document uploads per month

6. Using innovation management software system for control and monitoring of BI/STP performance

By utilizing innovation management software, BI/STPs will be able to engage with a collaborative environment for management, tenants and external parties that will enable strict monitoring and free collaboration. Idea management, new product/service development and reporting capabilities will be preconfigured and ready to use by organization. Each BI/STP might have slightly different process activities, so innovation management software will need to be configured to respect those specifics. BI/STP will be required to share their operational work flow in order for system to be configured for their way of working.

Expected impact and benefits

- Complete overview of BI/STP performance for monitoring and benchmarking
- Higher quality of support provided to BI/STP tenants in the first few years
- Higher possibility for tenants to network, exchange thoughts and be well informed
- Enhancing competitiveness and entrepreneurial climate
- Milestone setting and performance targeting

Efficiency indicators

- Lowered administrative burden of BI/STP staff and less coaching time spent due to process automation and document library
- Increased number of innovative products/services of BIs tenants with reduced time to market cycle due to using collaborative innovation software
- Number of commercially successful results of the innovation efforts
- Number of new opportunities created by participants in BI environment
- Number of tenants that have received innovation methodology coaching

Current state and challenges

Service and activities provided by BIs/STPs depend on the type of BIs/STPs, stakeholder expectation, defined goals and mission in their establishing. The majority of BIs/STPs have been established as public institutions with local authorities as key stakeholders, but there are also private BIs/STPs that are more oriented on profit-making and sustainability. Opposite to public ones which are financed mainly through grant and are fee oriented, and offer only tangible services (facilities, space, equipment, etc.), private BIs/STPs offer more advanced services which increase the capital of their tenants (transfer of knowledge, access to venture capital, connection with business angels, etc.).

BIs in Western Balkan countries are mainly public institutions which have at least local authorities as stakeholders. The most frequent services they provide for their tenants are basic services: subsidized rents, equipment/facilities sharing, training in entrepreneurial skills, marketing assistance, consulting advice, etc. More developed BIs offer more advanced services, such as conference and training room sharing, event management, new market entrance assistance, specialized software access, exhibition and trade assistance, etc. However, there is a lot of room for improvement of such important activities of BIs. Intellectual property protection is one of the least offered services, together with Information services and Advice on recruitment of staff and personnel management makes the main group of services suitable for improvement. Legal and Law services and Networking represents very different groups of services, but equally important, especially for SMEs and start-up companies. The group of services which does not exist at all in BIs in WBC is Brand Building. These improvements need to be in line with world trends.

In accordance with the published data [13], there are 7 categories of services that make the modern service program for BIs:

1. Secretarial services
2. Infrastructure/facilities based services
3. Business services
4. Financing and access to finance
5. People connectivity and networking
6. Education and access to knowledge
7. Brand building

What is a business incubator?

- **A facility is not enough**
- **A facility with below market rent is not recommended**
- **A facility offering just shared office practice services and equipment is not enough**
- **A facility offering management assistance services via referral to other service organizations is not enough**
- **A facility with a list of tangible office practice services, management assistance and technical services (some by referral and some delivered directly) is beginning to warrant the label "business incubator"**

The definition, organization and implementation of the Service Program is more important than the facility.

Source

Best Practice in Business Incubator Management - Andrew Duff

Goals and support actions

Specific objectives:

- To develop service program in accordance with the BIs/STPs type and mission, and the structure of their tenants
- To improve the delivery of service program to ensure strong impact and sustainability
- To improve the capacity of BIs/STPs staff for implementation of service program

1. Development of service program

A good service program for BIs/STPs tenant is one of the most important "recruitment tools" and is considered the key element for Development Plan of every BI/STP. For existing BIs/STPs, it is recommended to benchmark their services and develop well-structured service program in accordance with the tenants and market requirements. When it comes to new BI/STPs to be established, the most important part in the feasibility study for its establishment is the definition of the service program and its testing at least one year before the space becomes available for renting.
A service program could be structured into three levels of services:

1. Basic services - rent of space, secretarial services, infrastructure, facility based services (IT services)
2. Additional services – consulting and advisory, business training, marketing assistance, accounting and financial management, basic IPR and law advisory
3. Advanced services – specialized equipment and software, library, financing and access to finance, brand building, protection and registration of IPR, transfer of knowledge, guidance through innovation cycle, etc.

Expected impact and benefits

- Service program for BIs/STPs tenant developed as important "recruitment tool" and the key element for Development Plan of every BI/STP
- Basic, additional and advanced services available

Efficiency indicators

- Number of services developed within the service program

2. Improvement of the delivery of service program

Once the BI/STP has developed and structured its service program, the next step needs to be the definition of methods for delivery of those programs. As recent practice shows, the BI/STPs management usually does not pay sufficient attention to this crucial element of the implementation of the program. Some important elements should include:

- Every developed service needs to be clearly described and easy to understand for recipient prior to delivery
- Estimated time for completion of service
- Defined and easy-to-access request for service
- Role of the client should be clearly defined (complete and partial involvement, appointments, etc.)
- Monitoring and surveying of clients satisfaction

Expected impact and benefits

- Developed services are clearly described and easy to understand for recipient prior to delivery
- Estimated time for completion of service

- Defined and easy-to-access request for service
- Role of the client is defined (complete and partial involvement, appointments, etc.)

Efficiency indicators

- Number of used services
- Number of clients
- Level of clients' satisfaction determined through a survey

3. Capacity building trainings of BIs/STPs staff

The main objective of capacity building training for BIs/STPs staff is to improve the knowledge and competences of BIs/STPs managers to provide high quality of services to their tenants. These activities should focus on regular upgrade and development of BIs/STPs competences as trainers and service providers, such as:

- Competence to design well-targeted and high quality services to tenants taking into consideration that they are not duplicating already existing externally available services
- Capacity to identify and assess different specific needs of the BIs/STPs tenants
- Competence to plan and customize the delivery of services in accordance with the tenants structure and their identified needs
- Competence to evaluate provided service and their impact through tenants' feedback
- Competence to cooperate and exchange the methods and experiences with other BIs/STPs staff

Expected impact and benefits

- Well-targeted and high quality services to tenants
- Capacity to identify and assess different specific needs of the BIs/STPs tenants
- Competence to plan and customize the delivery of services in accordance with the tenants structure and their identified needs

Efficiency indicators

- Number of BIs/STPs staff trained in capacity building trainings
- Number of services delivered in accordance with the perceived needs

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5.6 Application of new incubation models – virtual business incubators

Current state and challenges

Serbia just like other developing countries has a number of problems concerning innovation, new start-up companies and business incubators: poor growth rates, lack of Venture Capital, productivity falling behind, aging population, massive downsizing, no European patent, public sector looking for improved governance, lack of true entrepreneurship, persistent gaps in innovation, inadequate and not focused enough business/R&D support, difficult access to EC funds.

Since incubators, in developing countries, are typically funded by national and local governments, their attitudes towards incubation play a key role in the success or failure of incubator programs.

Some of the added difficulties incubators in developing countries are faced with are:

- the lack of financial resources available to incubators
- the challenge of finding qualified people to staff incubators may be even more problematic than it is in industrialized countries
- the lack of partnering opportunities outside the incubator organization because professional services are often scarce and focused on large companies
- the mind-set of entrepreneurs often makes them unwilling to give up equity in their companies
- the fact that entrepreneurs may be less willing to trust outsiders
- the general business environment may be less favourable
- the property rights situation may be less developed
- the fact that some national cultures may be more risk-averse
- the lack of venture capital and networks of ”angel” investors

At the same time, incubators in developing countries have to deal with the challenge of retaining the companies that outgrow their incubator, the so-called ‘graduates’, in their region or even country. On the other hand developing countries are facing the migration of young graduates and researchers who are attracted by more promising environments in developed countries.

BIs are providing targeted on-site services package to its tenants (office space, networking, partnership, consulting etc.) thus creating a unique opportunity for innovation-based ventures to become much more stable and resistant to the market dynamics and capable to manage changes. In recent years, Serbian BIs have started to develop and apply the concept of Virtual incubation mainly because of lack of physical space and the need to expand the scope of activities towards SME’s and to increase the number of potential users of incubator’s services.

Virtual Incubation is designed to provide support to businesses that are not physically located in the incubator’s facility. The reason being is that start-up businesses that cannot use BI’s resources are faced with the costs of doing business at market rates and do not have access to a wide range of information and services that BIs provide to their tenants, which significantly reduces their competitiveness on the market. The concept of virtual incubation has been expanded with the concept of Virtual offices by the Business innovation centre in Kragujevac, whereas besides the soft services offered to its clients, a unique virtual environment enables the off-site tenants to use all of the incubator’s services without having a full-time physical office space at the facility. This is achieved by using modern technology resources such as communication, off-site phone answering, use of mail and web services which are all accessible on a single platform. Furthermore, address services for the clients are offered in order to increase their

professional presentation. Such services can substantially decrease the costs of running the business and contribute to reaching profitability, especially in the start-up phase.

At the same time, a virtual incubator is a place for student entrepreneurs and graduates to receive and share advice on how to start and grow their businesses. It serves as a resource for students to refine their business plans, find resources in the community, and deal with any problems that may arise in pursuit of their business venture. Furthermore, commercialization of scientific results from the students research work by creating new companies is another key issue to be addressed during the project. More information is available on virtualbic.rs.

Virtual Incubators as a service to SMEs showed the best results in synergy with conventional physical business incubator or Science and Technology Park, primarily because the resources offered by an incubator are immediately available to user software virtual platforms. "Virtual" is not only a term related to online technology and ICT in general, but comprehensive in terms of the use of services and tools of BI by dislocated company, taking advantage of the Internet and the availability of both its infrastructure on one side and intellectual capacity on the other.

The business incubation process can operate successfully on a virtual basis which for 'traditional' incubators with physical space constraints suggests making greater use of ICT to extend the client base; and, linked to this, they have demonstrated that the real value added of the business incubation approach lies in the sharing of know-how rather than physical aspects. Even "traditional" BIs should develop 'virtual' incubation services so that more businesses can benefit and through after-care/graduate networking, ensuring that job and wealth creation effects are retained in local economies.

Goals and support actions

The overall objective of the establishing a virtual incubator is the Improvement of business related infrastructure in order to support the development of existing and creation of new enterprises and to contribute to reduction of unemployment.

Specific objectives:

- To create new employment opportunities and safeguard existing employment through implementation of the capacity building program on entrepreneurship for students, graduates and entrepreneurs and facilitation of the creation of start-ups'
- To improve the competitiveness of enterprises in selected regions through reduction in overhead costs by engaging a virtual office as part of virtual incubation
- Creating and/or improving area-based partnerships for development and/or employment by strengthening ties with the university and other business support institutions
- Supporting new technologies and services to reduce costs, through high tech communication
- Adding value in the production process through efficient and effective use of business locations and premises and
- Encouraging innovative management practices

1. Implementation of the capacity building program on entrepreneurship for students, graduates and entrepreneurs and facilitation of the creation of start-ups

Presence of entrepreneurial orientation among the students and graduates calls for new programs and initiatives for the development of practical entrepreneurial skills in order to maximize this potential. Together with project partners, external consultants, Universities and other stakeholders BIs will design a five module training courses. Business skills courses should cover: Essentials of writing a business plan; Commercialization of business idea; Internet marketing and promotion; Business support services on the local/regional level and should bring closer the entrepreneurship to students, help them recognize the feasibility of their business ideas as a result of project assignments and research and stimulate the creation of spin-off companies from the University. A joint approach of academic and business institutions enables the production of modules which are adapted to the specific needs of target groups.

Expected impact and benefits

- Developed business skills training program
- Increased number of students/graduates and entrepreneurs with business skills

Efficiency indicators

- Number of trained students/graduates and entrepreneurs in business skills
- Number of business plans produced and start-ups created
- Number of semester assignments and project with business potential coming from University

2. Improve the competitiveness of enterprises in selected regions and implement new technology and services to reduce costs

A virtual incubation (VI) approach significantly reduces the overhead costs and enables companies to grow and become more competitive. This enables companies and clients to direct funds towards R&D, marketing, investments. Users of virtual incubators utilize the know-how provided by the BI and other key actors in the process and in that way enhance the capacity of their employees. This is executed by development of a platform for distant learning and on-line consulting in the sphere of entrepreneurial activities, marketing, technology transfer, integration of ICT in business. Furthermore, enterprises which are present on the VI web portal receive a unique complex of on-line services on business-incubation and entrepreneurship and creation of start-up company portfolio.

Virtual Incubation Services should focus on the four key incubator service areas – entrepreneur training, business support, financing, and technology support.

1	***Entrepreneurship appraisal and training***	Assessment of personal qualities and business ideas
2	***'Virtual office' services***	Message handling, virtual post box, ICT/e-mail, website hosting
3	***Business services***	Business planning, legal advice, tax, marketing information, etc.
4	***Access to finance***	Investment readiness programs, matching with investors, etc.
5	***'Virtual classroom'***	Business skills, finance, human resource management issues, etc.
6	***Mentoring***	Advice from experts and access to experienced business people

Expected impact and benefits

- Developed set of virtual incubator services
- Reduced overhead costs of companies
- Increased competitiveness of companies

Efficiency indicators

- Number of users of BI managed web-portal
- Number of users of 'Virtual office' services – message handling, virtual post box, ICT/e-mail, website hosting
- Number of users of Business services – business planning, legal advice, tax, marketing information, etc.
- Number of users of Mentoring program – advice from experts and access to experienced business people

3. Improving area-based partnerships for development and/or employment

Development of VI strongly relies on institutional support on local/regional level by key regional stakeholders in order to have a regional dimension. Strengthening ties with the University and other business support institutions will help in bringing closer the world of entrepreneurship to students and in turn facilitate in the development of new curriculum and new entrepreneurial projects. Other key stakeholders and possible partnerships include organizations such as Regional chamber of commerce, Regional development agencies, Association of entrepreneurs, various companies, National employment service, municipalities, etc. Such partnerships can defined and coordinate the activities VI generating a large positive impact on entrepreneurship in the region.

Expected impact and benefits

- Established local/regional partnerships and networks for the support of entrepreneurship

Efficiency indicators

- Number of established partnerships of various BSO and academic society
- Number of joint initiatives towards users of VI

Stakeholders and actors

As already mentioned, in order for the VBI to have a wider dimension and impact on all target groups, local/regional stakeholder should contribute, each with its own competences, in developing and operating the VI. It is not only up to the founders and management of BIs to put in their resources into developing VBI, but also a joint and coordinated action with selected groups of business services providers and academic society is needed.

Key partners involved in setting up business incubators or VBI:

- Local/regional/national authorities and public agencies
- Companies, banks and other private sector organizations
- Universities & other R&D organizations
- Organizations of civil society

VI management and other stakeholders should focus on the provision of advisory services in the two most important fields, entrepreneur training and financing since these are areas where there is the least know-how.

Users of virtual incubator are primarily companies which are not physically located in the incubator and companies in need of "aftercare" (graduated tenants). Examples are listed below:

- Early stage start-ups that do not need a physical base or who have own workspace
- Entrepreneurs who are home workers /thinking of starting up from home
- Location independent working (LID) – e.g. translation services, creative/cultural enterprises

• ICT-based businesses or those with a high virtual content, e.g. web-designers, some high-tech businesses, where support can be provided remotely (e.g. software development)
• Business incubator tenants that have graduated' to locations elsewhere and need aftercare support/ retention
• Businesses in rural regions or other relatively isolated areas, or where target group is dispersed
• Other businesses requiring specific services than can be delivered virtually (e.g. grant applications), etc.


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5.7 Establishment of creative and entrepreneurial framework with schools and universities

Current state and challenges

Despite the fact that both, the BIs and (existing and developing) STPs on one hand, and educational institutions on all levels (schools and universities)in the Western Balkans region on the other, are part of the overall national innovation systems, structured cooperation between those important elements of the system still seems to be challenging.

In recent years, WBC countries have significantly progressed in developing the strategic and policy framework enabling the establishment of favourable environment for the improvement of the innovation system in the respective countries. Different sector strategies and legislation recognize the importance of the links between all the actors in the system, and underlining the significance of the opening of the universities towards the environment.

Moreover, there are significant efforts on the level of the region to develop joint strategic framework aimed, among other measures, at the increase of the region`s innovative capacities and competitiveness, such as South East Europe 2020 strategy (*http://www.rcc.int/pubs/0/20/south-east-europe-2020-strategy*). Next, within the activities of the governments from the region, there are structured joint efforts to implement concrete activities for the strengthening links within the innovation systems of the countries (e.g. WBC-INCO.NET project, *http://wbc-inco.net/*)

More prominent role in the process lies on the regional/local authorities and stakeholders, due to the fact that the more practical approach that is a need in this process is by far more easily developed and implemented on this level. Coming to institutional level, the situation in the region varies to certain extent from country to country.

However, no matter how recognized is the importance of establishing the framework for cooperation between the academic and educational community and the support structures such as BIs and STPs, primarily of raising entrepreneurial culture among pupils and students, the education system does not encourage entrepreneurship and creativity at a satisfactory level. This is especially the case where there is no direct and structural link, as is often case in WBC, between the schools and those structures. The situation is to certain extent better when it comes to the relations with the universities. That may be the biggest challenge identified.

Another challenge would be the fact that the educational stakeholders and business are operating in a different environment, often without adequate communication even on basic level.

Finally, one of the big challenges that may even be crucial for further development of the innovative system in the countries is the involvement of the business and business support structures in the education process. Namely, one of the often underlined issues insufficiently tackled by our education institutions is incorporation of teaching entrepreneurship as part of the curricula, on the level of secondary schools and even at the university level, apart from the economics faculties/departments. Another aspect is the existing gap between the teaching and practical work at vocational schools and universities. There is a general remark to the systems of vocational and higher education about the learning outcomes of the programmes, i.e. skills and competences that students acquire upon completion of school/studies. Business support structures should play a significant role in the process of enabling more applicable learning processes in the WBC education systems.

Goals and support actions

Specific objectives:

1. To provide structural institutional framework for enhancing cooperation with the universities and schools on institutional level
2. To develop set of awareness raising activities from both types of institutions
3. To involve BIs/STPs in the education and research process
4. To realize additional activities that would involve all the stakeholders and lead to the improvement of the cooperation – joint applications, capacity building, etc.

1. Providing structural institutional framework for enhancing cooperation with the universities and schools on institutional level.

Here, the activities need to be envisaged twofold, i.e. from the side of BIs/STPs and educational institutions respectively:

Existing BIs/STPs outside universities should re-consider its managing and advisory structures, by involving the representatives of the educational institutions (vocational and higher education) structures.

Higher education institutions should, first and foremost, work on their internal legislation and strategic documentation that would improve or establish the business support structures, defining the ownership structure, types of activities, type of partnerships, inter-sectoral mobility and incentives, practical placements of students in the overall studies. Based on this, possible contracts can be introduced.

Vocational/secondary general education institutions should, in accordance with the existing governing rules, develop model contracts for cooperation with BIs/STPs defining joint actions, for example the organization of entrepreneurial trainings and events.

Expected impact and benefits

Provision of the framework for structured cooperation of the groups of actors will facilitate the process of initiating/continuing cooperation and, at the same time, initiate other processes that will follow – awareness raising, definition of concrete joint activities and their implementation.

Efficiency indicators

- The number of revised governing structures of BIs/STPs
- The number of new pieces of legislation
- The number of new cooperation contracts

2. Developing set of awareness raising activities from both types of institutions

A set of the promotional activities aimed at the end users of both groups of actors should be defined, in order to raise awareness on the importance and benefits of the cooperation.

At one end of the spectrum, there are users of the BI/STP activities, to whom the activities aimed should be tailored so as to bring them closer the importance and benefits of the cooperation with the universities. First of all, it means breaking the prejudice about the universities being `ivory towers` thus being not interested into solving the problems the companies (SMEs) face. Coming to the secondary schools, the

activities should be aimed at raising awareness of the importance of being entrepreneurial and creative, thus encouraging the students to involve in such activities.

On the other end, higher educational institutions shall define and implement the activities that will raise awareness among its target groups (students and/or teachers/researchers) about innovativeness and entrepreneurship in general, and then, as a next step, about the benefits of the collaboration with the BI/STPs.

Expected impact and benefits

The main impact is making first practical steps towards realization of cooperation in more concrete terms. All of the groups involved (both – institutions and their end users and/or beneficiaries) are more aware of the possibilities for cooperation, and benefits of it. Students as target group, especially ones from the secondary education, are more aware of the prospects for their future professional development.

Efficiency indicators

- The number and types of organized motivational events
- Developed promotional material

3. Involving BIs/STPs in the education and research process

BIs/STPs should be consulted and involved in development and approval of the curricula on the university level, focusing again on entrepreneurship and innovativeness. It can be on the level of formal education, i.e. study programmes and/or modules, and also at the level of lifelong learning activities within universities. In case of secondary education, since there is not much autonomy in the development of syllabi on the level of individual institutions, BIs/STPs can be invited to completely develop specific training activities that may be offered as part of the elective courses for the students.

Next, the representatives of business support structures may be invited as guest lecturers at both, secondary and higher education institutions, providing specialized, practically oriented lectures.

Another significant aspect of successful education process, and one of the identified bottlenecks of WBC education systems, is practical work during the course of study at both – secondary and higher education levels. BIs/STPs are a perfect medium for enabling practical placements to the secondary and higher education students in the companies, as part of their formal education.

Another bottleneck, when it comes to business-academia cooperation in the Western Balkans, is certainly inter-sectoral mobility of researchers. Cooperation between the industry and universities in this respect can most certainly be enhanced with the participation of BIs/STPs. When we speak about young researchers (PhD candidates, post-docs), this type of mobility is to be part of their formal education, usually based on research projects with the industry, often for the purpose of the PhD thesis development.

One segment of the HE process where there is particularly room for cooperation is certainly the LLL offer of the universities. Here, the BIs/STPs representatives, as well as their tenants, can be involved in the process starting with initiating specific training, then in the development of the course itself, and finally in the implementation of the courses. BIs/STPs can be used as an effective communication channel from the university to the companies in order to define the needs for specific type of training, and assist in recruiting the attendees of the courses. From the companies` part, BIs/STPs can communicate or facilitate communication with universities regarding initiatives for LLL courses.

Expected impact and benefits

Involvement of BIs/STPs in the education process at the institution leads to the increase of the overall quality of education offer, modernization of the institution, its openness to the society and contribution to the overall economic development of the country.

On an individual level, development of future young professionals in the countries starts already during their formal education. Prospects of employment are presented to them already at this early stage, increasing their chances at the labor market once formal education is completed.

Also, companies and support structures are in the position of being consulted in tailoring the offer in order to meet the actual needs, then to improve the capacities of its employees, and also have access to a pool of future young experts and professionals in their respective fields.

Efficiency indicators

- The number of courses (formal and LLL) introduced/revised
- The number of lectures involving BIs/STPs
- The number of placements in companies
- The number of companies involved
- The number of PhDs with the industry

4. Additional activities that would involve all the stakeholders and lead to the improvement of the cooperation

Here, we would only mention some of them, since they are to be more elaborated in the rest of the document: organization of fairs and competitions (section 5.9), participation in joint projects (section 5.8).

Universities and support organizations can also jointly organize `brokerage events`, where representatives of the two beneficiaries` groups can meet, learn about each other activities, present the opportunities for cooperation. This can all lead to initiation of joint project proposals that can be submitted to different donors. They can jointly organize workshops and events on different issues – transfer of technologies, opportunities for joint projects, preparation of joint proposals, etc.

For development of creativity of young people, even at the level of elementary schools, it can be very useful to organize events such as "science day", especially in the STPs. There, young researchers and scientists would present their scientific results to the visitors in an interesting way tailored to the age of the pupils, in order to get the science closer to them and show its application in the everyday life.

Expected impact and benefits

These activities would lead to the increased cooperation and networking among actors. Young people can have a whole new view of science as something interesting and motivation to get involved in the scientific ventures.

Efficiency indicators

- The number of brokerage events and "science days"
- The number of training events, lectures and workshops
- The number of project proposals
- The number of participants in various events

Stakeholders and actors

Educational institutions at primary, secondary and tertiary level, business support institutions and companies are to be involved in the activities.

5.8 Creation of mechanisms and structures for high-tech innovations in cooperation with universities and research centers

Current state and challenges

Based on information available in relevant documents reviewing the WBC innovative structures [14], BIs and STPs among others, it has been emphasized that high tech component is missing as well as innovative business based on knowledge and research, having in mind that they are mainly founded by municipalities and national and international programs for support of incubators development. As universities are main leaders of research and innovative activities, their involvement and support in the development of incubators in WBCs in that direction can be of great importance.

Since BIs' tenants are start-ups and micro enterprises, they do not have their own resources for high-tech innovations. The innovativeness in their business refers mainly to innovations in organization and marketing segments. The exception is ICT sector and enterprises dealing with software development whose "basic capital" are people (programmers), so they do not need expensive research equipment and resources. For enterprises in other sectors than ICT, cooperation between BIs and universities/research centers can be extremely beneficial through use of resources and expertise available at WBC universities and their research units.

Additionally, there are hardly any Science and Technology Parks that are fully functional and operative, and that are financially sustainable with full logistic support to their tenants and high tech innovative enterprises. Some of them were built in the previous period and have outstanding working space, but they are missing trained staff and logistics. In a situation like this, university and its experienced staff can provide this kind of support in the early stage of STP development, having in mind that some of those support structures and organizational units dealing with knowledge transfer already exist at universities.

Establishing of the sustainable cooperation between universities and BIs/STPs also contributes to the modernization of university itself. Although there are research results with commercial potential and valuable ideas presented by students and researchers, unfortunately they mainly stay locked in the universities laboratories, research centers or just as a concept. This unused potential can be unlocked and converted into successful business ventures through marketing and business guidance of BIs/STPs staff which ultimately lead to establishment of new start-ups and spin-offs based on research.

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Goals and support actions

Specific objectives:

1. To reinforce the potential of BIs/STPs for high tech innovation through using of joint resources with universities
2. To mobilize universities and their experts in the area of knowledge transfer, applied research and innovation as logistic support in the first phase of STPs development in the WBC region
3. To motivate students, young researchers and university staff for entrepreneurial/innovative ventures and to establish sustainable functional links with BIs/STPs for commercialization of their ideas through establishment of start-ups and spin-offs
4. To engage university professors/teachers by the management of BIs/STPs in order to provide professional/specialized trainings for tenants
5. To allow students and young researchers to develop entrepreneurial and practical skills through volunteering and/or practical placement program within BIs/STPs management units or tenant enterprises
6. To support additional funding of BIs/STPs and their internationalization through applying for joint international projects and establishing new partnerships with primary role of experienced university staff

1. Using university resources for strengthening of innovation potential of BIs tenants

Since the tenants of BIs are start-ups and micro enterprises without their own resources in terms of equipment, software and human potential, their development and growth in technological sense is limited to outsourcing, i.e. using the resources of outside suppliers. Since universities in WBC region, their faculties and centers have well equipped laboratories, experienced research staff, unique equipment, software and accredited test methods, all these can be offered and shared to BIs tenants as strong support to strengthening their innovation potential. Mapping of university potential and its catalogue presentation within the WBCInno project is the first step in implementation of this support action.

Expected impact and benefits

- Increased number of innovative products/services of BIs tenants with reduced innovation process cycle due to using university resources
- Improved competitive position of BIs tenants on the market
- Provision of additional financial resources for equipment and software maintenance at Universities

Efficiency indicators

- Number of realized outsourcing contracts with BIs tenants at annual level
- Number of inventions/patents/licenses of BIs tenants at annual level
- University's annual income based on the contracts with BIs tenants

2. Providing logistic support by experienced university staff and its knowledge transfer units during the initial development phase of STPs in WBC region

Organizational scheme of STPs and their structure, especially in WBC region, should include logistic support units such as Technology transfer center, Patent office, LLL centers, Start-up centers, as it is proposed in [15]. So far, the usual practice in WBC region was to invest only in buildings construction and providing facilities (space for laboratories, offices, etc.), but the real challenge is to provide efficient logistic support for STP tenants. In the first phase of STP development, such logistic support can be provided by university and similar established units that are fully functional and with trained staff. This could be used to overcome the shortage of experienced staff during the early stage of STP development.

Expected impact and benefits

- Higher quality of logistic support provided to STP tenants in the first few years
- University knowledge transfer units will establish sustainable links with STP tenants

Efficiency indicators

- Number of logistic services delivered by university staff/units
- Number of STP tenants that used any kind of support from university

3. Encouraging and motivating students, young researchers and university staff to be involved in entrepreneurial and innovative ventures.

If we are considering the innovative approach to BIs/STPs, the target tenants are expected to be university students, young researchers, centers of excellence and professors with validated research results with commercialization potential. Currently, this potential is not exploited in the WBC region. One of the modality that can be applied in order to achieve this goal is to organize various competitions, such as competition for best student ideas, establishment and development of start-ups and spin-offs by university researchers and staff. This would lead to creation of critical mass sufficient for selection of high quality of tenants and sustainability of their innovative business. This is why it is of great importance to establish and develop the functional and sustainable links between universities and BIs/STPs, so that generated ideas, research results and laboratory prototypes can be presented in appropriate way to the BIs/STPs management and decision-makers providing entrepreneurial trainings for university staff and getting them an opportunity to compete. However, these actions also require institutional support from government bodies, development agencies, chambers of commerce, etc. through development of various strategies and regulations as well as launching incentives that will facilitate their implementation.

Expected impact and benefits

- Improved entrepreneurial spirit at universities at all levels (students, researchers, professors)
- Increased number of start-ups and spin-offs initiated by university graduates, researchers and professor
- Increased number of ideas coming from students and university staff

Efficiency indicators

- Number of new start-ups and spin-offs
- Number of participants at various competitions organized by BIs/STPs

4. Engaging experienced university teachers/experts for delivery professional specialized trainings to BIs/STPs tenants.

As one of their services, BIs/STPs in WBC region offer trainings for their tenants in the area of entrepreneurial and business management. However, specialized and professional trainings related to specific technological areas are still missing, but they should be offered for development of high tech innovations by BIs/STPs tenants. The most competent trainers for this kind of trainings come from universities. Thus, the BIs/STPs management should create the base of specialized trainings with engaged teachers/experts from universities. This service should be provided on commercial base and beneficial both sides.

Expected impact and benefits

- BIs/STPs tenants trained in the specific technological areas necessary for their business
- BIs/STPs extended the list of their services
- University professors and experts contribute to human resources development of BIs/STPs tenants

Efficiency indicators

- Number of specialized trainings
- Number of certified trainees

5. Developing entrepreneurial and practical skills of students through volunteering and practical placement program.

For sustainable partnerships between universities and BIs/STPs it is important to involve both sides and have mutual benefits. Thus, in this partnership BIs/STPs can contribute through engagement of students in the entrepreneurial trainings they regularly organize for their tenants. In this way students will gain additional knowledge necessary for developing their own business. Additional requirement for this is to adjust the terms of these trainings to the students schedule during the semester (afternoon, evening, summer trainings, etc.). For them, it is also very beneficial to get involved as volunteers or within the practical placement both within the management structure of BIs/STPs and within their tenants. In this way, they will gain practical skills necessary for their career development.

Expected impact and benefits

- Entrepreneurial spirit is improved among students
- Better connection between BIs/STPs and young people as potential applicants for business plan competitions
- As long-term impact, better graduates' employability

Efficiency indicators

- Number of trainings organized by BIs/STPs
- Number of students involved in trainings, volunteering and practical placements supported by BIs/STPs

6. Providing additional funding of BIs/STPs and their internationalization through joint project applications and establishment of new partnerships.

BIs and STPs in Western Balkan Region usually have only a few employees in their management structure, which is mainly funded by the BIs/STPs founders (City, Chamber of Commerce, Development Agencies, etc.) . With such limited funding capacity from national sources, it is essential to provide additional funding from international funding programmes. Having in mind that university staff have a good success rates in project proposals and experience in implementation of international projects, their support in funding of BIs/STPs through joint projects applications could strengthen both human resources and infrastructure

development of BIs/STPs. Additional benefit BIs/STPs can have from cooperation with universities is in term of internationalization. Universities in WBC region have very well developed network of partners from EU and the world. In that sense, BIs/STPs can take advantage of universities' existing contacts and partners in order to establish sustainable contacts and collaboration with eminent institutions dealing with knowledge transfer, innovation and research.

Expected impact and benefits

- Provision additional funding for development of BIs/STP/s human resources and infrastructure
- Indirect benefit in terms of improved logistic services for BIs/STPs tenants

Efficiency indicators

- Number of project proposals
- Number of funded joint projects
- Annual budget from international funds for BIs/STPs
- Number of new established contacts between BIs/STPs and international institutions dealing with knowledge transfer, innovation and research

Stakeholders and actors

BIs/STPs prevailing role in establishing sustainable cooperation with universities and research centers should be as follows:

- To support development of innovations coming from universities as ideas or research results with commercialization potential
- To provide business contacts with possible investors, especially for venture capital
- To provide opportunity for students, graduates and young researchers for trainings and practical placement programs so they can gain practical and entrepreneurial skills
- To provide an opportunity for graduates for volunteering in BIs/STPs
- Using existing BIs/STPs resources to participate with universities in joint initiatives and projects within international funding programmes

Universities should contribute to establishment of this cooperation through

- Encouraging and facilitating entrepreneurial and innovation venture within university community
- Initiating cooperation with BIs/STPs related to preparation of joint project proposals
- Recognizing ideas and research results of its students, researchers and professors that could apply for tenants status in BIs/STPs
- Providing consultancy services and knowledge transfer to BIs/STPs and their tenants
- Establishing the legal framework for commercialization of research results.

Other stakeholders' role

For some of the above mentioned measures, it is not sufficient only to involve BIs/STPs in order for the cooperation to succeed. It is necessary to provide support at the institutional level from the government bodies and agencies for support to SMEs and start-ups, municipalities, development agencies, chambers of commerce, etc. Their role should be to provide an institutional framework and support in terms of development of strategies, regulations and the whole set of incentives in order to facilitate the cooperation between BIs/STPs in WBC region.

5.9 Organization of competitions and awards for best business plans, best student's/researcher's ideas

Current state and challenges

Competition for the best business plan/idea/model is a form of support and promotion of entrepreneurship with a wide-spread use. There are numerous examples of this type of support for new business endeavors. Competitions can be divided in different ways, depending on two selection criteria. We can differentiate between short form competitions, happening within a few days, usually for the weekend. Examples of competitions falling into this category include: Start-up Weekend, Start-up World, Start-up live, App Camp, Hackathon, etc. Events of this type have a local character since their focus is mostly on one city, however, they are quite numerous, which is supported by the information from Eventbrite (*www.eventbrite.com*) , where only in November 2013 there were 1144 registered start-up related events.

Form of competitions characterized by the longer form is mostly related to competitions with a national or regional character. Apart from a longer time frame for the realization of activities, more attention is paid to the education and training of the participants. This competition form can be differentiated by the time frame in which these short forms are realized, starting from the short form where the competition is done within weeks, up to the competition which takes several months to be realized. These competitions place their focus on intensive training of the participants in the areas which have been defined as key for the future market success.

Competitions can also be subdivided from the aspect of their focus: university competitions, young entrepreneurs competitions, innovator competitions.

Business incubators often successfully use the competition form in order to attract future tenants. Competition form is also very popular at EU and USA universities as a tool for promoting the spirit of entrepreneurship as well as a form of support for those who have ideas about starting their own business. All participants that go through a series of training sessions are winners in a way, since they have increased the corpus of their knowledge necessary for the management and development of a start-up project.

According to "Entrepreneurship in higher education, especially within non-business studies" [16] from March 2008, published by the European Commission, the competition for the best business plan is a form of entrepreneurship education providing students with important tools for the development of their own business ideas. The competition is seen as an excellent way of networking students participating in the competition with successful entrepreneurs who can participate in a competition as mentors, trainers or judges. Entrepreneurship development centers such as The Entrepreneurship House at Grenoble University in France state that they are using the Annual best business plan competition and Support for students in project preparation and the development of business ideas as some of the measures for stimulating the entrepreneurship.

In Greece, the Ministries of Education and Development organize a national business plan competition for students who have followed entrepreneurship programmes at university. This is in close cooperation with businesses and successful entrepreneurs. After that, the Ministry for Development — under an open call for young entrepreneurs — offers students the chance to realize their business ideas.

In WBC region, short form competitions are constantly organized, such as the Start-up Weekend which has so far been organized in Belgrade, Banja Luka, Sarajevo, Dubrovnik, Novi Sad, Tuzla, Priština, etc.

In some cases, the focus of these competitions has been on student population and the universities themselves are the organizers.

Longer time frame competitions are much rarer in the WBC region, and the Competition for the best technological innovation in Serbia is an example of a successful model which has been successfully gathering, training and rewarding individuals desiring to realize their innovation and SMEs which want to improve their business.

Competitions are an excellent form of pre-incubation process for business incubators.

Goals and support actions

Specific objectives:

1. To promote entrepreneurship spirit and culture among students and researchers at University centers
2. To motivate and support the development of new spin-off companies based on the ideas of students and researchers at universities in WBC region
3. To connect BI/STP with the academic community and successful entrepreneurs in order to exchange experiences
4. To support a pre-incubation process for business incubators
5. To secure additional financing for idea implementation via the award fund for competitions

1. Promoting entrepreneurial spirit and culture among the students and researchers at university centers in WBC region

As most of the universities in WBC region have entrepreneur courses as part of their curriculum, a competition for the best business plan can serve as a great extension of these courses and a practical application of the gained knowledge, as well as a promotion of entrepreneurial spirit among the students and the research population. Forming multidisciplinary teams consisting of students and researchers who have previous knowledge necessary to develop the product/service and place it on the market is an important element in changing the mind-set of all participants.

2. Motivation and support for researchers from universities for the development of spin-off companies

Through participation in the competition, training and the idea development, the researchers interested in establishing the spin-off company with university can develop and test their ideas and to secure initial finance for this process with the award money. The award money should be also supported with BI/STP services, and BI/STP should have an active role in the competition process.

3. Connecting BI/STP with the academic community and successful entrepreneurs with the goal of exchanging experiences

It is necessary to build a strong connection between the academic community, BI/STP and successful entrepreneurs. Successful entrepreneurs should be motivated to take part in competition activities and, in the form of mentor, advisor or a jury member, share their experiences with the members of the academic community.

4. The support for the pre-incubation process of business incubators

The competition for the best business plan/model would represent the pre-incubation phase, which would be jointly carried out at universities which host the competition as well. This way, the future users of incubator services would additionally prepare for the start of their business, which would significantly lessen the risk to the future entrepreneurs and the BI itself.

5. Securing additional finances for start-up projects via the competition award money.

Competition award money should serve as a stimulus for participants to apply for the competition; however, it needs to be outlined in such a way as to cover the most significant expenses that the teams have in the idea validation phase, i.e. the pre-incubation phase.

Expected impact and benefits

- Increasing the number of spin-off companies founded by students and university employees based on participating in the competition
- Indirectly useful for all participants is assimilation of new knowledge necessary for the development of a new product and a spin-off company

Efficiency indicators

- Number of individual participants at trainings
- Number of teams presenting their final business model
- Number of projects that entered the phase of pre-incubation
- Number of projects that entered the incubation phase
- Number of workplaces
- Newly created value of spin-off companies

Stakeholders and actors

BIs/STPs and Universities have a prevailing role for organization of successful business plan/model competition and they have to establish sustainable cooperation with a focus on:

- Activities that support development/discovery, evaluation and execution of innovations coming from universities as ideas or research results
- Networking activities that contribute to the innovation discovery/evaluation/execution
- Activities that provide opportunity for students, graduates and young researchers for trainings and practical placement programs so they can gain practical and entrepreneurial skills

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5.10 Improving visibility, promotion and internationalization of BIs/STPs for their sustainable development

Current state and challenges

Having in mind the fact that their development started in the 1980s, there are a large number of BIs/STPs in the world. This led to a major challenge for them – how to position themselves on the market and how to identify their market niche. Many BIs have failed because they did not identify their uniqueness on the market related to service program and its delivery to clients. The practice in the world has shown that providing the working space and buildings, as well as listing offered services, is not enough for sustainable development of BIs/STPs. Additionally, if in the feasibility study of the establishment of a BI/STP it was planned to be sustainable only based on offer of low-cost space and "quality" services at the same time, this will attract tenants without potential to grow, create jobs or generate expected profit. Such BIs/STPs will fail. This is why, it is important to make good marketing plan, as the part of business plan or feasibility study.

Internationalization for BIs and especially for STPs is very important from many reasons. First of all, it gives benefits to the BIs/STPs management in terms of experience and know-how exchange with similar organizations in EU and world, which allows them to follow the world trends. On the other hand, their tenants can improve their competitiveness on the international market. Providing that tenants in STPs are mostly technology-based firms, local market (especially in WBC region) is small for their potential and it is essential to allow them the exit to the international market and facilitate networking with large multinational companies. The best way for internationalization of those firms is to host in STPs branches of multinational companies which will share their experience and contacts with them. Besides, involvement in European and world networks/associations of BIs/STPs, as well as joint international projects, is also efficient way for internationalization.

Major barriers and the challenges experienced by the firms in WBC region related to their internationalization can be summarized as follows:

- High cost of the internationalization process (as internal barrier) or lack of capital or finance (as external barrier)
- Lack of explicit strategy in the initial phase and lack of ability to implement strategies (insufficient planning or skills)
- Lack of know-how regarding international issues/managers lack international experience

In essence, limited time, management and financial capacity seem to represent the main problems. In order to help regional SMEs located in BIs/STPs to tap into external markets, programs of export encouragements should be in focus of each stakeholder dealing with the business support organizations. Their programs should therefore be directed towards providing those skills and knowledge which are most needed by their tenants.

Goals and support actions

Specific objectives:

1. To improve the visibility and promotion of BIs/STPs through implementation of effective marketing plan
2. To develop the plan or strategy for BIs/STPs internationalization activities
3. To attract and recruit international firms or multinational companies
4. To support tenants demands for internationalization

1. Development of efficient marketing plan and methods for BIs/STPs

A Marketing plan is part of the business plan, and if the BIs/STPs managers are not experienced sufficiently in this field it is recommended to engage marketing experts. An efficient marketing plan has to define the right marketing position, community population base, type of companies, type of tenants and jobs, and specific characteristics of service program that will attract tenants. The specific features of a unique service program should include types of tailored services and methods of delivery, facilities features, connections to professional organizations, special financial support, shared marketing resources or access to shared equipment, etc.

It is not sufficient that marketing methods encompass only advertisements, brochures, outreach events and presentation of general information, but targeting marketing techniques should be more productive. Managers should avoid emphasizing the "cheap rent", flexible space, quality services as the main message, because it is not possible to have them all at the same time and it is not good for BIs/STPs sustainability. In promotion of BIs/STPs, managers should focus on the description of service programs and delivery methods, as detailed as possible, so that potential tenants can recognize the benefits and the purpose of incubation process.

2. Raising public awareness and visibility of BIs/STPs

This support action is necessary to attract not only tenants but also partners, sponsors and stakeholders who can support and sustain the BI/STPs program. Some research shows that successful BIs/STPs managers spend one third of their time on marketing and raising awareness activities. These activities are time-consuming, but not necessarily expensive. Low-cost promotional actions can be: websites, networking, email, cultivating relationships, press releases, downloadable brochures, etc. Building the relationships with nearby university, their knowledge-transfer units and career development department can also help in spreading the marketing information. Activities that demand some investments/ sponsorships are: design and printing of advertising material, catering for large events, engagement of international experts, participation in international fairs and conferences, and other networking activities. Effectiveness of advertisements on an international level is disappointing, and thus is not recommended.

Websites should include, except for some basic information, the following: list of sponsors and partners, number of created jobs, list of tenants, schedule of upcoming events, case studies about successful tenants, guidelines for application, clients-only section, etc.

3. Strategic internationalization of BIs/STPs

In order to be visible and well-connected with international organization, BIs/STPs need to develop internationalization plans which will define the internationalization strategy, decisions taken by management board, and a set of activities regarding how they will work on an international level.

One of the internationalization ways is to attract internationally active firms and multinational companies. They can stimulate knowledge transfer towards domestic companies and tenants, which will in turn motivate them to expand internationally. However, it is not easy to attract those large multinational companies since most of STPs do not have enough space and facilities that they require, or the priority in selection of tenants is given to local companies. Experience in the world says that benefits from incubated multinational firms, especially in IT, are multiple. For example, given the importance of ICT technology, it is better to have one competitive multinational ICT company hosted in a STP than 10 companies from another sector, since the impact on local economy and growth is much stronger (Nokia in Technopolis in Finland).

Participation in international projects (EU or from different international sponsors) is a strong incentive for BIs/STPs internationalization accompanied with provision of grants. This strengthens the capacity of BIs/STPs staff, facilitates the experience exchange with BIs/STPs in the world, enables promotion on project events and conferences, and in many cases these projects can involve their tenants as well (technology-based firms). One of positive effects is diffusion of good practices to nation-wide projects.

Joining international networks and associations of BIs/STPs and sectorial clustering of tenants is also an effective way for internationalization. Those activities are elaborated in more details in next section 5.11.

4. Activities aimed to stimulate and support tenants to develop their internationalization

In the process of internationalization, it is not sufficient to pay attention only to BIs/STPs, but it is equally important to undertake the set of measures to improve the internationalization of their tenants. As they move towards full integration into the EU, SMEs in the Western Balkans need to be able to cope with increasing competition from developed and emerging economies. Barriers they very often face are:

- High cost of the internationalization process (as internal barrier) or lack of capital or finance (as external barrier);
- Lack of explicit strategy in the initial phase and lack of ability to implement internationalization strategies (insufficient planning or skills);
- Lack of know-how regarding international issues/managers lack international experience.

Having this in mind, BIs/STPs should also develop the set of mechanisms/services to support internationalization of incubated companies. This can be done on several levels, depending on the available resources and current situation.

First of all, tenants' internationalization can be supported by the agent services by experienced experts who have spent some time working abroad with successful international companies. Their support can be in terms of sharing their experience, dissemination of foreign good practices and established connections, and all of them can be offered through specific service program.

Complementary to this, BIs/STPs tenants can also benefit through educational activities and study visits to international companies with great track record, as well participation in the EU founded or other international project, where they can not only connect with companies and institutions relevant for their internationalization, but also provide access to knowledge, new technologies and financial means in order to boost their further development.

Another aspect of internationalization process that has been proven as very successful is networking with European and global business support organization networks, such as Enterprise Europe Network (EEN), European BIC Network (EBN) and similar networks.

Expected impact and benefits

By raising visibility and improving their international position, BIs/STPs can gain access to and attract innovative young companies with potential to grow, which will contribute to the regional economic development. Also, they can built relations with the EU and world promising institutions and thus make their profile available and visible in business support community.

For BIs/STPs tenants, the main reasons for internationalization are various: growth, recruitment of experts, access to and sharing the knowledge and know-how. Additionally, they can get the opportunity to expand their business or get the easy access to the resources difficult to have on the local markets.

Efficiency indicators

- Number of internationalization activities
- Number of international firms or multinational companies attracted by BIs/STPs
- Number of sponsors and partners attracted by BIs/STPs
- Number of companies that successfully went internationally supported by BI/STPs
- Number of new partnerships between international institutions/companies with BIs/STPs tenants as the results internationalization activities
- Internationalization success ratio
- Number of joint international projects

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5.11 Networking among BIs and with STPs and universities on local, regional and EU level

Current state and challenges

Initially it should be mentioned that the main macroeconomic purpose of business incubators is job creation, so BIs are to compete for tenants. However in many countries it has become common to collect and publish detailed information on all existing BIs/STPs, in particular to emphasize specializations with supra-regional relevance regarding infrastructure, critical mass of tenants in a specific field of business and so on. There is the SPICA Directory with listings of national and international business incubation/ technology park associations *http://www.spica-directory.net/*. The biggest association of business incubators in Europe is the European Business & Innovation Center Network with circa 250 members. There are also associations on national level, such as:

- "ADT - German Association of Innovation, Technology and Business Incubation Centers" with circa 150 members (*http://www.adt-online.de/index.php?article_id=41*) and
- "VTÖ - Association of Austrian Technology Centers" (*http://www.vto.at/index.php?tabid=1*) with its "Innovation Map"

There is a wide scope of BI members in these associations ranging from small service oriented BIs to large institutions with specific technological infrastructure, such as multifunctional (mixed) business incubators, specialized business incubators and science and technology parks).

Although there has been a number of projects and initiatives to set up networks of BIs/STPs in WB countries or sub-regions (e.g. "Business Start-up Centers in the Western Balkans - The SPARK Approach", "network of business incubators in Serbia") and analyses have been performed (e.g. "Analysis of Business Support Infrastructure in the Republic of Serbia [3]") there is no consistent overview available which would be regularly updated. In January 2014, Serbian Technology Incubators and parks Network (STIPNet) was registered in Belgrade.

Goals and support actions

Specific objectives:

1. To create transparency of existing BIs/STPs in WB countries based on a standard set of data qualified for publication which will be regularly updated
2. To facilitate the building of consortia for public funded projects, use of specific infrastructure, training initiatives, business-to-business relations and R&D collaboration
3. To set up a process for handling of benchmarking data for BIs/STPs

1. Map of BIs/STPs in WB countries

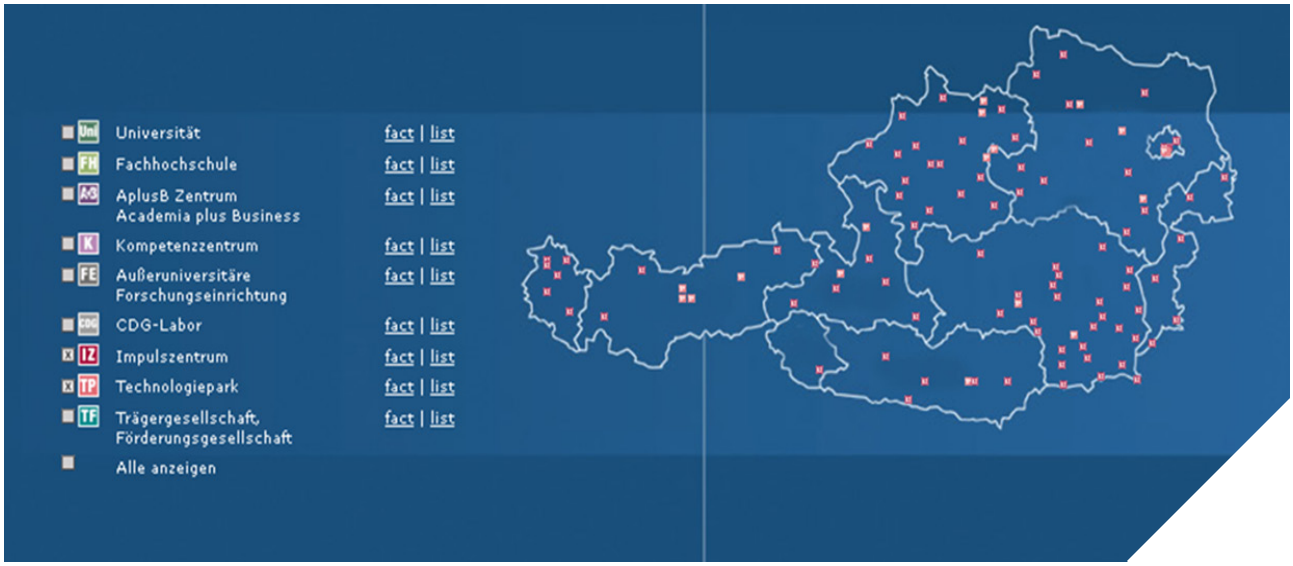
As a pilot action in the WBCInno project a questionnaire for presenting and benchmarking BIs/STPs in the WBC region has been prepared and completed by the BIs from Western Balkan region (Chapter 4). The data collected and qualified for publication could be transformed into a web-based portal.

It includes:

- name of the BI/STP / address / contact person / email / homepage / year of establishment / focus of the BI/STP (if applicable)
- main economic activities of the tenants / key figures of tenants (average)
- funding institutions and stakeholders
- regional, international and partnerships with academic or R&D institutions
- Infrastructure and "hard" / "soft" services including regional training initiatives
- Hyperlinks to tenants webpages
- News & Stories / Offers & Requests by tenants

The success of such a map requires wide awareness within regional businesses and academia on the one hand and quality of data provided on the other.

A good example of mapping and presenting data about business incubators is VTÖ Innovation Map (Austrian map of business incubators / technology centers) (*http://www.innovationszentren-austria.at/*)



Austrian map of business incubators / technology centers

2. Facilitation of business-to-business relations and R&D collaboration

A map of BIs/STPs in WB countries may facilitate the use of existing specific infrastructure, business-to-business relations and R&D collaboration. As BIs/STPs often are the first contact point for regional entrepreneurs they can help them to identify suitable partners, even across national borders.

With "drill-down" information the map will also facilitate the building of consortia of BIs/STPs and tenants with similar or complementary characteristics (in terms of size, scope of businesses, technology, etc.) for public funded R&D projects, e.g. EU-calls. Furthermore the map could trigger training initiatives performed by one or more BIs for tenants or a wider community of businesses. A proactive role of BI/STP managements in this is highly recommended.

3. Handling of benchmarking data for BIs/STPs

Apart from the public set of data a set of confidential data provided by BI/STPs could be used for benchmarking:

- Cost per m^2 for tenants (range of cost, in €)
- Cost for Setting Up and Operating the BI/STP in €
- Capital investment cost

- Operating costs p.a.
- Percentage of revenue from public subsidies
- Performance in relation to the period since establishment
- Number of firms incubated
- Number of new businesses created (registered) and supported by the BI/STP
- Number of jobs created at client or graduate companies of the BI/STP
- Other key figures
- BI/STP occupancy rate (average)
- Length of tenancy
- Survival rates of tenant firms (5 years period)
- Patents granted for clients or graduate companies of the BI/STP
- Number of tenants performing internal R&D
- Percentage of current tenant businesses which are profitable (taking into account real costs without incubation)

The process for handling of this benchmarking data could be set up in at least two ways:

- a single BI will receive information about its position compared to the average or to a sub-set of other BIs;
- a single BI may agree to disclose their data to selected group of incubators.

In both cases an expert should accompany the benchmarking exercise to avoid misunderstandings and to achieve the full value of benchmarking exercises.

Expected impact and benefits

- Visibility of established BIs/STPs region and more importantly their functional performances
- Improved cooperation and networking among BIs at all levels (national, regional, international) and additionally with STPs and universities
- Established benchmarking practice leading to improved BIs efficiency

Efficiency indicators

- Number of BIs/STPs participating in the Map
- Up-to-date-ness of data
- Completeness of data about tenants
- Media coverage, web hits, Number of business-to-business relations and R&D collaboration

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6 Next Steps and Implementation of Strategic Development Plan Through Institutional Support

6.1 Next steps

The suggested Strategic Development Plan for BIs/STPs in the region and previously elaborated strategic measures and support action cannot be satisfactory implemented without engagement of key stakeholders in the Triple Helix framework, primarily the involvement of the state. Providing that universities and existing BIs/STPs are motivated for further implementation .of the Plan, there is a need to mobilize all efforts to attract responsible ministries and their agencies, regional bodies, to incorporate suggested measures in their national or regional strategies. Since each strategy is followed by the Action Plan, some of these support action which are recognized as valuable, can be incorporated in those Action Plans. Team members of the WBCInno project will be active in cooperation with key stakeholders as planned in Activity 7.5 Improved collaboration within Triple Helixand realize the set of activities and events in order to achieve the set goals.

During the project implementation, WBC partners will establish contacts and collaborate in implementation of the Plan with following stakeholders in the region:

Serbia

- Ministry of Education, Science and Technological Development
- Ministry of Economy
- CONUS – Conference of the Universities of Serbia
- National Agency for Regional Development
- National Council for Science and Technological Development
- Innovation Fund of the Republic of Serbia
- Serbian Network of Technology Brokers

Bosnia and Herzegovina

- Ministry of Science and Technology of Republic of Srpska
- Chamber of Commerce of Republic of Srpska
- Banja Luka municipality
- Technology Business Park in Banja Luka - in the establishment
- Ministry of Economic Relations and Regional Cooperation of Republic of Srpska

Montenegro

- Ministry of Science
- Ministry of Education
- Ministry of Economy
- Directorate for Development of SMEs
- Council for Scientific-Research Activities
- HERIC project (www.heric.me)

Additionally, all key stakeholders in Triple Helix framework and founders of future BIs/STPs should set themselves the following objectives:

- to stimulate entrepreneurship
- to assist in the establishment, development and growth of high-tech companies which are needed at that time in the WBC region and which can export their products and services
- to raise the competitiveness of the whole WBC region based on technological development
- to promote and encourage innovativeness
- to support and encourage research in collaboration with faculties of natural sciences and engineering
- to develop personnel/human resources through seminars/courses/workshops
- to organize technical training for young people through sections/excursions/competitions
- to popularize technical education and engineer profession

Based on this general Plan, future attention should be paid on the following implementation steps:

- Every Western Balkan country (involved with this Tempus project or not – like Macedonia, Albania) should make, or it has already made, its Innovativeness development strategy (so-called RDI Strategy); there is a need to provide synergy effects, i.e. to incorporate some Plan's measures and support actions in the strategy and use already achieved results
- It is recommended that BIs/STPs in the region develop individual development plans aligned with this Plan in order to implement partially or fully the suggested measures
- The University Innovation Platform which is developed within the WBCInno project should be in compliance with the suggested measures and it should provide the added value to the Plan from the universities' point of view
- Another important strategic document within WBCInno project is Sustainability Strategy of University, which also should be aligned with the Plan, providing thus the higher impact of planned measures
- Every country in the WB region should produce a unique feasibility study about STP development, applying to the own territory, or these studies should be implemented on territory, already specified, for STP within another study
- All ten suggested strategic measures should be implemented in the region by stakeholders, but WBCInno (WBC) partners will be responsible to initiate, coordinate and monitor their implementation
- Besides the general Action Plan presented below, it is recommended to develop action plans for each strategic measure and supported action in order to achieve the best results and impact
- The WBCInno project is only one of many EU projects and internationally funded initiatives in WBC region, thus it is necessary to use opportunities to implement some support actions within other initiatives and projects
- Members of established Regional Committee for BIs/STPs development (Annex 2) will be responsible for coordination of the Plan's implementation and monitoring; they will have annual meetings for the analysis of these measures' progress and recommendations for further improvements

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6.2 General Action Plan

General action plan with initial proposal of timeline, estimation of expected results/impact and proposed efficiency indicators are presented below.

Table 10: *General action plan*

Possible objectives for involvement	*Time Frame*	*Expected results/impact*	*Efficiency indicators*
1. Improvement of organizational and financial framework of BIs/STPs			
Improvement of the BI/STP management capacities and expertise	2014-2019	• BI/STP management is of high-quality and consist of professionals with business expertise and past work experience in the private sector; • The widest possible array of services available, regardless of whether they are internally or externally provided, with the possibility of some being charged to the tenant companies; • Close linkages with the local business community, training organizations and financial operators are established; • Equity/semi-equity capital facilitating the growth-oriented companies development is available; • Knowledge transfer from university to industry and commercialization of university research; • Clear model both financial and non-financial support to BI/STP established; • New organizational and financial models for sustainability developed; • Better cooperation possibilities for external funding for projects such as EU, World Bank and similar institutions;	• Number of BIs/STPs management staff with expertise and past experience in private sector; • The number of different services; • Number of partners among relevant business, training and financial institutions; • Number of externally funded projects where BIs/STPs participate;
Provision of complementary support services			
Establishment of close linkages with the local business community, training organizations and financial operators			
Establishment of strong links with local universities and promotion of the transfer of knowledge from university to industry and the commercialization of university research			
Establishment of close links between public institutions that are dealing with the issue of economic, science and technology development			
Establishment of regional cooperation and exchange of good practices			

2. Infrastructure development that suited to meeting start-up and spin-off needs			
Renovation/construction of the building and working space for the BI/STP Selection of BI/STP optimal size to ensure its independence from external resources and self - sustainability. Selection of the proper neighborhood and location of the property for BI/STP (transportation, parking, postal/banking services, proximity to university and its laboratories, etc.) Facilitation of networking opportunities with other businesses to tenants. Provision of the research facilities (space equipped for specific research equipment, its installation and storage of samples and material used in research for the scientific-oriented tenants).	2014-2019	• The right facilities that can provide the basis for the self-sustainability of the incubator and an environment where entrepreneurs and incubator staff can work together to develop new business	• The size of the working space available to the BIs/ STPs tenants; • Quality of infrastructure; • Proximity to relevant institutions and offices;
3. Implementation of collaborative software platforms form improved communication and innovation management			
Initiating of online platform for innovation management meeting BIs/STPs requirements	2014-2016	• Online platform for innovation management up and running as a cloud service; • Enhanced competitiveness and entrepreneurial climate; • Lowered administrative burden of BI/STP staff and less coaching time spent due to process automation and document library;	• Number of innovative products/services of BIs tenants with reduced time to market cycle due to using collaborative innovation software;

Promoting the platform in order to collect larger number of ideas	2015-2016	• Increased awareness on importance of brainstorming, open innovation and crowd sourcing with wider public; • Platform has active users from every segment (university, BI/STP tenants, business, investors); • BI/STP performs user management of the users on platform; • Users are being motivated to contribute on an ongoing basis (e.g. organizing idea challenges on a specific problem-solving topic)	• List and number of promotion efforts; • Number of new users invited to the platform; • Number of ideas submitted per month; • Number of challenges per time frame;
Providing efficient online tools for selection of promising ideas and candidates for tenants by stakeholders	2014-2016	• Idea management work flow with different user roles and stakeholders configured within the platform;	• Number of reviewed ideas per month; • Number of scored ideas per month; • Number of approved/parked/rejected ideas per month; • Top innovators per month/quarter/year; • Most popular ideas per time frame; • Most active ideas per time frame;
Development of specific tools for monitoring, control and generation of progress reports	2014-2016	• Specific set of performance and intelligence reports;	• Number of different types of reports;
Providing high level of security (access and data protection) and efficient documentation management	2014-2016	• Enabling secure environment with different access levels for users; • Enabling possibility for storing, sharing and finding documents;	• Number of user access attempts per month; • Number of document uploads per month;
Using innovation management software system for control and monitoring of BI/STP performance	2014-2019	• Complete overview of BI/STP performance for monitoring and benchmarking; • Higher quality of support provided to BI/STP tenants in the first few years; • Higher possibility for tenants to network, exchange thoughts and be well informed; • Milestone setting and performance targeting;	• Number of commercially successful results of the innovation efforts; • Number of new opportunities created by participants in BI environment; • Number of tenants that have received innovation methodology coaching;

4. Improvement of services for tenants of BIs/STPs			
Development of service program	2014-2015	• Service program for BIs/STPs tenant developed as important "recruitment tool" and the key element for Development Plan of every BI/STP; • Basic, additional and advanced services available;	• Number of services developed within the service program;
Improvement of the delivery of service program	2014-2015	• Developed services are clearly described and easy to understand for recipient prior to delivery; • Estimated time for completion of service; • Defined and easy-to-access request for service • Role of the client is defined (complete and partial involvement, appointments, etc.)	• Number of used services; • Number of clients; • Level of clients satisfaction determined through a survey;
Capacity building trainings of BIs/STPs staff	2014-2016	• Well-targeted and high quality services to tenants • Capacity to identify and assess different specific needs of the BIs/STPs tenants • Competence to plan and customize the delivery of services in accordance with the tenants structure and their identified needs • Competence to evaluate provided service and their impact through tenants' feedback • Competence to cooperate and exchange the methods and experiences with other BIs/STPs staff.	• Number of BIs/STPs staff trained in capacity building trainings; • Number of services delivered in accordance with the perceived needs;
5. Application of new incubation models – virtual business incubators			
Implementation of the capacity building program on entrepreneurship for students, graduates and entrepreneurs and facilitation of the creation of start-ups	2014-2016	• Developed business skills training program; • Increased number of students/graduates and entrepreneurs with business skills;	• Number of trained students/graduates and entrepreneurs in business skills ; • Number of business plans produced and start-ups created; • Number of semester assignments and project with business potential coming from University;

Improvement of the competitiveness of enterprises in selected regions and implementation of new technology and services to reduce costs	2014-2019	• Developed set of virtual incubator services; • Reduced overhead costs of companies; • Increased competitiveness of companies;	• Number of users of BI managed web-portal; • Number of users of 'Virtual office' services – message handling, virtual post box, ICT/e-mail, website hosting; • Number of users of Business services – business planning, legal advice, tax, marketing information, etc.; • Number of users of Mentoring program – advice from experts and access to experienced business people;
Improving area-based partnerships for development and/or employment	2014-2019	• Established local/regional partnerships and networks for the support of entrepreneurship;	• Number of established partnerships of various business support organizations and academic society; • Number of joint initiatives towards users of VI;
6. Establishment of creative and entrepreneurial framework with schools and universities			
Providing structural institutional framework for enhancing cooperation with the universities and schools on institutional level	2014-2019	•Provision of the framework for structured cooperation; •Definition of concrete joint activities and their implementation;	• The number of revised governing structures of BIs/STPs; • The number of new pieces of legislation; • The number of new cooperation contracts;
Developing set of awareness raising activities from both types of institutions	2014-2019	• All of the groups involved are more aware of the possibilities for cooperation, and benefits of it; • Students as target group, especially ones from the secondary education, are more aware of the prospects for their future professional development;	• The number and types of organized motivational events; • Developed promotional material;
Involving BIs/STPs in the education and research process	2014-2019	• Involvement of BIs/STPs increases the overall quality of education offer and its openness to the society; • On individual level, development of future young professionals and improved employment; • Also, companies and support organizations are involved in tailoring the offer to the actual needs;	• The number of courses (formal and LLL) introduced/ revised; • The number of lectures involving BIs/STPs; • The number of placements in companies; • The number of companies involved; • The number of PhDs with the industry;

Additional activities that would involve all the stakeholders and lead to the improvement of the cooperation	2014-2019	• These activities would lead to the increased cooperation and networking among actors. Young people can have a whole new view of science as something interesting and motivation to get involved in the scientific ventures;	• The number of brokerage events and "science days"; • The number of training events, lectures and workshops; • The number of project proposals; • The number of participants in various events;
7. Creation of mechanisms and structures for high-tech innovations in cooperation with universities and research centers			
Using university resources for strengthening of innovation potential of BIs tenants	2014-2019	• Increased number of innovative products/services of BIs tenants with reduced innovation process cycle due to using university resources; • Improved competitive position of BIs tenants on the market; • Provision of additional financial resources for equipment and software maintenance at Universities;	• Number of realized outsourcing contracts with BIs tenants at annual level; • Number of inventions/patents/licenses of BIs tenants at annual level; • University's annual income based on the contracts with BIs tenants;
Providing logistic support by experienced university staff and its knowledge transfer units during the initial development phase of STPs in WBC region	2014-2019	• Increased number of innovative products/services of BIs tenants with reduced innovation process cycle due to using university resources; • Improved competitive position of BIs tenants on the market; • Provision of additional financial resources for equipment and software maintenance at Universities;	• Number of realized outsourcing contracts with BIs tenants at annual level; • Number of inventions/patents/licenses of BIs tenants at annual level; • University's annual income based on the contracts with BIs tenants;
Encouraging and motivating students, young researchers and university staff to be involved in entrepreneurial and innovative ventures	2014-2017	• Improved entrepreneurial spirit at universities at all levels (students, researchers, professors); • Increased number of start-ups and spin-offs initiated by university graduates, researchers and professor; • Increased number of ideas coming from students and university staff;	• Number of new start-ups and spin-offs; • Number of participants at various competitions organized by BIs/STPs;
Engaging experienced university teachers/experts for delivery professional specialized trainings to BIs/STPs tenants	2014-2017	• BIs/STPs tenants trained in the specific technological areas necessary for their business; • BIs/STPs extended the list of their services; • University professors and experts contribute to human resources development of BIs/STPs tenants;	• Number of specialized trainings; • Number of certified trainees;

Developing entrepreneurial and practical skills of students through volunteering and practical placement program	2014-2019	• Entrepreneurial spirit is improved among students; • Better connection between BIs/STPs and young people as potential applicants for business plan competitions; • As long-term impact, better graduates' employability;	• Number of trainings organized by BIs/STPs; • Number of students involved in trainings, volunteering and practical placements supported by BIs/STPs;
Providing additional funding of BIs/STPs and their internationalization through joint project applications and establishment of new partnerships	2014-2019	• Provision additional funding for development of BIs/STP/s human resources and infrastructure; • Indirect benefit in terms of improved logistic services for BIs/STPs tenants;	• Number of project proposals; • Number of funded joint projects; • Annual budget from international funds for BIs/STPs; • Number of new established contacts between BIs/STPs and international institutions dealing with knowledge transfer, innovation and research;
8. Organization of competitions and awards for best business plans, best student's / researcher's ideas			
Promoting entrepreneurial spirit and culture among the students and researchers at university centers in WBC region Motivation and support for researchers from universities for the development of spin-off companies Connecting BI/STP with the academic community and successful entrepreneurs with the goal of exchanging experiences The support for the pre-incubation process of business incubators Securing additional finances for start-up projects via the competition award money	2014-2019	• Increasing the number of spin-off companies founded by students and university employees based on participating in the competition; • Indirectly useful for all participants is assimilation of new knowledge necessary for the development of a new product and a spin-off company; • Newly created value of spin-off companies;	• Number of individual participants at trainings; • Number of teams presenting their final business model; • Number of projects that entered the phase of pre-incubation; • Number of projects that entered the incubation phase; • Number of workplaces; • Number of spin-offs;

9. Improving visibility, promotion and internationalization of BIs/STPs for their sustainable development			
Development of efficient marketing plan and methods for BIs/STPs Raising public awareness and visibility of BIs/STPs Strategic internationalization of BIs/STPs Activities aimed to stimulate and support tenants to develop their internationalization	2014-2019	• Access to the most promising innovative young companies, which will initiate the regional economic growth and development; • Established relations with the EU and world promising institutions to their profile available and visible in business support community; • BIs/STPs tenants have various reasons for internationalization: growth, employees, resources and ideas; • BIs/STPs tenants can expand their business or get the easy access to the resources difficult to have on the local markets;	• Number of internationalization activities; • Number of international firms or multinational companies attracted by BIs/STPs; • Number of sponsors and partners attracted by BIs/STPs • Number of companies that successfully went internationally supported by BI/STP; • Number of new partnerships between international institutions/companies with BIs/STPs tenants as the results internationalization activities; • Internationalization success ratio; • Number of joint international projects;
10. Networking among BIs and with STPs and universities on local, regional and EU level			
Map of BIs/STPs in WB countries	2014-2017	• Visibility of established BIs/STPs region and more importantly their functional performances; • Improved cooperation and networking among BIs at all levels (national, regional, international) and additionally with STPs and universities; • Established benchmarking practice leading to improved BIs efficiency;	• Number of BIs/STPs participating in the Map; • Up-to-date-ness of data; • Completeness of data about tenants; • Media coverage, webhits; • Number of business-to-business relations and R&D collaboration;
Facilitation of business-to-business relations and R&D collaboration	2014-2019		
Handling of benchmarking data for BIs/STPs	2014-2019		

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8 Annexes

Annex 1 Questionnaire for presenting and benchmarking BI/STP in WBC region

	Not to be published (in green)	Other remarks (ImtBM = international benchmarking should be possible)
Reference date (date of completion of questionnaire)	***No***	
Name of the BI/STP		
Address		
Contact Person		
Email		
Homepage		
Year of Establishment		
Focus of the BI/STP (if applicable)		
Main economic activities of the tenants		percentage (total = 100%)
Sales, marketing and distribution		
Business and financial services		
Advanced manufacturing		
Information & Communication Technologies		
Research & Development (for others)		
Biotechnology/ Pharmaceuticals		
Knowledge-based industries		
Other Manufacturing Activities		
Other Service Activities		
	100%	
No. of tenants performing internal R&D	***No***	
Key figures tenants (at present)		
Number of tenants		IntBM
No. of employees (tenants, total)		IntBM
Average jobs per tenant	Ratio	IntBM
No. of staff with a technical qualification in the tenants´ workforce		
No. of academic graduates in the tenants´ workforce		
No. of employees (centre management)		IntBM
Funding institutions and stakeholders		
Regional partnerships		
International partnerships		

Partnerships with academic or R&D institutions		
Joint resources with with academic or R&D institutions		
Joint projects with academic or R&D institutions		
Infrastructure and "hard" services		
Available space in m^2		IntBM
Building arrangement of incubator (types of area with size in m^2)		
Physical and industrial infrastructure		
IT services		
Office services, usage of equipment		
... other "hard" services (please specify)		
"soft" services (tick Y or N; if Y: "for tenants" / "for tenants and others")		
General start-up advice		
Business plans		
General advice		
Assistance in the preparation		
Market analysis		
Search for personnel (recruiting support)		
Technology consulting		
Identification of cooperation partners		
Legal advice		
Patent advice		
Financial advice		
Insurance advice		
Search for funding		
Public funding		
Equity		
Borrowing		
Accounting		
Marketing consulting		
Exhibition organization		
Organizational consulting		
Outsourcing of certain work areas		
Public relations		
Framework contracts (rental cars, flights etc.)		
Further education		
... other "soft" services (please specify)		
Cost per m^2 for tenants (range of cost, in €)	***No***	
Cost for Setting Up and Operating the BI/STP in €	***No***	
Capital investment cost (appr.)	***No***	IntBM

Operating costs p.a. (appr.)	***No***	IntBM
% of revenue from public subsidies (appr.)	***No***	IntBM
Performance since establishment		
No. of firms incubated		
No. of new businesses created (registered) and supported by the BI/STP		
No. of jobs created at client or graduate companies of the BI/STP		
Other key figures		
BI/STP occupancy rate (average, appr.)		IntBM
Length of tenancy (length of stay of businesses in BI/STP before leaving)		IntBM
Survival rates of tenant firms (5 years period)		IntBM; May be hard to retrieve
Patents granted for clients or graduate companies of the BI/STP		May be hard to retrieve
Strategic documents referring to the individual BI/STP		

Annex 2 *Members of WBCInno Regional Programme Committee for BI/STP*

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Nikola Ivković, Student Vice-Rector , University of Kragujevac, Serbia
Prof. Dr Goran Stojanović, University of Novi Sad, Serbia
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Modernization of WBC universities through strengthening of structures and services for knowledge transfer, research and innovation

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Tempus

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