Executive Summary

Key features of pre-incubation in higher education institutes are analysed, by examining good practices in supporting potential entrepreneurs to turn a science or technology-based business idea into a viable business. Key features of the Living Lab approach in the innovation process are also examined in order to identify elements that can be adopted during the pre-incubation process, with the aim of facilitating the definition of the market potential of an innovative business idea at an early stage. Recommendations for transferring good practice elements of pre-incubation and the Living Lab approach are presented, focusing on environments with specific contextual characteristics of entrepreneurship, policy making and innovation system, as in the case of certain Greek regions.

The Pre-incubation Concept

In the higher education environment, pre-incubators are seen as a necessary facility to fill the gap that exists between higher education establishments and science-based business incubators. As opposed to business incubators, which offer support to new enterprises already established, pre-incubators offer services and support at a very early stage of the start-up process until the establishment of the new start-up (Figure 1). The target groups of a pre-incubator are students, young graduates and researchers of higher education institutes. The objective of pre-incubation is to support future entrepreneurs from the academic environment to establish and manage a successful business, leading to the creation of viable start-ups, the increase of spin-offs from the academic environment and in general the creation of an entrepreneurial culture in higher education. A pre-incubation process is often part of the services offered by a science-based business incubator that is linked to a higher education institute.

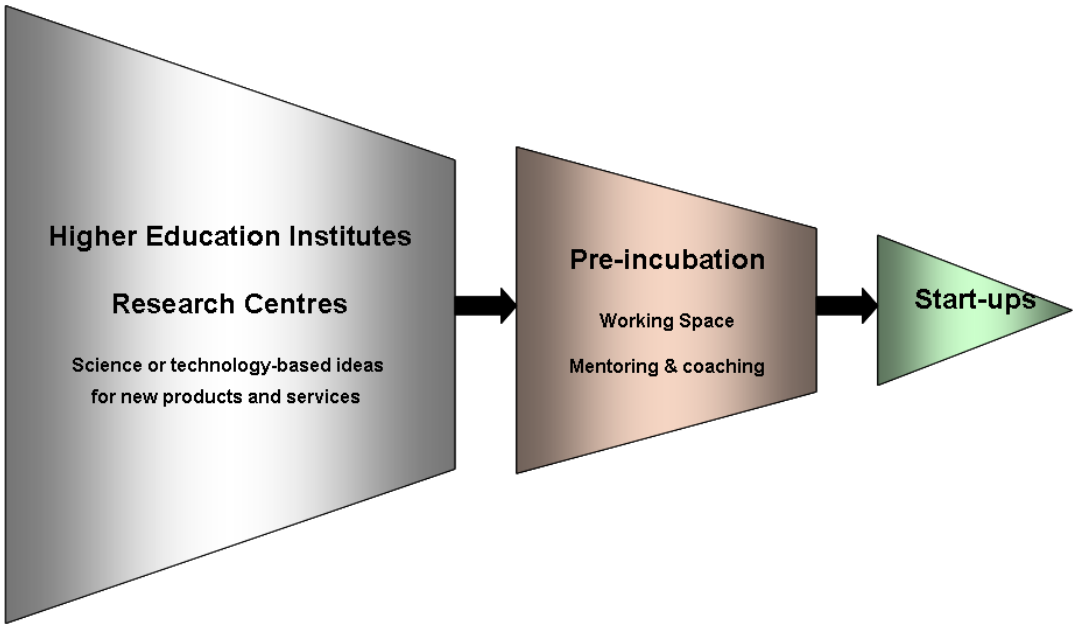

Figure 1: Following the Entrepreneurial Path in the Academic Environment

Pre-incubators have been developed to address the obstacles that academics often see regarding entrepreneurship, such as insufficient knowledge about economics, unknown market potential of the developed products and services, high financial risks, lack of personal skills on entrepreneurship, unawareness of the value of their intellectual property.

The first European pre-incubator was established in 1997 at the University of Bielefeld in Germany. The pre-incubator was designed to qualify and coach academic entrepreneurs, increase the number of sustainability of the spin-offs from the University of Bielefeld and to foster the entrepreneurial spirit at the university. The USINE project experimented in transferring the model of Bielefeld pre-incubation across national borders and led to the creation of two regional pre-incubators, one at

the Universidad Politechnica de Valencia in Spain and the other at the Ecole Polytechnique in France[1].

In Finland, incubation activities seem to be well established too, including pre-incubation as part of a wider organization or process. Due to their special character as facilitators of start-ups from higher, education pre-incubators are mainly located in the higher education institutes. Examples of pre-incubation in the Finish polytechnics and universities include the pre-incubators of Jyvaskyla Polytechnic, Satakunta Polytechnic, Turku Polytechnic, University of Tampere, Helsinki University of Technology etc.[2]

In Sweden, the interest for entrepreneurship has been significantly growing since the 1990s. A significant number of higher education institutes in Sweden offer entrepreneurship education, which does not focus on traditional teaching of individuals, but has increased the focus on active involvement of the students in commercializing research and new venture creation[3]. A specific example is the case of Jonkoping University, which provides a course to all students, where teams of students can establish their own company, parallel to their study. The students get access to experienced mentors and relevant teaching activities during the study. Many activities are coordinated by Creative Center, which is a non-profit organization at the university that runs the Business Lab, a pre-incubator where persons get an environment to explore the potential of their ideas. With more than 200 student start-ups during a period of 5 years, it can be viewed as an implementation of a business generation model of entrepreneurship education, where learning by doing and student involvement is the core activity.

Key Elements of Good Practice in Pre-incubation

Key elements of good practice of pre-incubation in European higher education institutes have been identified, which can be transferred in other contexts and environments. The pre-incubation elements of good practice are focusing on strategic issues, such as stakeholders and benefits, IPR, facilities and services, and operational issues, such as legal status, management structure, cost, resources, selection procedures.

Stakeholders and Benefits

The main stakeholders in the pre-incubation process are:

- The Higher Education institutes that are interested in supporting the commercialization process of science or technology-based ideas generated by students, young graduates and researchers
- Potential entrepreneurs, rising from the Higher Education environment, who need to be assisted to move from study into work by following the entrepreneurial path

Through the pre-incubation process, potential entrepreneurs are getting the opportunities and skills needed to grow and develop their business idea, aiming for their business to be successful and reach a state where they will not need the pre-incubator's support any longer. Moreover, the pre-incubation process can also be seen as a way of filtering out non-viable business ideas.

It should be noted that the pre-incubation process is a staging post in a long process starting from an idea for a science or technology-base product or service to the commercialization of that idea. Many cases that are suitable for pre-incubation may not generate significant returns for the Higher Education institute but there can be additional significant gains for the regional economy, such as giving rise to sustainable science or technology-based companies within the region.

For this reason, other regional stakeholders may be involved in the pre-incubation process, including:

- Regional authorities or regional development agencies

[1] USINE, "A Guide to Pre-incubator Best Practice", University of Strathclyde, 2002
[2] EKIE project, "Pre-incubation in Higher Education", Oulou University, 2005
[3] Einar. A. Rasmussen, Roger Sorheim, "Action-based Entrepreneurship Education", Technovation 26, 2006

- Other relevant structures such as regional innovation or entrepreneurship centres that offer business support services or business incubators, publicly funded or commercially owned
- Other forms of private capital

Facilities and Services

The added-value of pre-incubation is the capacity to test the market of a business idea before the company formation, by offering learning based on experience and therefore lowering the risk of market failure. For this reason, pre-incubation comprises a set of core features, including:

- Space and facilities, either real or virtual, that may include:
    - Working space for the potential entrepreneurs in order to develop their idea
    - Shared facilities, such ICT infrastructure, meeting room access, laboratory access etc
    - Information and communication tools allowing interaction with other entrepreneurs, experts and the pre-incubation management
    - Virtual space to provide advice and support
- Support for the potential entrepreneurs to develop their ideas into viable businesses, that may include:
    - Testing if there is a market for the idea
    - Linking into specialist networks and expertise
    - Producing prototypes
    - Forming a business plan
    - Training in business skills and requirements
    - Assistance with the formalities of establishing a new company

Intellectual Property Rights

There are several strategic issues surrounding intellectual property (IP) generated by research conducted using the facilities and resources of the Higher Education institute. A key issue is the chosen commercialization route, since there may be a potential conflict between the interests of the individual and those of the Higher Education institute. The academic may wish to start a company while his/ her institution may prefer another route to commercialization. The potential for conflict of interest is greater where there is IP that belongs to the Higher Education institute.

Best practice suggests that the pre-incubator should gain experience in negotiating on behalf of the potential entrepreneur towards a position where both parties benefit. IP issues should be dealt at an early stage and negotiations should be based on mutual respect and trust, leading to the establishment of clear and detailed boundaries of the IP.

Legal Structure

Pre-incubators are usually established as part of bigger host organizations: higher education institutes, technology centres or business incubators. If the pre-incubator is established as a separate entity it has the ability to act as an autonomous organization, creating its own corporate identity. In most cases, the higher education institute seeks to build pre-incubator ownership models to share investment costs with regional authorities.

Management Structure

The management team should undertake the overall management and commercial activities of the pre-incubator. The core expertise of the management team should include company/ financial management and accounting expertise, transaction/ negotiating expertise and general marketing expertise. The pre-incubator should have the right networks to be able to access any specific expertise needed that the pre-incubator cannot have in-house.

Cost

Regarding the cost of pre-incubation, flexible options are usually available so that pre-incubation space and support can be used in a way that best suits the potential entrepreneur.

Resources

The budget of the pre-incubator should cover staff expenses, including expert time, market research activities, hiring facilities for technology development, developing promotional material, buying supplies etc.

Selection Procedures

The selection of the potential entrepreneurs to be supported by the pre-incubator is based on corresponding applications. Selection criteria should include the profile and commitment of the potential entrepreneur, the level of innovation and technology development, the potential market and the potential business model. The selection panel should include the manager of the pre-incubator and other stakeholders with relevant experience and expertise.

The pre-incubation has a clearly defined beginning and ending. The average time for pre-incubation is 6 months, but experiences have shown this period may be too short and it is recommended to be extended to one year. Entrance in the pre-incubation is sealed by a contract, which is ended when the pre-incubation time runs to an end or before, if a company is established.

The Living Lab Concept

Concepts of co-creation for innovation have been introduced in Europe, focusing on open innovation and the involvement of end-users in developing and evaluating potential innovations in real life environments, as in the Living Lab approach (Figure 2). The European Network of Living Labs, ENoLL[4], which has been established in November 2006 and has over 200 Living Labs listed, defines the Living Lab as a system and environment for building a future economy in which real-life user-centric innovation will be the normal co-creation technique for new products, services and societal infrastructures. The key feature of Living Labs is the user-centric innovation approach in combination with resource-sharing capabilities. In that approach, the idea generation, concept development, prototyping, and even production of new products and services is done by users who are not just stating their needs but are willing to listen and often build what they want. Living Labs have been characterised by the European Commission as Public-Private-People Partnerships (PPPP) for user-driven open innovation. An example of incubation in the Living Lab approach is the Greater Paris Region Living Lab, coordinated by the regional business cluster for the Paris Region, which aims to promote positive incubation of world-class competitive companies within the region by boosting research innovation and job creation through inter-networking and collaboration of private, public and capital stakeholders.

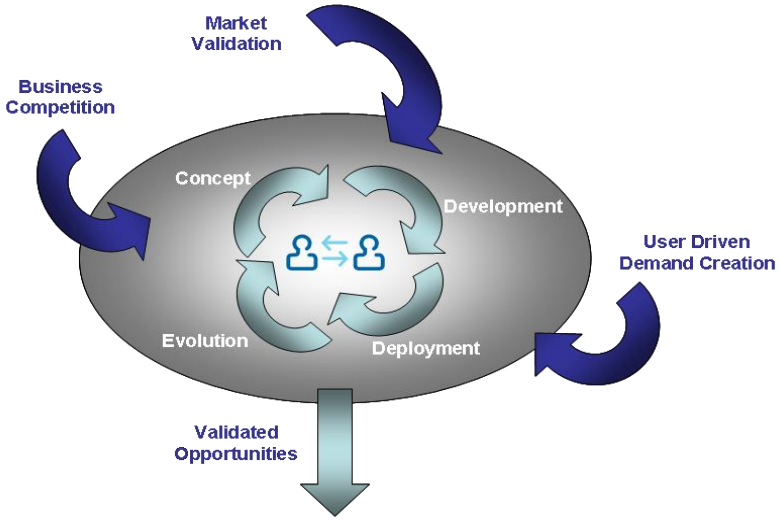

Figure 2: The Living Lab Innovation Cycle[5]

[4] http://www.openlivinglabs.eu
[5] R. Santoro, M. Conte, "Living Labs in Open Innovation Functional Regions", ESoCE-Net, 2010

Key Elements of Good Practice in Living Labs

Two aspects in the Living Lab approach can be observed, one supporting context research and co-creation with users and the other serving as a test-bed extension, where test-bed applications are accessed in contexts familiar to the users. Critical success factors are examined, such as involving stakeholders in the innovation process, building trust, using state-of-the-art methodologies and ICT tools, good governance.

Involving Stakeholders in the Innovation Process

All Living Labs share the human-centric involvement and its potential for innovation, by assembling different stakeholders in a co-creative way. Following a role-based categorization, five categories of stakeholders have been identified in Living Lab settings[6]:

- Innovators: Innovators are drivers of innovation in Living Labs and expected to deliver more innovations and better products. From the innovators' point of view, Living Labs are primarily considered from an instrumental perspective and expected to provide: α) an environment to draw resources from (i.e. network to complement their innovation group, knowledge of scholars to infuse their product or market diffusion concept with, facilitated access to users), and b) support services, in particular to develop and facilitate innovation processes for effectively engaging with users.
- Users: the term "users" generally means end-users, those specific persons using and being impacted by the innovation. In other words, the term relates to consumers, citizens or possibly employees, if the innovation assumes an organizational setting, as decision makers for buying an innovation. Users are central contributors to Living Labs because they are expected to be a source of ideas (creative role for the generation of radical new ideas), a mechanism for product improvement (creative role in an iterative product development process) and validation (evaluation role) as well as diffusion agents (marketing role). Users can have both intrinsic motivation (interest in innovation and improvement, fun to participate) but can also require extrinsic motivation (e.g. organizational norms for employees, financial or material incentives for consumers, etc.), which has to be taken into account.
- Researchers: researchers are necessarily involved in a Living Lab, either because the research feeds into an innovation project driven by innovators (research for innovators) or because they benefit from Living Labs synergies, such as the capacity of such platforms to involve large number of users, their proximity with numerous organizations or their regular influx of innovators (research with Living Lab participants).
- Service Providers: service providers have a key role for a living lab, up to the point that sometimes the service provider is taken as synonym for the Living Lab. Brokering projects, engaging and motivating users, facilitation and project management, and methodology support are among the most important services related to the project side of Living Labs.
- Policy Makers: policy makers had a crucial role in initiating and structuring the Living Lab movement. Nevertheless, policy-makers are also expected to be involved with innovation in practice, either as innovators themselves (i.e. experimenting with a program prior to passing a law with widespread practical implications), as regulators of potentially problematic innovations or as a source of inspiration for innovation-friendly policies.

Building Trust

Good collaboration between different stakeholders involved in the Living Lab process is built on trust, which strengthens creativity and innovation. Building trust between people from different backgrounds and work/ life cultures takes time. In the Living Lab approach, users and other stakeholders build trust and create unique knowledge over a series of projects, innovation cases and business experiments.

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[6] AMI@Work Communities, "Living Lab Handbook", Living Lab and Open Innovation Methodology, http://www.ami-communities.eu/wiki/Living_Lab_and_Open_Innovation_Methodology

Using State-of-the-art Methodologies and ICT Tools

In the Living Lab concept, the methods and tools used, mainly based on ICT, can be divided in two main categories[7]:

- Methods and tools to engage and activate users and support collaboration, in the role of a) enabling the digital communication with and between groups of distributed users and other Living Lab stakeholders and b) enabling a shared space for information and knowledge sharing
- Methods and tools created as results of Living Lab processes, in the role of being the target for user-driven creations, such as the "Intelligent Road" of infrastructures supporting inter-vehicle communication (Botnia Living Lab) or the community owned wireless mesh network (Homokhat Rural Living Lab/ Hungary)

Good Governance

A Living Lab employs four main activities[8]:

- Co-design by users and producers
- Discovering emerging usages, behaviours and market opportunities
- Implementing live scenarios within communities of users
- Assessment of concepts, products and services according to socio-ergonomic, socio-cognitive and socio-economic criteria.

In order to effectively organize resources and manage activities, the Living Lab should be capable of (Living Labs roadmap):

- Forming an appropriate organization and partnership
- Motivating and empowering user engagement, preferably at large scale
- Establishing adequate tools and infrastructure
- Forming and executing case-dependent processes and managing IPR
- Disseminating a wide variety of results

Based on the above requirements, the governance structure of a Living Lab should describe the way it is organised and managed at strategic and operational level.

The strategic level of the of the Living Lab governance deals with the following issues:

- Ownership of the Living Lab (i.e. services, infrastructure, responsible entity)
- Driver and nature of the Living Lab (i.e. community-driven, research-driven, business/ industry driven, technology driven)
- Management structure (i.e. director, steering board, technical committee, user committee)
- The way stakeholders are involved (financial contributions, commitment, responsibility, influence)
- The way IPR and exploitation of results are dealt with
- Financing (public-private partnership, commercial)
- Living Lab development (i.e. additional partners, user groups, subsidy/ funding policy)

The operational level of the Living Lab governance includes the following aspects:

- Working practices for the day to day management
- Synergy, quality and progress monitoring
- Internal communication
- Responsibilities and liabilities
- Dissemination and external communication
- The way new services are introduced and validated
- The way Living Lab projects are organised and funded

[7] European Network of Living Labs (ENoLL), "Living Labs Roadmap 2007-2010"
[8] http://www.openlivinglabs.eu

Similarities and Differences

When comparing the two concepts of pre-incubation and Living Lab, certain similarities as well as differences can be observed in terms of objective, structure, facilities and services (Table 1).

Table 1: Similarities and differences between the Pre-incubation and Living Lab concepts

Concept	Pre-incubation	Living Lab
Objective	*Innovation development and support*: – Supporting future entrepreneurs from the academic environment to establish and manage a successful business	*Innovation development and support*: – Supporting user-centric innovations for new products and services, using a co-creation process
Structure	*Collaborative environment*: - Focused on potential entrepreneurs - Involving regional stakeholders, such as higher education institutes, regional innovation centres, business incubators, private capital	*Collaborative environment*: - User-centric approach - Involving innovators, researchers, service providers, policy makers
Facilities	*Resource-sharing facilities*: - Working space (real or virtual) - ICT infrastructure - Information and communication tools	*Resource-sharing facilities*: - Virtual space - ICT infrastructure - Information and communication tools
Services	*Co-ordination and management of the innovation process*: – Selecting and managing potential entrepreneurs – Defining the market potential of new ideas and forming business plans – Linking into special networks and expertise – Training in business skills and requirements	*Co-ordination and management of the innovation process*: – Engaging and motivating users – Supporting the Living Lab process – Brokering and managing Living Lab projects – Internal and external communication

In terms of scope, the pre-incubation approach focuses on supporting the development and networking of young entrepreneurs arising from the higher education and research environment whereas the Living Lab approach emphasizes on the role of the user in the development of innovative products and services. However, in both cases certain similarities can be observed regarding the stakeholders involved in the innovation process. Innovators are the drivers of innovation in both concepts. In the case of pre-incubator the innovators are the young entrepreneurs. Researchers are involved in Living Labs, whereas in pre-incubation they can be either the young entrepreneurs themselves, or other researchers that support and assist their business idea from the scientific or technological point of view. Moreover, in both concepts there are service providers, coordinating and managing the innovation process. In the case of pre-incubation the service providers are the management team of the pre-incubator. Finally, policy makers have a crucial role is supporting both concepts for promoting innovation-friendly policies.

The pre-incubation process does not necessarily have a user-centric approach in assisting the development of a business idea into a marketable product or services, as is the case of the Living Lab approach. However, the process of testing the market of a business idea during pre-incubation, including traditional market analysis, identification and direct with potential customers/ users and

presentation of the product/ service in a business style, provides the opportunity to incorporate customer/ user requirements into the product design, configuration and price.

In both concepts, the existing facilities include working space, even though only virtual in the case of the Living Lab, ICT infrastructure and information and communication tools. The pre-incubation facilities and their close relation to the environment of the higher education institute provide an ideal collaborative space, where a social network can be created by engaging students and other stakeholders of the pre-incubator as users in the process of new product or service development. The young entrepreneurs of the pre-incubator can thus have access to a new type of Living Lab facility where, in parallel with receiving support for the development of their business idea, they can also be supported in developing their new product or service and testing its market potential, by following a user-centric approach.

The Case of the Central Macedonia Region

Central Macedonia, situated in the centre of Northern Greece, has an important geographical position; it shares borders with two Balkan countries and its capital, Thessaloniki, is the second economic centre in the country with a metropolitan role in the Balkan / the Black Sea area. The population of the region is 1710000 (16.7% of the country's total) with a growing trend. The agricultural sector has a higher productivity rate than the country's average and contributes significantly to exports, but it is especially sensitive to changes over time. Industrial activity entails 23.5% of the regional GDP and is strongly specialized in certain branches (food-drinks, textile, footwear-clothing, non-metal minerals, building materials). Exporting activity is important and covers 30% of the country's total export value. The contribution of tourism in the economic development of the region is important in terms of employment, income, foreign exchange inflow[9].

As a result of national and regional policies supporting innovative entrepreneurship in Central Macedonia, there are a number of local initiatives for the establishment and development of networks and infrastructures that support entrepreneurship and innovation. Most of the established organisations supporting innovative entrepreneurship are situated in the Metropolitan area of Thessaloniki, the capital city of Central Macedonia, and act as incubators for innovative businesses, providing housing, business advisory services and access to venture capital.

The main regional stakeholders of the innovation system of Central Macedonia include four higher education institutes (Aristotle University of Thessaloniki, University of Macedonia, International Hellenic University and Technological Educational Institute of Thessaloniki), one research centre (Centre of Research and Technology Hellas / CERTH), three business incubators, the Technology Park of Thessaloniki and more than 250 high-tech firms and their networks

“Technopolis Thessaloniki SA” is a unique initiative taken by the Association of Information Technology Companies of Northern Greece (SEPVE). Its shareholders consist of:

- Social and educational institutions of Thessaloniki as well as companies belonging to the wider public sector
- Over 70 companies with a strong interest in information and new technologies, which employ a large number of scientists and researchers and are export - oriented with established presence in the neighbouring countries

The concept behind “Technopolis Thessaloniki” is to create a cross-regional, cross-Balkan operational base and a pole for innovation, research and cooperation in developing innovative solutions and in commercializing the innovative products and services. As a catalyst for ICT commercial investments, “Technopolis Thessaloniki” envisages its operation as a Centre of Excellence in the wider region of South East Europe and beyond. The vision is to become a hub of high-tech, entrepreneurial companies that attracts investments by Greek and foreign companies creating thus new opportunities for growth. Aiming at accelerating the existing knowledge capital in the region, “Technopolis Thessaloniki” will bridge research with business and will become the meeting point of local and regional innovators. Technopolis Incubator is an integral part of “Technopolis Thessaloniki” with the aim of providing the necessary infrastructure, consulting support and investment funds to lead promising start-up companies to success. The incubator

[9] Net Force Project, “Showcasing Innovative Greece”, 2006

focuses on the fields of information and communication technologies as well as related areas, thus utilizing the dynamics and partnerships of "Technopolis Thessaloniki".

A Living Lab initiative has emerged from perceived real industrial needs of the group of ICT firms that constitute the partnership of "Thessaloniki Technopolis" to start a targeted initiative that will create value by building on a common innovation infrastructure, creating quality links to the demand and applying the principles of open innovation (Thessaloniki Living Lab). The Thessaloniki Living Lab (TLL) aims to create a cluster of organizations and individuals that will provide services focusing on user involvement at the various phases of the ICT innovation cycle. It aims to stimulate the creative potential of people and organisations, in the wider area of Thessaloniki, towards the development of innovative ICT products and services by providing a test bed for fermentation and cross-fertilisation of ideas, concepts and prototypes.

The Thessaloniki Living Lab (TLL) also builds on the Regional Innovation Pole of Central Macedonia (RIPCM), an initiative that aims to upgrade the innovative potential of the regional ICT sector by creating synergies between all regional stakeholders mentioned above, including academic institutions, research centres, technology parks, business incubators, industrial associations and networks of high-tech firms.

The TLL idea comprises all the elements of the Living Lab concept, and for this reason it has become part of the European Network of Living Labs (ENoLL), in order to benefit from the experience and ideas of a pan-European network that focuses on making the society a part of the innovation process. It is expected that the TLL establishment and operation will be of great value to the local innovation community.

On the other hand, the business incubators in the region not only provide building and state-of-the-art equipment infrastructure to the incubator tenants, but they also support the firms by offering management consulting and information provision, as well as access to capital in order to finance development concerning short-term operating needs and long-term investments. They have also established beneficial links among research and entrepreneurship, activating at the same time long-lasting mechanisms:

- Co-operation among scientists, researchers, entrepreneurs and investors
- Entrepreneurship encouragement by pointing out new ideas and supporting their business-wise utilization

However, the regional business incubators are not directly linked to the higher education institutes, and they do not provide permanent pre-incubation services, unless these are provided as part of a local project or initiative for a limited period. An example is a corresponding activity of the Regional Innovation Pole of Central Macedonia (RIPCM), aiming at providing specialized support and evaluation services prior to assuming the business risk, combined with the existing support and finance structures (incubators) of innovative ventures. Two cycles of stimulation activities for innovative entrepreneurship were conducted and proved to be a significant instrument in the empowerment and acceleration of the commercial exploitation of the research results. Parallel to this, the collaboration of all the incubators in the implementation of the task ensured the homogenization and complementarities of the services provided at the level of structures as well as at the level of the services rendered, creating a strong support cluster for new knowledge intensive businesses in the Region of Central Macedonia.

The strong networking relationships and past collaboration experience between the regional innovation structures and organisations in Central Macedonia, in collaboration with regional authorities and regional policy makers, can provide the perfect environment and suitable infrastructure for the collaboration of researchers, start-up companies, high-tech companies and other regional stakeholders in the innovation process, with the involvement of end-users, including citizens, in either product or regional development processes according to the "Living Lab" approach.

The Case of the Western Greece Region

Western Greece stretches from the north-western part of the Peloponnese to the western tip of the Greek mainland. The largest parts of the region are mountainous or hilly. The region has 740,000

inhabitants, which makes it the fourth most populated region in Greece. The primary sector is a significant source of employment and commercial activity, but remains uncompetitive due to high costs, low products quality and weaknesses in the field of distribution and merchandising. Manufacturing activity is mainly concentrated in the sectors of food and drink, clothing, the wood-cork industry, metal products and construction. The service sector gives an important contribution to the region's GDP. Western Greece is an essential transport hub, which has led to an intense development of international sea transport and trade to and from its port. The prospects for developing tourism are also favourable. The GDP per capita is, however, only 53% of the EU average[10].

The general development objective of the region is the exploitation of its nodal position and its comparative advantages to overcome its problems, by reinforcing and exploiting the position of the region as the western gate to the country, developing culture and tourism, restructuring and expanding the region's industrial base, promoting innovation and sustainable development, reinforcing the urban infrastructures and improving the quality of life. The emphasis is on innovation in business activities and the competitiveness of SMEs, research and technology, environment and agricultural sectors.

The Regional Innovation Pole of Western Greece was created as a consortium of organizations from the private and public sector, aiming at the development, promotion and exploitation of innovation in the Region of Western Greece (RWG). The organisations that participated included regional universities (University of Patras, University of Ioannina), technological institutes, research institutes, research, technology and innovation transfer structures (Patras Science Park, Business Innovation Centre of Western Greece, Institute for Culture and Quality of Life), SMEs and regional authorities. The main objective was to organize and strengthen the bonds between the research/ technological and enterprise organisations of the Region of Western Greece (RWG) aiming at actions that would enhance the technological and innovation performance of the RWG. The priorities of the Regional Innovation Pole of Western Greece focused on thematic areas where development of innovations were observed in accordance with the corresponding needs of existing and developing entrepreneurial activity, constituting the competitive advantage of the Region of Western Greece:

- Information and Communication Technologies
- Food Safety and Technologies
- Environmental Management and Protection

There is a proposal, which hasn't been implemented yet, to develop a pre-incubation program within the University of Patras. In contrast to the incubator, which provides services for new businesses already operating, the pre-incubation program will provide employment, education and counselling at a very early stage of the start-up process until the establishment of the new start-up company. The duration of the pre-incubation will be six months and will be implemented twice a year. The call for expression of interest will be launched every six months and will be aimed at students, young graduates and researchers at the University of Patras, who must submit an application with a brief description of their business idea. Applications will be assessed by the management team of the pre-incubator, focusing on the level of innovation of the submitted business ideas and the ability to commercialize them. The ten best business ideas will be selected for inclusion in the six-month program of the pre-incubator.

The pre-incubator will provide the following services to the young scientists who will join the program.

- *Working space*: A total gross area of 60 square meters will be available to host about ten working spaces of the pre-incubation programme. Conference and meeting rooms will be available for the networking of the participants between themselves or with the management team during the training and personal guidance activities. The rent fee will allow access to working space and common facilities, including maintenance and other operating costs and all costs of education and counselling (mentoring / coaching).
- *Training and personal guidance (coaching / mentoring)*. Training activities will be organized for the participants in the pre-incubator program, including training courses and practical

[10] Innovation Policy Project in Services – IPPS 2006 – 2007, "Policy Mapping Study Region of Western Greece", December 2006

training in subjects related to business planning and development issues, sales and marketing, organization. Personal guidance will be provided also by the incubator management team to each participant to design and develop the business idea in the form of a business plan for the establishment and development of a start-up company.

There is not any activity at the moment in the Region of Western Greece regarding the implementation of the Living Lab concept. However, it should be interesting to develop a Living Lab approach in the pre-incubation process, at least as a pilot activity, in order to demonstrate the feasibility and the efficiency of this approach in supporting the creation of innovative start-ups.

Conclusions and recommendations

The Living Lab approach is the ideal process for identifying market trends and developing innovations in the pre-incubation process, by utilizing the creativity of stakeholders including those that can have the role of the users, in a co-creation process. In lower levels of involvement, the users can be consulted to evaluate concepts and prototypes. In higher levels of involvement, the users can actually make use of the product. Ultimately, the users should be part of the design team, designing and developing the product or service together with the innovators.

In the case of Central Macedonia, the already established "Thessaloniki Living Lab" can be used as a "model" for developing and implementing future Living Lab initiatives with the collaboration of the business incubators and the higher education institutes and the aim of supporting entrepreneurship emerging from the academic and research environment. The business incubators in collaboration with the higher education institutes should build on the successful experience of the pilot pre-incubation activities in order to establish permanent pre-incubation facilities and services in combination with the Living Lab approach. Current and future Living Lab initiatives in the pre-incubation context should have the support of national and regional authorities, within the broad innovation policy framework that has been developed in Central Macedonia. Regional funds for innovation and entrepreneurship should be directed towards the Living Lab approach for supporting academic entrepreneurs in the initial stages of their development.

In the case of Western Greece, the steps that have been taken towards the establishment of pre-incubation facilities within the University environment should be developed further according to plan, with the support of national and regional authorities. The inclusion of Living Lab activities in the pre-incubation process can be an interesting approach to follow, at least as a pilot phase during the initial development of the pre-incubation program.