INSTITUTO PEDRO NUNES
ASSOCIAÇÃO PARA A INOVAÇÃO E DESENVOLVIMENTO EM CIÊNCIA E TECNOLOGIA

TEMPUS Project

WP 2.2.
Report on
"International Company-University Cooperation"

Instituto Pedro Nunes, Coimbra, June 2013

Index

Introduction

The WP 2.2. main objective is to provide information on practices aiming to develop innovation, creativity and entrepreneurship among Ukrainian universities, combined in a report.

This report aims to cover three main areas:

- Educational standards in IT sector;
- Practices for supporting innovation;
- Companies/Universities context for cooperation/interaction.

This WP began by the collection of practices delivered by project partners and distributing among them a questionnaire, in order to obtain and subsequently develop a group of data that may be suitable for application in Ukraine.

Following this first phase (that ended on April 2013), WP 2.2. adopted as a model for the report deliverable the "State of European University-Business Cooperation" Report (2011)[1] (hereinafter "UBC Report"), sponsored by the European Commission (DG Education) and compiled by Munster University.
In fact, this UBC Report provides a comprehensive structure for the integrated view of the different practices that were previously collected.

Following a citation of this UBC Report, **"*Most academics are not engaged at all in University-Business Cooperation (UBC) or only to a low extent whereas at the institutional level, most HEIs engage in some degree of UBC.*** *Approximately, 40% of academics are not engaged in UBC at all, 20% of academics undertake only a low extent of UBC whilst only 40% of academics undertake a medium or high extent. In respect to HEIs, it has been found that most of the HEIs surveyed (92%) engage in some degree of UBC at an institutional level, with approximately 65% of HEIs having at least a medium degree of UBC.*"

Therefore, at European level, it is clear the need for a deeper engagement of academic publics in concrete University-Business Cooperation (UBC) activities that follow the higher-level initiatives promoted at the institutional level. This is also a major concern arising from Ukrainian context.

The main goal of this WP deliverable within TEMPUS project – as approved in the last TEMPUS project meeting last May in Coimbra – is the collection and systematization of practices observed among project partners that are generically suitable to boost innovation, entrepreneurship and courses structures in universities, namely involving students and indirectly academics in business collaborations.

Then, the following WP 3 will take care of the concrete suggestions on the potential application of these practices to Ukrainian Universities, taking into consideration the particular context of Ukraine.

[1] http://ec.europa.eu/education/higher-education/doc/studies/munster_en.pdf

The collection of practices and the *4-pillar* strategy: grouping in 4 axis

This chapter organizes the practices collected using the 4-pillar structure presented by the EBC Report, then merging them into 4 main axis that define some of the main UBC activities.

Consequently, it is relevant to remember the rationale where this structure is based, arising from UBC Report:

4 PILLARS

STRATEGIES	STRUCTURES AND APPROACHES	ACTIVITIES	FRAMEWORK CONDITIONS

The 4-pillar structure was presented in UBC Report as grid of concrete actions to be undertaken by Universities within the framework of UBC.

The 4-pillar shows four different but harmonizing approaches on this relationship:

i) Strategies

"Strategies" bring together actions dedicated to top-down decisions and activities aimed to boost UBC. In this sense, drafting and implementation of broad actions (linked for instance with the University mission and vision) and the formal commitment of the top management with UBC are some examples of practices and actions that can be found on "Strategies" pillar.

ii) Structures and approaches

This second pillar bundles actions and practices dedicated to the creation or development of institutions, positions, methods, policies and programmes – hence, practices and measures connected with structural and functional agencies or internal bodies, aggregating staff to the mission of UBC promotion.

iii) Operational activities

Operational activities are those that are specifically focused in the promotion of UBC practical actions (which can be measured with regard to their scope and volume) targeting both students and academics.
In fact, here we can observe short-term and direct impact actions to be undertaken in order to promote UBC.

iv) Framework conditions

This fourth group of actions comprises all policy and regulatory measures aimed to work on a long-term basis and covering a wider group of people and institutions. For instance, those related to the direct support of UBC and staff mobility (from academic to corporate side).

It is worth to mention that UBC Report performed an enquiry at European level, in order to measure the relevance of each pillar (and respective actions) to UBC expansion and development, as considered by the European stakeholders.
The results of said enquiry were the following (from most important to least important):

First	Strategies
Second	Operational Activities
Third	Structures and approaches
Fourth	Framework conditions

Not surprisingly, the "Strategies" pillar was considered as the most important, followed by "Operational Activities". Thus, an internal mission and vision oriented to UBC, together with concrete actions and activities directly linked to the major stakeholders – students and academics – is valuated by the respondents at European level as the most important actions to be taken in order to develop fruitful and more intense UBC.

Taking in consideration the good practices that were collected among TEMPUS project partners within the framework of this WP 2.2., together with the questionnaire which results will be analysed in the next chapter, the goal is to merge these 20 practices into four broader trends ("axis"), combining them with the 4 pillar structure presented above.

In order to trace back the path since the beginning of this WP 2.2., it is worth to recover the **full list of collected practices** (all extensively presented in Annex I):

WP 2.2. COLLECTED PRACTICES (FULL LIST)

Nº	PRATICE NAME	PARTNER
1	Design internships	IKEA
2	Identification of trends in modern technologies used in industry with the support of IT companies	Ivano-Frankivsk
3	Inclusion of identified technologies in courses	Ivano-Frankivsk
4	PhD research aiming to solve industry tasks	Ivano-Frankivsk
5	Search of professional jobs for students/infrastructure development to improve the students' skills according to employers needs	KNURE
6	Improving the educational process to the needs of IT companies	KNURE
7	The "Study and work" Program for students	KNURE
8	Catalogue of Lviv Polytechnic National University Research Results	Lviv Polytechnic
9	Participation in the development of International Innovations Transfer Network	Lviv Polytechnic
10	Development of the Guidelines for the University Innovation Office	Lviv Polytechnic
11	Smart App	Sigma Kudos
12	Agile Course	Sigma Kudos
13	Entrepreneurship and innovation education for students	Instituto Pedro Nunes
14	Start-Up Accelerator events	Instituto Pedro Nunes
15	Business Plan Competition	Instituto Pedro Nunes
16	Invent Centre	Dublin City University
17	Innovation & Entrepreneurship Courses	Dublin City University
18	Vision-driven Company-University Cooperation	Dublin City University
19	National Strategic Company – University Cooperation	Linnaeus University
20	Linnaeus University Innovation System	Linnaeus University

These 20 practices can be **grouped under the 4-pillar structure**, bearing in mind the **definition of each pillar** and their main **correspondence with pillars´ goals and objectives**.

Accordingly, we present the following groups:

STRATEGIES

Nº	PRATICE NAME	PARTNER
6	Improving the educational process to the needs of IT companies	KNURE
13	Entrepreneurship and innovation education for students	Instituto Pedro Nunes
17	Innovation & Entrepreneurship Courses	Dublin City University

OPERATIONAL ACTIVITIES

Nº	PRATICE NAME	PARTNER
1	Design internships	IKEA
7	The "Study and work" Program for students	KNURE
11	Smart App	Sigma Kudos
12	Agile Course	Sigma Kudos
14	Start-Up Accelerator events	Instituto Pedro Nunes
15	Business Plan Competition	Instituto Pedro Nunes

STRUCTURES AND APPROACHES

Nº	PRATICE NAME	PARTNER
2	Identification of trends in modern technologies used in industry with the support of IT companies	Ivano-Frankivsk
3	Inclusion of identified technologies in courses	Ivano-Frankivsk
4	PhD research aiming to solve industry tasks	Ivano-Frankivsk
5	Search of professional jobs for students/infrastructure development to improve the students' skills according to employers needs	KNURE

FRAMEWORK CONDITIONS

Nº	PRATICE NAME	PARTNER
9	Participation in the development of International Innovations Transfer Network	Lviv Polytechnic
10	Development of the Guidelines for the University Innovation Office	Lviv Polytechnic
18	Vision-driven Company-University Cooperation	Dublin City University

19	National Strategic Company – University Cooperation	Linnaeus University

A deeper analysis brings the chance of **merging the 20 collected practices into 4 main axes**, which represent four central areas of intervention regarding modern UBC:

A1 – Bringing courses contents closer to company needs
A2 – Bridging students to companies
A3 – Innovation and ideas showcases: innovators meet investors
A4 – UBC networking and knowledge transfer internal organisation

These axes were chosen by their relevance to the UBC improvement, proved by the enlarged experience of European project partners.

A1 – Bringing courses contents closer to company needs

This group of practices focus on the need for customization of degree's structures and programs to the company needs, especially the most innovative and those that may absorb young and high-qualified staff. In fact, it is observed at European level a lack of focus of the degree´s structures to the modern company requisites: quite often we find technological courses without any approach to innovation and entrepreneurship and/or intellectual property and knowledge valorisation.
The partners provided several examples of this reality, namely by the inclusion of concrete subjects in courses programmes related to innovation, entrepreneurship and UBC in general, but also by a concrete call to IT companies to provide technologies and other insights to university students and to their degree structures, in order to bridge the gap between university side and modern company needs (either a big company, an SME or a start-up company).

Nº	PRATICE NAME	PARTNER
2	Identification of trends in modern technologies used in industry with the support of IT companies	Ivano-Frankivsk
3	Inclusion of identified technologies in courses	Ivano-Frankivsk
4	PhD research aiming to solve industry tasks	Ivano-Frankivsk
6	Improving the educational process to the needs of IT companies	KNURE
7	The "Study and work" Program for students	KNURE
12	Agile Course	Sigma Kudos
13	Entrepreneurship and innovation education for students	Instituto Pedro Nunes
17	Innovation & Entrepreneurship Courses	Dublin City University

A2 – Bridging students to companies

This axis comprise actions and practices related to the "immersion" of students in companies, for real case approach and hands-on work within the company. The main difference for A1 Axis is that A2

relates mainly to the creation of a framework that allows students to get into a “real” company, challenging them to try “real” work and projects; A1 Axis main concern is the systematic inclusion of innovation/entrepreneurship/knowledge transfer/UBC in the highest number of degree programs. A more dynamic and hands-on approach on the former (A2), a more theoretical and systematic perspective on the latter (A1).

Nº	PRATICE NAME	PARTNER
1	Design internships	IKEA
5	Search of professional jobs for students/infrastructure development to improve the students' skills according to employers needs	KNURE

A3 – Innovation and ideas showcases: innovators meet investors

Axis A3 relates to practices that gather innovators with those that have the potential to invest in the valorisation of said intellectual assets: promoting technology showcases and exhibitions of innovative projects; sponsoring contests of new solutions; even organizing business plan competition events for more “mature” projects, all in an integrated strategy of bringing together money and new ideas.

Nº	PRATICE NAME	PARTNER
8	Catalogue of Lviv Polytechnic National University Research Results	Lviv Polytechnic
11	Smart App	Sigma Kudos
14	Start-Up Accelerator events	Instituto Pedro Nunes
15	Business Plan Competition	Instituto Pedro Nunes

A4 – UBC networking and knowledge transfer internal organisation

Axis A4 illustrates practices connected with inter-institutional and networking activities, aiming to promote successful and more intensive UBC, together with some practices regarding the organisation and management of the (broader) knowledge transfer activity inside universities.

Nº	PRATICE NAME	PARTNER
9	Participation in the development of International Innovations Transfer Network	Lviv Polytechnic
10	Development of the Guidelines for the University Innovation Office	Lviv Polytechnic
16	Invent Centre	Dublin City University
18	Vision-driven Company-University Cooperation	Dublin City University
19	National Strategic Company – University Cooperation	Linnaeus University
20	Linnaeus University Innovation System	Linnaeus University

In conclusion, from the original group of 20 practices collected, regardless of their systematization into the 4-pillar structure (above), it is possible to merge them into four main axes: A1 (8 practices), A2 (2 practices), A3 (4 practices) and A4 (6 practices) as examples of the respective trends.

The following table shows the **double classification of the collected practices**, both into 4 Pillar structure and with regard to the proposed axes:

COLLECTED PRACTICES AND THE DOUBLE CLASSIFICATION

	Axis					4 Pillar			
	A1	A2	A3	A4		Strategies	Structures and Approaches	Activities	Framework Conditions
GP									
1		■						■	
2	■						■		
3	■						■		
4	■						■		
5		■					■		
6	■					■			
7	■							■	
8			■				■		
9				■					■
10				■					■
11			■					■	
12	■							■	
13	■					■			
14			■					■	
15			■					■	
16				■			■		
17	■					■			
18				■					■
19				■					■
20				■			■		

The final approach is the integration of both classifications.
In fact, we can observe some synergies between the two proposed classifications:

THE MATCH BETWEEN 2 CLASSIFICATIONS

STRATEGIES	A1	A2	A3	A4
STRUCTURES AND APPROACHES	A1	A2		A4
ACTIVITIES			A3	
FRAMEWORK CONDITIONS	A1	A2		A4

A1, A2 and A4 relate essentially to Strategies, Structures and Framework pillars because:

- They offer examples of practices that combined shall be part of the University mission and vision, provided that they benefit from a strong support from top management;
- Bring together cases of policies, actions and internal structures that would help the development of more intense UBC;
- They would certainly benefit from a higher level of commitment, namely regulatory and legal that could extend to universities, at a national level, some of these practices as mandatory.

A3 is mainly linked with Strategies and Activities pillars due to the fact that:

- Is also a group of practices that benefit from the support of the top management and shall be included in the University mission and vision regarding UBC;
- Are concrete examples of activities to be developed, either internally by each University or under combined actions (multi-part events, for example).

Questionnaire results and outcomes

With regard to the questionnaire distributed among project partners, the goal was to understand the major differences between these activities among European project partners and Ukrainian partners. This exercise is a second part of the data to be worked in the next WP3: understanding some key points of the existing framework of the Ukrainian universities revealed in the questionnaire, that will help the drafting of the best actions and practices, those which are most suitable for achieving success in Ukraine.

A first group of questions asked to Ukrainian project partners was related to internal framework and structure reality:

- Who has a TTO Structure?
- Staff number?
- Staff profile?
- Incubation activity?

The following table shows the collected results:

	KHARKIV	LVIV	IVANO-FRANKIVSK	ODESSA
TTO Structure	YES	YES	YES	YES
Staff No.	+25	3-6	3-6	3-6
Staff Profile	Administration IP Incubator Management PR / Communication	Administration Entrepreneur Guidance IP	Gen. Management Entrepreneur Management Incubator Management	General management PR/Communication
Incubator	YES	NO	NO	NO
IP Support Activity	YES	YES	YES	NO
Students Innovative Activity	YES	YES	YES (no IT Students)	NO

A brief view on the results shows a group of small internal structures (3 to 6 person) dedicated to knowledge transfer and innovation management, a majority of them providing support in IP matters and in genrral to students innovative activities, although only one university of this sample offering

incubation services.

A second group of questions focused on the different services provided by Ukrainian universities to their public. The questionnaire provided some default choices, representing some of the most relevant areas of expertise that an innovation structure shall dominate:

	1	2	3	4
Intellectual Property	■	■	■	
Set up / Implementation of (inter)national projects	■	■		
Legal	■	■		
Finantial engineering	■	■		
Structural cooperation with other EC networks	■			
Specific training know-how	■			
Specialized technology support for enterprise creation	■			
International B2B or investment experience				
Other	■	■		

The results achieved related to the services provided by Ukrainian universities shows us a reality where there is a strong focus on Intellectual Property issues and some work on international and national projects management, legal and financial issues, but also a lack of expertise in other key areas of innovation and entrepreneurship support. Additionally, it is observed that this trend is more intense with regard to services linked with support to international activities and networks, together with investment searching. With regard to the last one, during the last TEMPUS meeting, the Ukrainian partners stressed the point of the high difficulty on gathering investment to fund innovative projects arising from Ukrainian universities. Which can be a hurdle on the definition of some practices of partnership between universities and companies (for example, those grouped in “inventors meet investors” axis mentioned above) that proved successful in the European context.

Another important questions asked in the questionnaire were related with strategic alliances, namely cooperative relationships and the identification of potential competitive forces in UBC, within the framework of Ukrainian context.

The questions were the following:

Is there any cooperation agreement with any of the following entities?

- *Chamber of commerce, trade and business associations (broad sensus)*
- *Universities / Other R&D institutions*
- *Large companies*

- *Spin-off / start up companies*
- *No co-operation agreements*

Please identify any potential competition in company-university cooperations, if any

- *Technology centres*
- *Chambers of commerce*
- *Public bodies fostering (technological) innovation*
- *Private consultants*
- *Governmental departments*

The results obtained from Ukrainian partners about cooperative agreements were the following:

	KHARKIV	LVIV	IVANO-FRANKIVSK	ODESSA
Chamber of commerce, trade and business associations (broad sensus)	Y	N	N	----------
Universities Other R&D institutions	Y	Y	Y	----------
Large companies	Y	Y	N	----------
Spin-off / start up companies	N	N	N	----------
No co-operation agreements	----------	----------	----------	Y

It is worth to mention the presence of cooperative instruments with large companies, in parallel with the "obvious" case of those gathering universities and other R&D institutions.
The other key point observed is the non-existence of cooperative agreements involving start-ups, showing clearly the work to be done on the promotion of this kind of approach in Ukrainian context.

The question about potential competitors provided the data presented in the next table:

Technology centres	Y	Y	N	N
Chambers of commerce	Y	N	N	N
Public bodies fostering (technological) innovation	Y	N	N	N
Private consultants	N	Y	N	N
Governmental departments	Y	N	N	Y

Focusing on the perception of the potential competitors, Ukrainian partners offered varied answers, without a clear pattern in privilege of any of the appointed choices.
Nevertheless, it should be stressed the fact that some partners appointed governmental departments as a potential competitor, which can bring the need for a better policy coordination between these central bodies and universities in the context of UBC.

Conclusions

This WP 2.2. deliverable report was conducted having in mind the collection and treatment of practices that will be used as tools in the next WP3, dedicated to the implementation of practices in Ukrainian context.

In this sense, after the qualification of the collected practices into the 4-pillar structure provided by the UBC Report, it was proved useful to group the collected practise into 4 main axis, “diluting” them into 4 main areas of intervention in the proposed topics of boosting innovation, entrepreneurship and UBC. With this effort, and taking into consideration the practices collected, grouped in said 4 axis, it may be easier to choose and draft a proper body of actions and practices suited to Ukrainian case.

This was the main reason for the neutral approach that was followed in this report. After last discussions with project members, it was found that this WP 2.2 would not be the best moment for pointing concrete practices to Ukraine, but for preparing them for the next WP3 work.

Annex 1: Good Practice Collection

GOOD PRACTICE 1 – Design Internship
Partner: IKEA

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

This example will describe university students, studying design, spending 5 months internships at IKEA of Sweden. Twice a year IKEA offers students to come to IKEA and work as designer with sharp development projects. They get the brief from a product developer, work in team with a technician and a purchasing strategist /category leader.
The students come from different countries and different schools, are offered a small flat to live in Älmhult during the stay. Most often the students have a bachelor degree and will continue with their master later on.
A number of students have got full time employment with IKEA some have had temporary employment and some continue working a freelance designers.

2. CONTEXTS / SITUATION

Arranging accommodation, identifying supervisors, describing the role of the supervisor, privacy policy, informing the organisation about the students and their assignment.
The development time of a new product is longer that the 5 months the students is working with IKEA.

3. PROBLEM / CHALLENGE

We still need a simple and efficient recruitment process – describing the application for scholarship and how it turns into a internship.
Structure the documents needed for the process.
Describing the expectation from both students and the company.
Evaluating the process and the internship.

4. SOLUTION

Scholarship and internship a perfect way for students to connect the theoretic backgrounds knowledge from the university with the everyday business life. Another experience the internship gives the students is the challenge to work together cross disciplinary. In this particular case it means to work with other competences. Respect and curiosity is success factors working together.

5. RESULT / IMPACT

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6. CRITICAL SUCCESS FACTORS

Recruitment process, Private policy documents, administration of accommodation, compensation, visa, residence permits, workplace, computer, login information, supervisor, guidelines, job chat, safety training, code of conduct, ...

7. BARRIERS/CONSTRAINTS

All issues in no 6 above can be seen as barriers but having the students at the companies:

- Gives energy
- Gives a vital attitude towards knowledge
- Gives an ability to scrutinize propositions and prevailing truths in the company
- Gives a broader and deeper collaboration networks

8. ENABLERS/MOTIVATORS

It gives the industry the chance to understanding more of everyday life in other countries, on other markets, other traditions, other cultures, other climates.
It gives the student a chance to use the knowledge and make a difference in everyday life in business, a contribution to results and success of the company.

9. Links and other relevant info

GOOD PRACTICES 2, 3 and 4

2. Identification of trends in modern technologies used in industry with help of IT companies
3. Inclusion in courses of identified technologies
4. PhD research aiming to solve industry tasks

Partner: IVANO-FRANKIVSK NATIONAL UNIVERSITY OF GAS AND OIL

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

1. Identification of trends in modern technologies used in industry with help of IT companies
2. Inclusion of the identified technologies in course structures
3. PhD research aiming to solve industry tasks and requirements

2. CONTEXTS / SITUATION

Application of new technologies in students' courses should be agreed with existing plans.
PhD research is limited because of difficulties with research financing by industry (law and tax problems)

3. PROBLEM / CHALLENGE

More dynamic response to industry tasks

4. SOLUTION

As a solution we can observe structures that support students projects. A legal and organisation framework shall support organisation of students in a group. It should be taken into consideration that students' activities will occur simultaneously with study process.

5. RESULT / IMPACT

Students have own projects but these projects are rather individual and therefore cannot be as example of company – university cooperation or other type of industry-like activities.

6. CRITICAL SUCCESS FACTORS

Legal and organisational framework for students' joint projects activities with clear aim and convincing way of profit. The framework can be partly implemented as students' courses.

GOOD PRACTICE 5 - Search of professional jobs for students/infrastructure development to improve the students' skills according to needs by employers

Partner: KHARKIV NATIONAL UNIVERSITY OF RADIOELECTRONICS

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

Search of the professional jobs for students and infrastructure development to improve the students' skills according to needs by employers; analysis of the labour market and the needs of IT companies; providing effective communications for the IT companies and students

2. CONTEXTS / SITUATION

A university education focused on providing students with the theoretical knowledge and practical skills to solve relevant specialized training problems. In order to provide a complete understanding of business processes more close contacts between employers and students are needed. Studies have shown that students show a lack knowledge and experience during their first job interviews. Therefore, the university has to help its graduates to adapt to market conditions.

3. PROBLEM / CHALLENGE

The problem of the first place of employment includes:

1. Search of the potential employer;
2. Understanding difference between the skills of the students and the employer's expectations
3. Understanding current market situation (technologies, salary, skills)
4. Skills in the presenting own knowledge, creating CV's, etc.

4. SOLUTION

University performs activities in the several directions for the successful help providing to our graduates:

1. Search of the potential employer;
2. Adaptation skills of the students to the employer's expectation
3. Consulting for the student about market situation
4. Providing help to students in the presenting own skills, creating CV's, etc.

A good practice is to conduct annual job fairs, during which leading companies in the region (about 200) present current vacancies, carried interview and recruiting of students to practice or internship. During the job fair for students carried technological and psychological trainings to develop the necessary skills for employment. Companies make presentations of their activities, the required technologies and the required level of knowledge.
Discussions with a university staff and employers on the improvement of training programs are held.

5. RESULT / IMPACT

Result of such practice is an increase the number of employed students according their qualification. Students know what are waiting for after degree, they understand that University gives them preliminary condition of personal professional success. Such stability help to increase motivation for choosing IT-profession.

6. CRITICAL SUCCESS FACTORS

While we have two main tasks (job searching and organizing of vacancies fair) then we should have two types of the used resources.
In the first case, it is required to organize an office of the student's employment assistance, this office should include staff that perform the tasks such as consulting, vacancies search, legal support, etc. (for example, our office include 6 staff member). The office premises shall be equipped with computers and Internet. It can also be a good practice if the sponsors – IT companies – at least partly support office costs.
When we say about vacancies fair, we suppose that this event needs additional short-term resources, such as additional staff for event promotion (usually students), IT-companies staff (recruiters, HR-managers, top managers and official representatives).
For the success of this event it is necessary to organize it as a promotional event of the university' students. It should be organized as a funny, brightly and creatively event. Costs of this event include printing of promotional booklets, advertising expenses, rental of premises, etc.

7. BARRIERS/CONSTRAINTS

There are no significant barriers for this practices implementation.
A non-significant constraint can be the poor relations with IT-companies that are potential employers for the University students.

8. ENABLERS/MOTIVATORS

One of the success criteria of the University is a number of the graduates that can find a job by a specialty during short time after degree. It is a main factor of the popularization of the selected University in the educational space.

9. Links and other relevant info

Link to our office (mostly on Russian) http://rabota.kture.kharkov.ua/:

GOOD PRACTICE 6 - Improving the educational process to the needs of IT companies

Partner: KHARKIV NATIONAL UNIVERSITY OF RADIOELECTRONICS

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

Improving the educational process to the needs of IT companies.

2. CONTEXTS / SITUATION

There are several key problems in the classical educational process. While IT-world is very dynamic, it causes rapid obsolescence of the educational programs and curricula. As consequence, students do not have needed practical knowledge and skills that is required for the job in the modern IT-company. The second key factor is the fact that lecturers also do not have practical real experience of the work on the commercial IT-projects. Therefore, theirs courses have more theoretical than practical nature. It causes a sensible decrease of the quality of education.

3. PROBLEM / CHALLENGE

Involving of representatives of IT-companies in the process of developing of educational programs and curricula helps to make them more adaptable to the rapid changes in the market of IT services. Therefore, we have ability to decide such problems as target training for IT newcomers for the selected companies and common problem of the curricula development according to the actual needs of the job market.

4. SOLUTION

For this practice implementation, a strong relationship between University and IT-companies is needed, that has impact in the behaviour of job market.
These companies are the main stakeholders in preparing new professionals and they can sponsor target courses of the university.
When we sign Cooperation Agreements, the next step is the selection of staff from University lecturers to be part on the courses and to perform their internship in the company. After that, students have the qualifying events for program. Persons that have positive results of qualification test included to the group of the targeted education. After the beginning of the program, these courses are additional to the main university program. Salaries of the lecturers have to be compensated by the sponsoring company. This company also helps to organize study class infrastructure (computers,

furniture, office equipment, etc.).
All learning materials should be agreed with companies.

The second way for the improvement of the study program is to involve IT-experts to courses reviewing of curricula. With this approach, the goal is the development of bachelor curricula in software engineering.

5. RESULT / IMPACT

Result of such practice is an increase the number of employed students according to their qualification. Students will be aware of what s expected from them after degree. They´ll be able to understand that University provide them preliminary condition of personal professional success. Such stability help to increase motivation for choosing IT-profession.
For the companies, they have the chance to prepare specialists ready to the work on their commercial projects and applications, without spending additional money and time of their own staff to recruit and adapt new developers. Therefore, decreasing the amount of staff costs.

6. CRITICAL SUCCESS FACTORS

Agreement with a company, that is keen to invest in a high quality and corporate-driven educational process
University staff

7. BARRIERS/CONSTRAINTS

Nothing significant

8. ENABLERS/MOTIVATORS

It is need to understand that the main goal of the educational institution is to provide to students study programs of improving skills according to (and matching) “real world” jobs. Graduates are expected to spend as less time as possible to adapt to their jobs.
This practice is able to increase the University ranking at a national level.
Students gain additional opportunities in mastering their prospective trade and the sound guarantees of the future professional employability Students gain additional opportunities in mastering their prospective trade, tapping to rich social and cultural experience and the sound guarantees of the future professional employability in worldwide. Companies can decrease staff costs.

9. Links and other relevant info

GOOD PRACTICE 7 - The "Study and work" Program for students

Partner: KHARKIV NATIONAL UNIVERSITY OF RADIOELECTRONICS

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

The program "Study and work" for the students

2. CONTEXTS / SITUATION

Talented students need an advanced level of educational program. Such students have junior professional skills level, therefore ready to start their carrier. Typical tasks, projects are easy for them. University have to provide interest in the continuation of high-level education for these students.

3. PROBLEM / CHALLENGE

This practice helps to improve skills of the best students by gives them ability the work on the real projects in the companies and study in the University jointly.

4. SOLUTION

This practice requires the signing of an Agreement with a host company. Part of the course time students learns in the company under the guidance of lead experts. They make a project according to the business requirements. Such project covers practical part of the selected course. Assessment of the student for this course conducted by faculty members together with experts from the company.
For our University, Sigma Ukraine is a host company during several last years.
It is significant that students can take not only junior positions after this program participation.

5. RESULT / IMPACT

Result of such practice is an increase the number of employed students according their qualification. Students know what are waiting for after degree, they understand that University gives them preliminary condition of personal professional success. Such stability help to increase motivation for choosing IT-profession.

For the companies, they take to job specialists ready to the work on the commercial projects; do not need to spend additional money and time of own staff to adapting new developers. Therefore, decreasing total cost of the staff.

6. CRITICAL SUCCESS FACTORS

Lead experts of the host company should have time for mentoring and managing interns on this program.
It is a model mostly adapted to large companies.

7. BARRIERS/CONSTRAINTS

Nothing significant

8. ENABLERS/MOTIVATORS

The interest of the university to the fullest development of student abilities. Interest of the company to select the most qualified graduates

9. Links and other relevant info

GOOD PRACTICE 8 - Catalogue of Lviv Polytechnic National University Research Results

Partner: LVIV POLYTECHNIC NATIONAL UNIVERSITY

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

The development of Catalogue of Lviv Polytechnic National University Research Results.
The idea of the Catalogue is to disseminate information about the research results of LPNU among the enterprises. The Catalogue of Lviv Polytechnic National University Research Results was developed both in Ukrainian and in English.

2. CONTEXTS / SITUATION

In order to be able to commercialize the research results the University should be able to deliver the information to potential customers (enterprises).
The information about research results of LPNU scientists is not disseminated properly. Thus the university should develop new techniques to share the information about research results more effectively.

3. PROBLEM / CHALLENGE

The current methods (techniques) of LPNU research results dissemination were not effective. Thus the new dissemination methods (techniques) had to be developed. The officers of Innovation Office of LPNU learnt the information about new dissemination instruments, such as development of research result catalogue and Innovation network, during a number of national and international trainings.

4. SOLUTION

The catalogue presents main outcomes of the research and development work, provides information on sci-tech services and business partners of Lviv Polytechnic National University, offering insight into the high level of its scientific achievements and maturity of partnership contacts in the science-innovation relationship and providing the University's viability in the market environment and knowledge-based society. The main aim of it is to inform Ukrainian and foreign companies, organizations, small and medium businesses, the University's potential customers, of research conducted in its laboratories, as well as to establish and expand business contacts with the innovative products developers and investors interested in funding research projects.
For example, the Institute of Computer Sciences and Information Technologies is introduced in the

catalogue. The scientific and technical services are consultations and educational scientific seminars, specialists training in the field of image recognition and artificial intelligence system, object system analysis and automated design processes, system support development and implementation of automates design technologies; development and improvement of passenger transport system; program and algorithm tools for the thermal design of electronic systems, for clusterization and decomposition; manufacturing of a system experimental sample; program systems of decomposition, coding and approximation of images.

5. RESULT / IMPACT

The number of enterprises interested in commercialization of the University research results increased significantly as the result of publishing Catalogue of Lviv Polytechnic National University Research Results. The enterprises mentioned that they found the information about the University research results in the Catalogue.

6. CRITICAL SUCCESS FACTORS

The desire of the University scientists, heads of the departments and institute directors was a key factor of contributing information into the Catalogue.
The ability of LPNU scientists to conduct high quality research.
The experience of LPNU scientists in conducting research.

7. BARRIERS/CONSTRAINTS

Some University scientists don't want to publish their research results in the Catalogue because of the fear that the research results might be stolen.

8. ENABLERS/MOTIVATORS

The desire to commercialize the research results (to sell them to the enterprises) is the main motivator of the University scientists for submission of their research results into the catalogue.
The University scientists want to get additional financial benefits.

9. Links and other relevant info

Some elements of the Catalogue could be found at http://nauka.lp.edu.ua/index.php?id=5580.

GOOD PRACTICE 9 - Participation in the development of International Innovations Transfer Network

Partner: LVIV POLYTECHNIC NATIONAL UNIVERSITY

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

Participation in the development of International Innovations Transfer Network. The idea of the Network was to disseminate information about the research results of LPNU and five other Ukrainian universities-participants of the network, among the enterprises, other universities and scientists. The network was created as a part of Tempus project "Boosting the knowledge triangle by establishing innovation offices-UNI4INNO" 159359-TEMPUS-1-2009-1-ES-TEMPUS-JPHES.

2. CONTEXTS / SITUATION

In order to be able to commercialize the research results the University should be able to disseminate the information among the potential buyers (enterprises).
The information about research results of LPNU scientists is not disseminated properly. Thus the university should develop new techniques to share the information about research results more effectively.

3. PROBLEM / CHALLENGE

The current methods of LPNU research results dissemination were not effective. Thus the new dissemination methods had to be developed. The information about new dissemination instruments such as the development of Innovation network was learned by the officers of Innovation Office of LPNU during a number of national and international trainings.
Scientists carry out a lot of research but the information is not spread enough among enterprises and university partners. In accordance to the solution of this problem, in the frameworks of UNI4INNO project there was created a network and LPNU is one of its participants.

4. SOLUTION

Today the effective transfer of university technology is almost impossible without the knowledge of a wide range of stakeholders about the possibility of purchasing and implementation of innovative developments. One of the tools to inform stakeholders about the innovations is their placement in technology transfer networks.

Lviv Polytechnic National University participation in Technology Transfer Network is one of the priorities of its innovation development. In the frameworks of Tempus-project 159359-Tempus-2009-ES-Tempus-JPHES "Actualization of knowledge triangle by establishing innovation offices in Ukrainian universities" (UNI4INNO) the International Innovations Transfer Network was created (http://inno.net.ua/). The UNI4INNO project aims to increase the relevance and capacities of Ukrainian partner universities in contributing to knowledge based economic development, and to mobilize their potential as key partners in the Ukrainian innovation system, by stimulating structural reforms via the implementation of sustainable innovation support structures and services.
The International Innovations Transfer Network assists in the exchange of information on existing developments. Also the stakeholder has the ability, if necessary, to ask for help in the network participants in some form of research.
In addition, on the network site you can find information about education and training provided by network partners-developers.

5. RESULT / IMPACT

The number of enterprises interested in commercialization of the University research results increased significantly as the result of development of International Innovations Transfer Network. The enterprises mentioned that they found the information about the University research results in the International Innovations Transfer Network.

6. CRITICAL SUCCESS FACTORS

The desire of the University scientists, heads of the departments and institute directors was a key factor of contributing information into the International Innovations Transfer Network.
The ability of LPNU scientists to conduct high quality research.
The experience of LPNU scientists in conducting research.

7. BARRIERS/CONSTRAINTS

Some University scientists don't want to publish their research results in the International Innovations Transfer Network because of the fear that the results might be stolen.

8. ENABLERS/MOTIVATORS

The motivation to commercialize the research results (to sell them to the enterprises) is the main motivator of the University scientists for submission of their research results into the International Innovations Transfer Network.

9. Links and other relevant info

The International Innovations Transfer Network could be found at http://inno.net.ua/.

GOOD PRACTICE 10 - Development of the Guidelines for the University Innovation Office

Partner: LVIV POLYTECHNIC NATIONAL UNIVERSITY

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

Development of the Guidelines for the University Innovation Office creation and presentation them at the Exhibition "Modern Educational Institutions - 2013".
Restructuring of the LPNU Innovation Office activity basing on the principles presented in the Guidelines.

2. CONTEXTS / SITUATION

There were no guidelines directed towards the development of the University Innovation Offices. Moreover the approaches to technology transfer applied by the existing University R&D offices are obsolete and require constant update and improvement. Thus the guidelines for the development of Innovation Offices in Ukrainian universities had to be created. Such guidelines had to include basic approaches to Innovation Offices creation and instruments that would foster cooperation with national and international enterprises.

3. PROBLEM / CHALLENGE

There were no guidelines directed towards the development of the University Innovation Offices. The R&D office of LPNU in particular had no mission, clearly set goals and strategy. The large portion of activity of LPNU R&D office was directed at reporting to Ministry of Education and Science of Ukraine. The instruments used for dissemination of information and cooperation with the enterprises were obsolete.

4. SOLUTION

We formed the guidelines for the development of innovative offices at universities, namely:

- Innovation Office Strategy which includes the basic provisions of the interaction between innovative office and enterprise. The mission of the Innovation Office is to promote innovation activity of Lviv Polytechnic National University, transfer of research results and technological developments created by scientists at the national and international markets, the development of local industry.
- Economic evaluation of research commercialization. The efficiency of commercialization of university research can be enhanced by applying standard economic methods and analysis

techniques for functioning of enterprises. Such methods are mainly used to analyze economic conditions of operation, the formation of tactics and strategy, and to assess the financial performance of the company. Commercialization of university scientific developments foresees establishment of new company (the formation of spin-offs and spin-outs), the implementation of a new investment project within an existing enterprise.

- Formation of transfer tools of innovation technology from university to enterprise (technological matrix of innovation network formation). Technological matrix of Lviv Polytechnic National University is a database which contains information about developments made by university scientists and scientific potential in different sectors of the economy. The main task of this matrix is to facilitate in establishing communication connections between science and industry to implement the results of research into production.

5. RESULT / IMPACT

As the result of application of principles presented in the Guidelines the activity of the University Innovation offices will be more effective. The latter will lead to improvement of the cooperation with enterprises.
In LPNU the activity of the Innovation Office was updated to the principles and standards presented in the Guidelines.

6. CRITICAL SUCCESS FACTORS

The main factor of successful restructuring the activity of LPNU Innovation Office was the support of the University top management.

7. BARRIERS/CONSTRAINTS

Low salaries of the Innovation Office officers. The government regulates the level of salaries. The University cannot change the level of salaries itself. Thus often-qualified staff rejects the job proposal in the University Innovation Office.

8. ENABLERS/MOTIVATORS

The desire of the university and the scientists to foster university scientific results commercialization is the main factor of successful implementation of principles of the University Innovation Office creation.

9. Links and other relevant info

The Guidelines for development of Innovation Office in Ukrainian universities were presented at the Exhibition “Modern Educational Institutions - 2013” by LPNU. The Grand prize of the Exhibition “Modern Educational Institutions - 2013” was awarded to LPNU.

GOOD PRACTICES 11 and 12 - Smart App and Agile Course
PARTNER: Sigma Kudos

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

SMARTAPP
In 2012 Sigma Ukraine encouraged a student mobile contest SmartApp aimed to identify the most enthusiastic students, young talents in the field of Android, iPhone and Windows Phone development in Odessa.
During 4 months 22 participants (presenting Odessa National Polytechnic University, Computer Academy 'SHAG', Odessa I.I. Mechnikov National University, Odessa State Academy of Refrigeration) worked under their own mobile projects under Sigma Ukraine jury supervision.
On January 24, 2013 winners in 3 categories (The best working application, The most original application, The best presentation of the project) were announced and awarded with prizes (iPhone5, iPods) sponsored by the company.

AGILE COURSE
During 2011-2012 Sigma Ukraine in cooperation with KhNURE (Software Engineering chair) participated in the course, aimed to teach students — almost 100 participants from KhNURE, Linnaeus University and Computer Academy "SHAG", Odessa — main principles of Agile methodology. Working in groups under Sigma Ukraine specialists' supervision (in a role of Product Owners) students gained invaluable experience in conditions very close to real software development process adopted in IT companies.

2. CONTEXTS / SITUATION

SMARTAPP
Main difficulties were to:
1) involve students to participate and help them develop their ideas into final ready-to-market product
2) sustain their interest
3) provide full cycle support (answer questions, check statuses of completion, etc.)

AGILE COURSE
Main difficulties:
1) most students had poor English
2) students gave less attention to a theoretical part of the curriculum
3) students had no to poor time management skills (this could be also added to SmartApp difficulties)
4) most students had no idea how to work effectively in a group

3. PROBLEM / CHALLENGE

SMARTAPP

The problem could lie in a gap between Universities' educational programs and qualities, which are required from specialists when doing real projects. These are:

- Good technical background vs lack of self-management skills
- Bright ideas vs lack of market trends analysis
- Enthusiasm in the beginning vs fear of difficulties arising on the way

AGILE COURSE

Poor English is the one of the most serious problems of higher education in Ukraine. Interviewing students and graduates for open positions in Sigma Ukraine we face insufficiency of their knowledge of English. This point also directly impacts on:

- quantity of students participating in our training programs (like Agile course) where Intermediate English is a required skill
- quantity of students who join the company as trainees or juniors

Observations were made during Agile course in 2012.

Criteria for students to participate: good performance during educational year, Intermediate English and teacher's recommendation. We chose 40 students from the group of 75, unfortunately only half of them showed sufficient level of oral and written English to join the program.

Current educational system is following the principle of personal work and results.

That's why IT companies assess most of youth as unprepared for teamwork in delivering IT services. IT companies are forced to provide group trainings or personal probations inside the company where students are taught on how to work in a project team for achieving company's goals.

4. SOLUTION

SMARTAPP

These problems could be avoided if involving students to work on close-to-reality projects in HEIs. Though, even in current situation there are talented students, who, with the help of mature specialists came to the finals and really developed a mobile application from scratch, beginning with their own idea.

The problem could be solved by providing students with information about:

1) benefits of participating in such contests like: promoting the application and getting profit, searching for a possible investors, improving sales, development skills, communicating with key professionals and getting a job offer, etc.
2) legal and economic aspects of such activities and entrepreneurship in Ukraine
3) best practices, success stories of professionals who share ideas in such way and start their career in IT field

And of course each student is searching for any kind of support and help from company and teacher's side. This aspect could be considered in:

- close collaboration between high school and youth, high school and business
- regular meetings, company and project presentations

AGILE COURSE

1) Launching English across all technical specialities in high school
2) Provide English courses during all years of study Make English lessons fun and interesting. For example, organize University English clubs, invite native speakers as teachers, update current training programs with IT terminology, etc.
3) Update current curriculums by providing more hours for practice
4) Teach students basics of time management (for example, how to prioritize, get them familiar with popular technics like Pomodoro, etc.)

5. RESULT / IMPACT

SMARTAPP

1) Ukrainian students win world-class competitions in various IT fields. But we still do not have large enough and professionally branded contest in Ukraine that could combine best practices of such events like Google Summer of Code, MS Imagine Cup, etc. and promote Ukraine as a country with a huge knowledge base and one the biggest exporters of IT services around the world
2) Sustain strong desire to study, compete, win and build career in IT
3) Promote IT specialities in high school

AGILE COURSE

1) Spreading this course widely would cardinally change the basic approach in educational system. High school, business and student society would work together in conditions very close to IT realities.

6. CRITICAL SUCCESS FACTORS

SMARTAPP

1) Human resources:
   - project managers and coordinators (org. committee)
   - jury (IT professionals, guru in the according competence field)
   - design team (web-designers, developers)
   - professors ready to promote the contest in high schools and help students in any way
   - technical mentors ready to help students, answer their questions, review applications, etc.
   - PR specialists
   - volunteers (specialists ready to organize master-classes, meetings with students etc.)
2) Equipment and infrastructure needed for holding meetings with students, awarding ceremony (meeting rooms, projector, screen, etc.)

AGILE COURSE

1) Human resources:
   - teachers from high school who will drive theoretical part of the course (reviewed by mentors)
   - mentors: Project Managers, Team Lead specialists, Scrum masters from IT companies (in any competencies like Software Testing, .Net, Java, PHP, etc.) who are working on real projects using Agile/Scrum methodology and are able to create group tasks and play a role of Product Owners
2) Students should have working places equipped with modern workstations and software.

Then they'll be able to work with documentation, develop source code in proper IDE (Eclipse IDE, Visual Studio IDE, etc.), conduct bug reporting and other software testing activities, hold communication within the team and with external mentors or specialists (Lync, Skype or any other suitable tools for sharing screen and making video calls).

7. BARRIERS/CONSTRAINTS

SMARTAPP / AGILE COURSE

1) Technologies and trends in IT are moving very fast. We couldn't predict how much time will be needed for updating and approving new curriculums and implement them.
2) Teacher's staff is represented mainly by older people. We see young and enthusiastic teachers, leaders who are ready to work closely with a business and implement these practices in high schools.
3) Both practices are based on modern technologies and methodologies. For this purpose high schools must have a strong technical base for providing students with an opportunity to study in modern classes.

8. ENABLERS/MOTIVATORS

SMARTAPP

1) remedy the lack of practice skills
2) remedy the lack of a teamwork style adopted in most of IT companies
3) set up close collaboration between high school and business

AGILE COURSE

1) Principles of Agile methodology are used in numerous IT companies, so providing this course widely in high schools will be positively met by IT society
2) Intermediate English is a primary incoming requirement in the majority IT companies. We hope that someday all students/graduates would communicate with our foreign customers fluently starting from their first working day

Links and other relevant info

Please provide links and other relevant info (photos, leaflets) that may illustrate the best practice

SMARTAPP

1) http://smartapp.in.ua/
2) http://sigmaukraine.com/news/sigma-ukraine-announces-smartapp-mobile-contest-winners_
3) https://www.facebook.com/smartapp.in.ua

AGILE COURSE

1) http://agilemanifesto.org/
2) http://en.wikipedia.org/wiki/Agile_software_development
3) http://sigmaukraine.com/news/sigma-ukraine-opens-new-classroom-knure
4) http://sigmaukraine.com/news/sander-hoogendoorn-talks-agile-khnure

GOOD PRACTICE 13 – Entrepreneurship and innovation education for students

PARTNER: INSTITUTO PEDRO NUNES

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

This practice relates to teaching activities, in a regular basis, within the general course plan of the Computer Engineering Degree of University of Coimbra Science Faculty.
This class is called "PGI - Innovative Management and Processes" and the target students are 3rd year bachelor (1st Cycle Studies).The goal is to train and develop entrepreneurial and innovative skills among IT students: showing them the most relevant authors and practices and provide those tools and knowledge for their future innovative approaches, but specially, to challenging them to develop innovative projects in *real contexts.*

2. CONTEXTS / SITUATION

Prior to this systematic approach, there were some rare mentions to innovation and entrepreneurship in IT Courses.
The significant number of success cases related with start-ups arising from University of Coimbra R&D, comprising student and past-student activities, was the true motto for this new approach. The goal is the motivation of new students to develop innovative projects, especially in-group, that may be eligible in the future for a start-up creation.
Having always in mind past and successful experiences of other start-ups "born" in Coimbra, the innovation ecosystem is critical to provide context, role models, partners and others key issues.

3. PROBLEM / CHALLENGE

The challenge was to create an "innovation stream" in Coimbra's context, from classrooms to the creation of start-up companies. This "innovation stream" needs that the new users of the system – IT students – have tools and perspectives to boost their will to innovate and create their own firms, and it is an alternative way to create new ways of employment to recent graduates, within the national context of high-growth youth unemployment.

So students are motivated to think about entrepreneurship with a "hands on" approach still in their formative years and not only at the end of the course, and in class context they can think about forming their own startup.

4. SOLUTION

The methodology adopted in classes intents to let the students make the connection between these

concepts and the business / professional environment where they will use skills acquired, through:

- Project with “hands-on” approach where students have to deliver a product/service and “launch” it in the market
- Elevators pitches presentation to improve presentation skills,
- Renowned entrepreneurs as invited guests will give a testimony to lustrate the concepts acquired and motivate students to create their firm.

The practical activities allow students to perform an activity in a real context, and as such exposed to all, or at least some, vicissitudes and variables that characterize professional contexts. As such, the activities to develop the practical class should have the following characteristics:
1) clearly demonstrate the application of skills in planning, organization and teamwork.
2) The object of the activity should be clearly linked to the themes addressed in the theoretical classes(management, innovation, information technology and entrepreneurship, among others).
3) All activities proposals must be validated fisrt by the teacher before moving on to implementation.

This activity gives students the experience of creating a product/service and how to launch it in the market. As they also get a view of the innovation ecosystem, they get the knowledge and motivation that can lead them to create their own firm when graduate.

5. RESULT / IMPACT

There are strong evidences of the impact of these classes among the student community.
In fact, IPN business incubator analyzed in the past years several applications for new businesses arising from said IT students.
Some of them were approved for incubation, generating new start-up companies.
IPN, in the last 15 years, has achieved the following figures:

Total Firms > 200
Spin-offs U. Coimbra > 65%
Survival Rate > 80%
Turnover (2012) > 75 M €
Export > 35%
Direct Employment Qualification > 2.000

This best practice is a part of the process that leads to these results.

6. CRITICAL SUCCESS FACTORS

An innovation ecosystem that can provide the following CSF:

- A practical approach on the discipline;
- Different gateways to enter the system: Entrepreneurship education, Business plan competitions, Accelerator programs, etc.
- Role models: entrepreneurs that can be seen as role models by students have a crucial impact by proximity, especially if they are former students from the same faculty.
- Incubation facilities: after the class is over, students who want to follow their project and launch a firm benefit from this type of facilities, especially if it includes business mentoring.
- Seed capital: it is also crucial to have seed capital funding schemes, as students tend to not have the necessary capital to launch their projects.

7. BARRIERS/CONSTRAINTS

The strongest barrier to the implementation of this good practice is clearly identified: the need for change in university courses structure, to get some "space" for these new classes. It is observed elsewhere a strong resistance to any changes in courses structures, mainly due to older teachers. There's a strong need of proof of the relevance of these topics for the students´ future, in order to justify the change in the course structure.

8. ENABLERS/MOTIVATORS

As the major goal of this good practice is the students training and development for innovation, and indirectly the creation of high technology and innovative companies by these students, that may rest in the region, a strong enabler will be the possible boost to the regional economy that may arise from this action: new companies headquartered in the region (but focused on international trade), the chance for future R&D partnerships between university and these companies and new sources of employment for youth workers, past students.

9. Links and other relevant info

http://bundlr.com/b/atividades-pgi
http://pgdi.andrepcg.me/

GOOD PRACTICE 14 – START-UP ACCELERATOR EVENTS

Partner: INSTITUTO PEDRO NUNES

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

INEO Weekend
Two days of meetings and presentations, where young entrepreneurs structure and test their business concepts, under the supervision of mentors, working together to prepare these projects to be shown to investors.
It was designed and launched under the umbrella of a larger project named GAPI 2.0 "Knowledge Valorization through the Promotion of Entrepreneurship, Innovation and Intellectual Property" (http://gapi2-0.ning.com/), promoted by IPN and 6 other partners at national level.

INEO Weekend is a regular yearly event taking place in two days, being simultaneously a workshop, a networking event and a direct stimulus to the creation of start-ups. During this entire weekend, teams of young entrepreneurs present their ideas, defend and improve them with the support of mentors/investors, in order for those ideas to be presented to investors. The participants consult with these mentors/investors who share their knowledge and experience (related to funding/creating/supporting start-ups, business strategy, partnerships, marketing, intellectual property, procedures to set-up a company, internationalization, etc.). Due to its success, this event has been replicated yearly since its 1st edition in 2010.
While in the first edition participant projects had to fill in an application form to be able to join the INEO Weekend, further editions evolved to a model using both open registration to the event and the invitation of teams by the partners involved in the GAPI 2.0. Ultimatley, the INEO Weekend became an invitation-only event. An important part of the projects is actually identified in key local and regional business ideas competitions.

2. CONTEXTS / SITUATION

The prior art in this context was characterized by the existence of several entrepreneurial events and contests, but focused only in certain aspects and normally in more mature projects.
Ineo Weekend was created to fulfil this gap of the support to early-stage projects.
This event was the 1st acceleration event in Portugal, as the type of event organized in a weekend for teams (not individual entrepreneurs), which does not follow the logic of a training and focuses on mentoring. The mentors/investors at the INEO Weekend really make a difference vis-à-vis other events (inviting CEOs from tech companies in various areas of knowledge, investors with decades of experience, specialists in technolgy transfer etc.), because the teams are able to build, in a weekend, a network of contacts that would take months to build.
Therefore, the motto for this event was the lack of a dedicated forum for young entrepreneurs, normally in the early stage of development of their innovative projects, which allowed them to improve

their value proposal and, at the same time, could reach the attention of potential investors.

3. PROBLEM / CHALLENGE

- The model is a successful regional and national good practice, with proven results;
- Emphasises important phases of a project;
- Identifies the different needs for funding and institutional/organizational support needed in projects;
- It is an example of mobilization of players from different areas to work closely with young entrepreneurs;
- Illustrates how a network of local, regional and national players can support economic players successfully;
- Illustrates the extent to which SMEs receive support (financial/organizational) from local, regional or national players;
- Identifies ways to showcase innovative project operating in health and other sectors;
- Defines activities that clearly contribute to bring technology to markets.

4. SOLUTION

This event is organized in a 2-day scheme, as follows:

INEO Weekend – 1st day

1st SPRINT (1h30): Problem/Solution/Market Opportunity: To discuss specific needs or problems brought by the company, markets, clients, etc.

2nd SPRINT (1h30): Business Model/Underlying Magic-Technology: What does the business need in order to be profitable? How will the company make money? What is the sustainability plan: selling prodcts and/or services? Where do you fit in the value chain? What is the state-of-the-art technology in this field? What would be the competitive advantage of your technology?

3rd SPRINT (1h30): Marketing and sales/Competition: How do you intend to reach your clients? Directly or through partnerships? Who's your competition? What are the weak/strong points of each of your competitors?

4th SPRINT (1h30): Funding and Team/Next step/Call for action (what to do next Monday…?): What is the funding amount you need and where do you plan to obtain it? Which role will take each team member? What are the projections and milestones of your project? What is your operations plan?

The mentors/investors are spread along the various teams and then change a few times to other teams, depending on the number of teams/mentors.

INEO Weekend – 2nd day

The 2nd day starts with a vigorous presentation from an iconic person with relevant experience in the fields of entrepreneurship or reputed leaders, an inspirational moment to the young entrepreneurs and community.

In the afternoon, after the final changes in the presentations, the promoters give their best to *pitch* their projects to all mentors and investors.

5. RESULT / IMPACT

Provide good practice concrete results and evidence of its impact among the target public

This table summarizes some indicators accumulated for the 3 editions of the INEO Weekend:

INEO Indicators (2010-2012)	
Number of projects supported in INEO Weekends	47
Number of entrepreneurs	121
Number of mentors	51
Number of investors	23
Number of projects from the Centro Region	30 (64%)
Number of companies created	27 (57%)
Number of companies still incubated in 2012	19 (40%)
Number of companies running in 2012	23 (49%)
Companies survival rate	85,2%
Number of projects in H4G sub-sectors	9 (19%)

6. CRITICAL SUCCESS FACTORS

- Free event for participants;
- Invitation-only event for teams;
- High quality teams: these must be willing to share their ideas, to be open to collaboration, to communicate their ideas, to work in teams and not be closed;
- High quality mentors/investors: people from companies, with a relevant past experience and ability to communicate it (their own start-up or business experience,…) and their present capacity to offer something to the entrepreneurs (to be clients, suppliers, partners in some way, etc.) create the conditions to effectively reach the entrepreneurs and give a strong, lasting message; some mentors are also investors (and bring their inputs from both paths), others not;
- The open space where all mentoring takes place creates a good networking environment.

7. BARRIERS/CONSTRAINTS

During planning and implementation of the INEO Weekend, a few aspects had/have to be taken care of:

1) **Meeting teams' objectives**: we have had the case where a team enrolled and refused to participate in the pitch phase; to safeguard these and similar situations, we have made the participants sign the Contest Rules to enroll;
2) **Confidentiality issues**: on the one hand, teams need to give away information in order to be helped; on the other hand, teams are placed in an open space and discuss their businesses with

their mentors; the idea is that a mentor can help, may be a partner, but also may be a competitor; we have had the case where companies refused to participate based on these issues;

3) **Quality of the mentors and quality of the teams**: the quality of one limits the quality of the other, for teams only want to enroll if there are interesting mentors/investors invited and mentors/investors will want to give their time to promising projects;
4) **Mentors/investors agenda**: all mentors/investors are pro-bono; this situation makes their degree of commitment to the event more variable, making agendas more difficult to manage; in any case, we have always managed to reach a satisfying number and good quality of mentors/investors.

8. ENABLERS/MOTIVATORS

- Lack of employment (especially for young graduates) and the promotion of entrepreneurship
- The creation of an innovation ecosystem and the feed of new projects arising from these events
- Crossing the needs of entrepreneurs with the investors will to spend money
- Promotion of the best practices in these areas

9. Links and other relevant info

- Vídeo INEO Weekend Overview: http://vimeo.com/11934993
- INEO Weekends 2010: http://weekend.ineo.pt/2010/
- INEO Weekend 2011: http://weekend.ineo.pt/2011/
- INEO Weekend 2012: http://weekend.ineo.pt/

GOOD PRACTICE 15 – BUSINESS PLAN COMPETITION
PARTNER: INSTITUTO PEDRO NUNES

1. WHAT SUBJECT YOUR GOOD PRACTISE COVERS

"Arrisca Coimbra" is a broad competition for new ideas, business plans and proofs of concept.
Departing from a regional basis, gathering projects from Coimbra University and also from other sources, projects can be submitted by any individuals or groups of individuals (up to 5 people) wishing to explore an innovative idea or a more concrete business plan, or even to develop a proof of concept.
The strict condition for submission is that at least one of the team members is currently an University student or has finished his graduate studies less than 5 years ago. In any case, in a Portuguese University or Polytechnic.
There are 3 submission typologies:
A – Innovative Ideas: still in concept phase, without any business plan drafted;
B – Business Plans: innovative projects, already with a business plan for the creation of a start-up company dedicated to project development
C – Proofs of Concept: dedicated to more mature projects, implying immediate (or up to months mandatory period) start-up company legal constitution.
There Is a group of sponsors, responsible for project evaluation and award granting to the best projects at competition.

2. CONTEXTS / SITUATION

We observed several initiatives dedicated to the same purpose of awarding and supporting innovative projects. "Arrisca Coimbra" had the virtue of aggregation of some of these initiatives, offering a wide-base competition, with increased visibility.

3. PROBLEM / CHALLENGE

To offer stronger support to innovative projects and initiatives (technical and financial) arising from University context
To enhance project visibility, putting them in contact with sponsors, venture capitalists and business angels

4. SOLUTION

"Arrisca Coimbra" competition begins with proposal submissions, in the dedicated website, by the teams.
Then, the evaluation juries are composed, in order to proceed with project evaluation.
The evaluation criteria are the following:

Type A (Innovative Ideas):
a) Viability; b) criativity an innovation; c) promoters profile; d) proposal quality and synthesis merits.
Type B (Business Plans):
a) Economic and finantial viability; b) innovative and technological contribution; c) internationalisation potential; d) local and regional development potential (synergies with local and regional innovation actors); e) social and environmental responsibility of products and services.
Type C (Proofs of Concept):
a) Market potential of product/service; b) internationalisation potential; c) product/service differentiation / innovation; d) maturity of the support technology; e) skills and requirements for product/service development and conception.

"Arrisca Coimbra" also previews a bundle of workshops for the teams, dedicated to relevant topics for innovative projects development.

The sponsors gather up to 200.000,00 EURO for the prizes, in different categories and representing different support items to winning projects:

Pocket money for company creation and legal constitution;
Money for company capital submission
Business Plan drafting
Prototyping
Specialized training
Incubation fees
Investment dossier drafting

5. RESULT / IMPACT

"Arrisca Coimbra" already brought several success cases to Instituto Pedro Nunes business incubator, generating several start-up companies in Coimbra and center Portugal region.

6. CRITICAL SUCCESS FACTORS

First of all, the high support of the University rector and top management.
Then, a bundle of sponsors, to build up he evaluation panels and also to provide the prizes…
Additionally, a competition like this normally requires the basic resources like some meeting rooms for the teams and for the parallel workshops and also a ceremony room for prize announcements.
It is also very important to run a dedicated website, in order to timely and accurately communicate and disseminate all projects in competition, together with the restricted area for the competition management and teams interaction.

7. BARRIERS/CONSTRAINTS

Some lack of interest of certain groups of students (not so tech-based degrees)
Finding good projects in different grounds of development
Economic downturn
Emigration of young recent graduates

Difficulties gathering sponsors for the event

8. ENABLERS/MOTIVATORS

Track record of success cases arising from Coimbra environment, regarding high-tech start-ups created by University members (students, scholars, teachers and/or researchers); Constant and regular call (namely due to Instituto Pedro Nunes and DITS University of Coimbra TTO, partly due to good practice 13) to the development of new and innovative projects by University members); The role of IPN Business Incubator hosting these new projects in the region.

9. Links and other relevant info

http://www.uc.pt/gats/projectos/Arrisca_C_2012

GOOD PRACTICE 16 – INVENT CENTRE PARTNER: DUBLIN CITY UNIVERSITY

Mission

To transform knowledge into commercial success and to provide the critical link between the university and the marketplace.

Overview

Works with DCU faculty and students, industry, government agencies and the local community to support and encourage the transformation of research into innovative and commercially exploitable products and services. We have many years of helping individuals to start their own business. We provide 2,800 square metres of purpose built incubation space for technology based start-up companies, as well as offering a range of early stage and developmental business support services to our client companies.

We work with DCU researchers to identify innovations with commercial potential. We evaluate and protect the University's research based IP through technology transfer, licensing and spin outs. We also provide business and marketing strategies for possible commercialisation. We use our links with industry to help forge business and research partnerships and to market DCU's commercialisation opportunities and research capabilities both nationally and internationally.

The Invent team works closely with DCU's Office of the Vice President for Research, Science Foundation Ireland and Enterprise Ireland to promote successful commercialisation of DCU research and to encourage and establish R&D links with industry.

Industry

Invent acts as a bridge between DCU researchers and industry, bringing to market diverse technologies in areas such as the natural sciences, engineering and ICT. When a new industrial partner engages with Invent they are assigned a dedicated relationship manager who is responsible for understanding the partner's strategic research imperatives, in order to develop a collaboration framework that helps achieve their long-term product development goals.

While many of our technologies are early stage and require additional co-development, Invent has considerable expertise in leveraging sponsored programmes to help partners navigate the challenges of early stage productisation in the shortest period possible.

Over the years Invent DCU has worked with a significant number of indigenous Irish companies along with an impressive group of multinational corporations including Bristol-Myers-Squibb, IBM, Microsoft, Symantec and Wyeth.

Entrepreneurs

Invent fosters the creation and growth of new businesses, whether they are based upon DCU technology or from the broader community.
Invent invests in helping budding entrepreneurs navigate the challenges of early-stage innovation. We do this by working one-on-one with students, researchers, inventors and investors to foster the necessary innovation ecosystem to successfully transition new enterprises into self-sufficient, financially viable engines of economic activity.
Since our facilities open in 2001, we have had over 40 entrepreneurs base their companies at Invent and countless others have participated in our programmes.

Researchers

As an organisation responsible for managing DCU's Intellectual Property (IP) portfolio, Invent DCU coordinates and negotiates IP terms in all research agreements; is responsible for commercialising technologies arising from DCU research; and serves as a point of contact for industry seeking access to University research expertise, facilities and technologies.
The Invent DCU Intellectual Property and commercialisation team is happy to talk to researchers at any stage of their research. However experience has shown that researchers who engage Invent early in the process often attain the best outcomes.

GOOD PRACTICE 17 – Innovation & Entrepreneurship Courses
PARTNER: DUBLIN CITY UNIVERSITY

Courses

Undergraduate

Course	Offered to:
High-Technology Entrepreneurship	BEng Manufacturing Engineering &Business BSc Marketing, Innovation & Technology
Marketing of High Tech Products & Innovations	BSc Marketing, Innovation & Technology BSc Manufacturing Eng with Business
New Product Dev. & Innovation Studies	BSc Marketing, Innovation & Technology BSc Manufacturing Eng with Business
Innovation, Marketing & New Tech. Foresights	BSc Marketing, Innovation & Technology
Managing the Innovation Organisation	Innovation and New Business Development
Creativity and Innovation	Innovation and New Business Development
Digital Innovation Creativity & Enterprise	Bachelor of Business Studies BSc in Computer Applications BA in Global Business BSc in Enterprise Computing
Entrepreneurship in Education and Training	BSc in Education & Training

Postgraduate

Course	Offered to:
Entrepreneurship for Engineers	Engineering Phd, Masters and Graduate Diploma students
Social Entrepreneurship	MSc in Mgmt(Innovat. Social Enterprise)
Innovation and Creativity	MSc in Mgmt(Innovat. Social Enterprise)
E-Commerce and Entrepreneurship	MSc in Electronic Commerce
Business Process Innovation	MSc in Electronic Commerce MSc in Management
Innovation & Entrepreneurship	MBA
Entrepreneurial Education & Training Mgt	GDip in Education & Training Management MSc in Ed. & Training Mgt
BioInnovate 1 & 2	Masters of Research in Bioinnovation
Media Innovation and Enterprise	MA in Journalism

	MSc Multimedia
Multimedia and Educational Innovation	GDip in Education & Training Management MSc in Ed. & Training Mgt
Science, Technology and Innovation	Grad. Dip in Leadership Development

GOOD PRACTICE 18 – Vision-driven Company-University Cooperation PARTNER: LINNAEUS UNIVERSITY

WHAT SUBJECT YOUR GOOD PRACTISE COVERS

This case study concerns a University-Company cooperation program with in the areas of "Entrepreneurship, Innovation and Production". The collaboration is a multidisciplinary project concerning education and research under the headline of "Life at Home"; which includes various aspects of the production process. This project brings together researchers in business administration, design and wood technology.
The company invests in total SEK 50 million, this far, and the aim is to create an international meeting-place for research and education. Part of this collaboration is the development of a documentation and library centre, containing both literature and digital media.
The co-operation has during 2011 developed to include five pillars: donation for research, contract research, education (programs and courses), student connection for tomorrow´s competence and library for entrepreneurship, innovation and production.
A reference group has been formed to support the development and follow-up of this collaboration. This group contains representatives from the company and University.

CONTEXTS / SITUATION

Earlier attempts failed to create this project. The expectation of having very high profile cooperation was high for some years. However there were difficulties to match the interest of both companies and university. The intention was to create a very extensive cooperation between company and one faculty of University. This plan become too complex and was abandoned.

PROBLEM / CHALLENGE

To host Multi-disciplinary project is a challenge by itself. In this case 3 areas were involved, economy (innovation, entrepreneurial), social science (anthropologic studies) design, technology, (development of new)
- Problems of how to get complex structure into to current organization, it does not fit the way University was organised.
- The size of the project makes it invasive and hard to handle.
- Research that is designed for the company that pay, with expectation of certain result, vs. classic research result with academic contribution

SOLUTION

Provide comprehensive information about the solution, namely the best practice. If necessary, add

schemes, graphics or any sort of visual data to enhance best practice understanding

The creation of an open ended strategic partnership, building on personal contacts and trust.
Within this partnership different action and projects are created. This partnership has a number of cornerstones:
* Strategic framework.
* Management structure: university-company interactions.
* Internal organisation: project-university interfaces.

A strategic framework

The key to getting this project is the building a long-term framework to direct and structure the cooperation. The framework includes five areas:
* Donation for research, traditional research with professor, phd students and research fellows.
* Setting up special "contract research", where the results are owned by the company.
* Education (programs and courses).
* Student connection for tomorrow´s competence.
* Library for entrepreneurship, innovation and production.

Within this framework there an on-going planning process for creating concrete project, into which money are put. A general direction of the donations is to give to projects and people are very action oriented, with a focus on outcomes and utility.

One of the on-going projects concerns multi-disciplinary courses and programmes. These are developed to fits the way of how business is done. The goal is to produce students that have the competences that deals with real time work situations require. This process has been started with a summer course, with the aim of scaling it into a master programme.

Management structure

To give a structure to the partnership, a collaboration council was created. This council handles the coordination and governance of the cooperation. The council is set up with a balanced membership. This council takes decisions on which projects to start.
A council secretary prepares the decisions and presents the material for the council.
All individual projects are defined by contracts between company and university. These contracts give general direction for each project, for people, money, resources, objectives etc. A number of long-term contracts has been signed this far, in the range of 5-10 years. Rector signs the contracts. But works as a separate entity outside the ordinary organisation.
This creation of a general management (Council chair, secretary, coordinator??) for the program was crucial part of making a strategic partnership workable. The management can on the behalf of the signer; (the rector) can handle the contracted projects. Management deals with the work of planning and coordination of implementation, such as writing of directives or practical tasks.

Internal organisation

The Multi faculty nature of the partnership creates a need for an extra level of organisation. This was

not really in place in the start, but has been developed as the needs have been realised.
The size, of the cooperation creates a very complex situation. The council and the management develop the projects. The rector signs the projects. The project management coordinates the projects. But on a practical level much of the actual work has to be done within the faculty organisations. The university organisation, the faculty deans and boards must handle these processes and projects and get them to work within the ordinary activities. The faculty does the recruitments of new personnel, such as professors, other people. New professors enter into the organisation, with their competences and long term research interests. At the same time the company have demands on outcomes. This situation calls for good planning and well working cooperation's arrangement for long term interest to work out in a way that benefits both parties.
The internal need of coordination between the faculties, design, technology and economy, is in itself a challenge.
Education within the project areas is an important aspect of the partnership. This supports an important goal of getting the research to be connected to education. Create programmes that fit into the ideas of the projects, which is connected to the release of projects, founds to the university from the company.
The process of creating a working situation, which can accommodate this, large and far reaching cooperation with the university has been a learning process. To be able to be in a cooperation of this size and scoop, the university must learn how to change and rethink its way of working and perceiving itself.

RESULT / IMPACT

Provide good practice concrete results and evidence of its impact among the target public
The real outcomes of this case is just in the makings, and at the same time it might be too early to really say what these will be. Until now Uni. has benefited greatly, with long contracts for
1. 2 donations
* 2.5 mil. 10 år, 1 prof. 5 mil.
* 5 år 2 prof 4 dokt.
2. A library service special for the research area.
3. Educational program where company plays a very active role
The general framework has given a platform for planning of spin off projects of different kinds. There is an on-going process of defining new projects within the framework.

CRITICAL SUCCESS FACTORS

Describe tools, competencies, infrastructures, network and other resources necessary to implement the best practice

* Building on real motivational forces that create outcomes that are dearly needed by the partners. In general it is critical to find solid long needs to build on, at to really understand how these works. For example need for competence provision and support
* Personal Contacts. Creating an environment of trust and long term cooperation.
* Long-term view of the cooperation and that the cooperation is driven by a vision that is shared by the partners.
* The creation of a long term structure for cooperation, and a committee that deals with general policy

question and other long term decisions.

BARRIERS/CONSTRAINTS

Focus on barriers or constraints of any kind, namely legal/regulatory, political, geographical, social and/or economic that might be a negative force for the best practice transfer and successful implementation
One aspect of this cooperation that makes hard to transfer as best practice is the level of personal engagement and trust that is involved. This is a dimension that is very hard to measure and describe in generalizable way. It relies on person friendship and contacts dating back for decades.

In general, in highly complex setting like this many details will be of an embedded nature, adding up to holistic solution that works in this case. Using certain solutions or aspects can inspire other to find was of working in there setting, but the transfer of the whole layout might be very hard.

ENABLERS/MOTIVATORS

The motivational forces for university are quite obvious, as trailblazing framework cooperation this is a mayor success for the University. Let it be of a rather unique and hard to replicate kind of project. It meets the goals of a rather young university to grow in size in research and in general the inflow of external monies.
The motivation of the Company, seems to be connected to real needs for provision of competences and development of knowledge. There is also a clear element of reaching out and contributing to the local society at large. Making an impact for the good of local people is an important factor.

GOOD PRACTICE 19 – National Strategic Company-University Cooperation PARTNER: LINNAEUS UNIVERSITY

WHAT SUBJECT YOUR GOOD PRACTISE COVERS

The case covers a larger project in the wood industry area. The University was appointed to host a part of a national effort to strengthen the competitiveness of Swedish wood industry. The project was as such, one among others that came out of national initiative, involving a national founding agencies and large industrial companies in the wood/forestry area. The project, in this text called "Wood Technologies" (WT), incorporates many stages of the value chain in wood industry, from material research to building of housing. The project time was between the years 2000-2006.

CONTEXTS / SITUATION

No previous larger research or education activity in this area existed before this project, on the scale of this project. In part this is due to the fact that the University is a young one and was given university status in 2000, just about when this project was started.

There had been in the previous before 2000 one project, in the wood/forestry area, which created a basic research platform. During this project a research environment was created, however there was not a perfect match for the upcoming national project.

PROBLEM / CHALLENGE

When the project started, the existing resources and research environment really did not meet the need of the new WT project. Professors not really related to the WT project became involved in the project.
The project was an agreement between the government/founding agency and a large industrial company. The project was placed at the University for execution. A clear vision of the outcomes of the project existed, included objectives and quantified goals. In a sense this was a vision created externally from the University.
The project started with a long list of objectives, which soon became clear was in practice unrealistic.

SOLUTION

An important priority discussion started to get the project on the right tracts. An external evaluation was made after three years that resulted in a list of recommendations for how to proceed. A number of activities where undertaken
* Clarification and streamlining of vision of goals.
* Strengthening of the project leadership, adding more appropriate experiences.
* Clear priorities about which subprojects to proceed with.
* Better planning processes, creating a unified strategy process, more clearly aligned to visions and

goals.
* Recruitment of staff with the needed profiles.
* Creating working relationship with needed external partners.

RESULT / IMPACT

The project was the first large scale national style research projects that kick off the newly established university as a research institution. As such it has been of a great importance not the least for the technical faculty.

For the university a list of benefits can be compiled.
* Money, the total sum was rather large, with Swedish measures, 70 million SEK over 6 six years.
* The establishment of a solid research environment in the WT area
* A number of successful subprojects were conducted
* Research publications
* PHD students examined
* Professors and other staff recruited made a part of the faculty.
* Development of educational programmes

CRITICAL SUCCESS FACTORS

* The national interest and the industry sponsorship is the defining aspect of the project.
* Working with locally strong industry, making an effort to be relevant for successful and important industrial actors.
* Being open for change and learning in cooperation with external partners.
* Conforming research directions towards nationally important issues and long term goals.
* Staffing, finding the right researchers to be a part of the team, with a good understanding of the specific objectives and willingness to work with the conditions.
* Good communication between the partners of the project, including a working “language” that allows key people to understand and take part in the on-going discussion.

BARRIERS/CONSTRAINTS

* Not possible to start with nothing, when taking on a larger national projects. This seems as an obvious statement, but it is easy to fall for the temptation to take in a big project, based on an atmosphere of wishful thinking, where current resources and capabilities is thought to be sufficient.
* Taking on massive founding, and the challenges that this brings in terms of recruitment, administration and research leadership.
* Differences in world views and understanding of the project among involved partners and personnel.
* Willingness of the University to make the WT area a key priority in strategic plans.
* Difficulties in competence sourcing, by internal development and recruitment.
* Large projects comes with great expectations from involved partners and other stakeholders, this might lead to gaps between high ambitions and actual performance.
* Internal competition for project money, and selection of subprojects.

ENABLERS/MOTIVATORS

A clear vision from the project owners about what should be the outcome and an ability to guide the project in the right direction was a key factor to success.

An external evaluation of progress during the project was made, that became important for the WT project. An independent review could spot the weaknesses in the first set up and corrective measures could be taken.

GOOD PRACTICE 20 – Linnaeus University Innovation System
PARTNER: LINNAEUS UNIVERSITY