The Informatics Innovation Center (i2c) at the Vienna University of Technology – its Design and First Experiences

Erich Prem

eutema, Lindengasse 43, 1070 Vienna, Austria.
E-mail: prem @ eutema.com

Hannes Werthner*

Vienna University of Technology,
Favoritenstr. 9-11/188, 1040 Vienna, Austria.
E-mail: hannes.werthner@ec.tuwien.ac.at

Birgit Hofreiter

Vienna University of Technology,
Favoritenstr. 9-11/188, 1040 Vienna, Austria.
E-mail: Brigit.hofreiter@ec.tuwien.ac.at
* Corresponding author

Abstract: The faculty of Informatics at the Vienna University of Technology acknowledges the importance of innovation and the specific role of a technical university in this process. It has thus defined innovation as a third pillar of its activities, besides scientific research and teaching. The reason for i2c is not only the overall importance of innovation for social and economic welfare and development where Universities play a major role, but also the emergence of several European initiatives in this context. In the following we describe the design of the centre as well as first experiences from its implementation.

Keywords: innovation management; innovation teaching; technical university and innovation; knowledge transfer; innovation services; organisational learning; experience.

1 The Background

With over 7.500 students and approx. 250 research and teaching staff the faculty is one of the biggest world-wide. It runs five bachelor, nine master and three doctoral programs, In addition, the faculty is engaged in several research centres in cooperation with the regional Austrian industry.

However, innovation was always regarded either an automatic by-product of research or as something in the responsibility of others. This is especially astonishing when looking at the fact that most of the technology-related innovations in the region were routed in that University. Several emerging national and European initiatives have

triggered the faculty to think about how best to foster innovation. This resulted in setting up a tripartite approach - Innovation Management comprising trigger, evaluation, and transfer:

- Trigger
    - Create opportunities, e.g., by education, to facilitate the creation and spreading of ideas.
    - Encourage creative individuals (e.g., students, researchers) to take risks. We focus on individuals, hopefully "producing" successful entrepreneurs.
    - Culture and policy: To create the sensitivity for innovation on organisational, structural and cultural level, also to be patient and tolerate failure.

- Evaluation and screening, involving
    - Business problem screening and solving
    - Consulting to the industry
    - Research project screening for innovation impact, acknowledging the difference between invention and innovation

- Transfer
    - Company access to research results, not only to research projects of the scientific staff, but also students' work.
    - Starting of new projects, where research results might be mapped onto concrete domain problems. The challenge for researchers in this context lies in their ability to step out of their scientific world and learn to understand the actual problem.
    - Finally, support for founders, both research staff as well as students.

From the breadth of these issues it is evident that they could not be tackled by a sole effort of the Informatics Faculty at TU Vienna. The faculty rather promotes these topics from its specific perspective and tried to initiate further actions at University level as well as to connect to other initiatives at a regional and national level. In a following phase international, especially European networking activities are planned, but we are also planning local actions. Innovation clearly needs a longer planning horizon and long-term perspective to become successful.

2 The Design of i2c

As a first step, the faculty founded the i2c (Informatics Innovation Center) which on its turn designed, implemented and is currently running an additional 30 ECTS[1] programme on innovation. This programme is open to all master students at the Faculty, however, access is limited to approx. 15 students. The participation (acceptance) is based on an application consisting of a motivation letter, study success, and an interview. The programme runs in parallel and in addition to the "normal" master studies. For the students it takes 1.5 years (i.e. 3 terms), meaning that students participating in the

---

[1] European Credit Transfer System, 1 ECTS corresponds to a workload of 25 hours.

programme have to accept a nearly double work load for this period. The programme consists of the following four modules:

1. Innovation and Creativity (6.0 ECTS), with courses on foundations of innovation, or creativity and ideas

2. Innovation Planning (6.0 ECTS), focusing on business planning and concrete innovation cases.

3. Innovation Implementation (6.0 ECTS), covering legal issues, finance and venture capital as well as innovation management.

4. Innovation Practice (12.0 ECTS), which is the final project on a case chosen by students, normally a start up experience – preferably their own start up ideas.

However, teaching is not only limited to these additional courses on master level, but also consists of mandatory courses on innovation (e.g., identifying innovation potential of specific PhD topics) for our PhD students.

3 Further Services

Following our approach and our focus on people, i2c designed services for the following groups of people or stakeholders, being currently implemented:

Services for start-ups

- Coaching and mentoring, including support for access to markets and people, as well as venture capital and funding bodies. This also includes cooperation means to complementary (existing) support services, e.g. for IPR and patents.

- Market research and technology watch (case library), mainly through complementary support services but perhaps financed by i2c.

Services for businesses

- This service basically provides an access point for companies to provide their problems and potentially achieve solutions.

- Project initiation support: Support companies to access multiple (also multidisciplinary) research institutions and initiate a project funded by a suitable funding scheme.

- Access to exploitation plans of research projects via the industrial transition partner program, which means access to inventions.

Services for researchers

This is one of the most crucial issues, it focuses on the integration of the faculty members and to make them to active stakeholders of the process.

- Elaboration and screening of exploitation plans: Every research project should address business aspects.

- Potential access to companies through the industrial transition partner program, e.g. representatives of interested companies from the i2c innovation network.

- Dissemination (of the best 4~6 proposals after filtering) of the best project and exploitation proposals.

Services for students

This covers, beyond the described curriculum, support for dedicated students, e.g., in the course of their master thesis or access to innovative companies (with Company – university student exchange programs).

At an organisational level, i2c is accompanied by a steering body of national and international academics, entrepreneurs and venture capital providers as well as representatives of public bodies. In the near future, i2c intends to incorporate their activities into an international network, fostering international exchange (on the different levels described). This network is designed to comprise universities and research institutions, companies (ranging from big companies to SMEs and start-ups), education programmes (and thus link to students as well), venture capitalists, funding agencies, and other relevant stakeholders. We know from interviews with our students that they particularly appreciate this kind of networks. Getting the right contacts at an early stage of innovation is highly appreciated in particular by innovation-minded students.

4 First Experiences

Now in i2c's third year, we can look back at first experiences in several areas. As for the curriculum, in the first round 15 students have been accepted for the courses. Nine of them finished the CAS (Certificate of Advanced Studies) as planned. Two asked for a time-out due to temporary studies abroad and will return to the curriculum with the students in the second round. Four did not finish due to the work load. It is worth mentioning that they did finish the courses but decided not to participate in the "start-up as the final exam" project.

The students appreciate the contact to all the practitioners sharing their experiences, does and don'ts. Not only success stories on different levels are shared but also how to deal with failure and how to exit successfully.

On the level of services for the faculty members we identified their special requests and needs in workshops. Based on the outcome tailored packages will be available as well as we are working on a platform supporting the identification of potentials (start-up, research, etc.). Such a platform is not only of high value for the faculty's environment but also identified as a missing link from and to industry, which has also been emphasised by industry and public bodies.

As anecdotal evidence for the success of the initiative and approach, a company was founded out of ideas generated in the first-semester course on "Ideas and Creativity". There, students learn to apply creativity techniques and apply it in a workshop-like

setting. Students have to develop viable innovations in a very short time frame (within less than two days). It is all the more surprising that one of the ideas developed there has led to a company which has recently issued its first public beta product version.[1]

Finally, as a major learning one can stress that such an initiative needs to motivate students, researchers, industry as well as public bodies. These are communicating bodies, mutually influencing each other.

5 Areas for Feedback and Development

The programme has received much interest from students and researchers, but also from other research institutions and other actors in the innovation arena. It has proven useful that the programme is currently dedicated to information technology. The reasons are social as well as technological. Socially, the interaction of groups of computer science students has proven useful in the exchange of ideas and discussions about business models. Technologically, the students can easily form teams for realizing prototypes quickly. Of course, other approaches to teaching innovation may take a broad perspective of technologies or even business areas.

The interaction with bodies outside the faculty, in particular with risk capital or other companies has been very positive. At the same time, it has remained a challenge to find additional funding for an initiative such as i2c. Although the current focus of the centre is on education, there are a large number of other services that could or should be provided. For example, students have requested a co-working space at the university to facilitate their concrete work on innovation projects. Although there are co-working spaces in the vicinity of the university, it remains a challenge to find funding and/or rooms for the students that best fulfil their needs.

Several European countries have experienced challenges in providing sufficient numbers of computer science engineers. This is largely due to insufficient numbers of students. In addition, many students are currently not finishing their studies because of attractive offers arising from work contracts during their studies. This also means that it is not always easy to attract students to the additional courses for the innovation programme and for them to stay focused over the course of the programme. Even when starting with the intention of founding their own company, many other opportunities may constantly emerge for them.

For the future of i2c, we are currently envisaging already mentioned service extensions in different directions. This ranges from improved technology scouting to offering rapid prototyping in combination with more regular computer science courses of the university. However, many of these will require additional staffing and thus funding.

In addition, we are currently investigating the role of the university in a more local initiative. There is an agglomeration of many relevant organisations such as companies, other universities and research institutes, funding agencies that can spur innovation in close collaboration with the i2c initiative.

---

[1] www.sphares.com