Most of our graduates will work in industry.
- Take the requirements from industry into account:
  - Team work
  - Customer focus
  - Quality as a life style
  - Deliver a project on time, within budget & according to specs.

Our students are not entrepreneurial.
- Lack of understanding
  - How do I start?
  - This is not for me; I don't have an economics degree
- Bad image.
- Promoted by the politicians but not supported by academic staff

Master Software Engineering

<table>
<thead>
<tr>
<th>Year 1 Master SE</th>
<th>Year 2 Master SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Architecture</td>
<td>Software Management</td>
</tr>
<tr>
<td>Design of Multimedia Appl.</td>
<td>Software Project</td>
</tr>
<tr>
<td>Distributed Software</td>
<td>Master Thesis &amp; Seminars</td>
</tr>
</tbody>
</table>

What we want to avoid

All Too Familiar . . .
Software Project

- Is at the center of SoftEnterprise
- Non-trivial project team
  - +10 project members
  - Multidisciplinary
  - Well-defined roles & responsibilities
  - Self-assessment
- Focus on identifying & mitigating risks.
  - Technical
  - Schedule
    - No exam if delivered on time & according to spec
- Project reviews & coaching
  - Coaching with industry experts

Software Engineering: not just technology

- Use the lab & practice sessions to develop the entrepreneurial spirit.
- Work across courses:
  - Requires buy-in from colleagues
- Work across faculties
  - Involvement of MBA or economics students
- Work with industry
  - We have teaching assistants from industry
• 2006: Started as a software architecture project
• 2007: POC implemented for the Ghent city festival
  • First projects sold to BASE (Telco)
  • 100 K€ incubation funding from IBBT to develop platform
  • 3 students for master thesis
• 2008: Mobixx company incorporated
  • 100 K€ grant for business plan
  • Partnerships with a leading web agency
  • 300K€ pre-seed funding
  • Trying to raise 3 Mio € with a revenue target > 10 Mio Euro in five years
  • Revenues from lead customers: VRT, Telenet, Proximus, ... etc.
  • employ 6 persons
• 2009: ... the sky is the limit

The Mobix platform is a thin client mobile application server capable of delivering content to any type of browser or content rendering engine on any type of device.
EUROPEAN COMPUTER SCIENCE SUMMIT - ECSS 2008

4th Annual INFORMATICS-Europe Meeting

9-10 October 2008, Zurich

With a pre-Summit workshop for Department Chairs and Research Directors on 8 October, 2008

Informatics matters: Image, Impact, Innovation

ECSS 2008 is the 2008 Summit of ALL CURRENT AND PROSPECTIVE members of Informatics Europe, the organization of leading faculties, department and research institutes in Computer Science and Informatics Departments and Research Institutes in Europe. The 2008 Summit will be devoted to the current issues of common interest and urgency for the scientific and strategic positioning of our field.

Conference Chair: Jan van Leeuwen, Utrecht University

Informatics (Computer Science/Computing) is the discipline of the future: the key to many new developments in science, innovations in industry, and novel services in the information society. Yet, the impact and expectation of ICT pose great challenges to all faculties, departments and research institutes in Informatics worldwide.

What should our strategy for the future be? Our Program

As for the previous Summits, the program consists of special Invited Talks, workshops, panels and other interactive sessions devoted to common issues, problems and proposals. Special features of the 2008 Summit are

- Invited talks

- Pre-Summit workshop for Department chairs and Research Directors led by J. Staunstrup (IT University Copenhagen) on October 8, 2008

- Special focus on: "INFORMATICS MATTERS: Image, Impact, Innovation"

- Submitted talks on 'Image, Impact, and Innovation' by colleagues from all over Europe. (see the Call for Submissions)
Who is the Summit intended for?

The European Computer Science Summit 2008 is the 4th annual event of Informatics Europe. The Summit is intended for: all leaders (deans, chairpersons, heads, research directors) of Departments (Schools, Faculties, Institutes, Chairs) of Computer Science (or Informatics, Informatique, Information Technology, Computing, Computer Engineering etc) in PHD-GRANTING Universities and leading research institutes (in Academia, Business, or Industry) in the European region.

What's the purpose of the European Computer Science Summit?

- To create an international network of deans, heads of departments, and research directors in Informatics

- To provide a forum for discussion and the exchange of solutions and best practices on common issues

- To examine ways in which deans, department heads, and research directors in Informatics can work together to improve teaching and research, implement the Bologna process, can influence the policies of their universities, governments and the EU, and take joint initiatives on many other issues.

- To provide a liaison with other groups pursuing relevant interests, such as the CRA in the US.

The successful 2007 Summit (ECSS 2007) was held in Berlin.

Participation

Participation is intended for (and limited to) all heads of CS departments and leaders of research institutes in ICT or their permanent deputies (but no other substitutions) as defined above, in the European region. In addition, a limited number of observers from industry (research labs and companies), governments (national and EU) and university administrations can be admitted. Attendees are welcome to suggest observers.

2007 - 2008, Informatics europe

Conference Program

Please register here.
9 OCTOBER

08:30-09:15 Registration
09:15-09:30 Welcome and introduction: Joachim M. Buhmann, Board Member, Department of Computer Science, ETH-Zurich, Switzerland
Bertrand Meyer, President of Informatics Europe, ETH-Zurich, Switzerland.

IMAGE, IMPACT, INNOVATION

09:30-10:30 Keynote: Wolfgang Wahlster, Director of DFKI and Computer Science Department, Saarland University, Saarbruecken.
"ICT 2020 - The Research Program for Boosting Germany's Innovation Motor No. 1" talk
Session chair: Jan van Leeuwen, Utrecht University, The Netherlands.

10:30-11:00 Coffee break

11:00-11:45 Keynote: Andrew Herbert, Managing Director of Microsoft Research, Cambridge, UK.
"Hot Topics in Computer Science at Microsoft Research" talk
Session chair: Christine Choppy, University Paris-XIII, France.

11:45-12:30 Keynote: Heikki Mannila, Helsinki Institute for Information Technology, Helsinki.
"Impact of Algorithmic Data Analysis" talk
Session chair: Josep Diaz, Universitat Politecnica de Catalunya, Barcelona, Spain.

12:30-13:00 Keynote: J Strother Moore, Member CRA Board of Directors, Department of Computer Science, University of Texas at Austin
"Mission and Impact of the Computing Research Association (CRA)" talk
Session chair: Bertrand Meyer, ETH-Zurich, Switzerland.

13:00-14:30 Lunch, ETH Faculty Club

14:30-15:15 Keynote: Jon Oberlander, Director SICSA, School of Informatics, University of Edinburgh, Scotland.
"The Scottish Informatics and Computer Science Alliance" talk
Session chair: Hans-Ulrich Heiss, Technische Universität Berlin, Germany.

15:15-16:00 Keynote: Friedemann Mattern, Institute for Pervasive Computing, Department of Computer Science, ETH Zurich.
"Bibliometric Evaluation of Computer Science - Problems and Pitfalls" talk
Session chair: Jiří Wiedermann, Academy of Sciences, Prague, Czech Republic.

16:00-16:30 Coffee break
16:30-17:30 PANEL: WHAT COUNTS AND WHY IN CS RESEARCH EVALUATION
Moderator: Christine Chopy, University Paris-XIII, France.
Panellists: Josep Diaz, Universitat Politècnica de Catalunya, Barcelona, Spain, Antoine Petit, INRIA Paris-Rocquencourt Research Center, France, Jørgen Staunstrup, IT University, Copenhagen, Denmark, Jan van Leeuwen, Utrecht University, The Netherlands.
Discussion paper: download

17:30-18:15 Informatics Europe - General Assembly
Chair: Bertrand Meyer,
President of Informatics Europe, ETH-Zurich, Switzerland.

19:00-21:30 Conference dinner, ETH Faculty Club

10 OCTOBER
IMAGE, IMPACT, INNOVATION

08:30-9:00 Registration

09:00-09:45 Keynote: Liba Svobodova, SSME Advocate, IBM Research, Zurich Research Laboratory, Rüschlikon, Switzerland
"The Challenge of SSME: Services Science, Management and Engineering" talk
Session chair: Jørgen Staunstrup, IT University, Copenhagen, Denmark

09:45-10:30 Keynote: Manuel Hermenegildo, Director of IMDEA-Software, Universidad Politécnica de Madrid, Madrid, Spain.
"Perspectives on Software Engineering and Informatics Research in Spain and the IMDEA Initiative" talk
Session chair: Antoine Petit, INRIA Paris-Rocquencourt Research Center, France

10:30-11:00 Coffee break

11:00-13:00 Parallel sessions

Session I: 'Informatics Education'
Session chair: Josep Diaz, Universitat Politècnica de Catalunya, Barcelona, Spain.

• J.C.M. Baeten and H.T.G. Weffers, Eindhoven University of Technology, The Netherlands, "Internationalization of Informatics Education" doc / talk

• F. Gielen, Ghent University, Belgium, "SoftEnterprise - Introducing Entrepreneurship in the software engineering curriculum" doc / talk

• H-U. Heiss, N. Csonka, C. Raue, Technische Universitaet Berlin, Germany, "Outcome Analysis of a New Informatics Curriculum" doc / talk
Session II: 'Informatics Image and New Approaches'
Session chair: Jan van Leeuwen, Utrecht University, The Netherlands.

- L. Kozma, Z. Illes, Z. Istenes, V. Heizlerne Bakonyi, Eotvos Lorand University, Budapest, Hungary, "A Sector-Specific Implementation of the European Qualification" doc / talk

- G. Hilkevica and S. Hilkevics, Ventspils University College, Ventspils, Latvia, "Interdisciplinary IT Research: Digital Signal Processing" doc / talk

- R. Nikolov, E. Gourova, M. Nisheva, Sofia University, Bulgaria, "Some Methodological Aspects of the Development of an ICT Research and Technology Development and Innovation Strategy for a Faculty of Mathematics and Informatics" doc / talk

- W. Reisig, Humboldt-Universitaet, Berlin, Germany, "In praise of a Theoretical Basis for New Software Paradigms" doc / talk

- B. Vöcking, RWTH Aachen University, Aachen, Germany, "Algorithm of the week - Communicating the fascination of algorithms to the public" doc / talk

13:00-14:30 Lunch, ETH Faculty Club

14:30-15:15 Keynote: Wilhelm Schaefer,
Vice-president and Chairman International Graduate School, Universität Paderborn, Germany.
"European Accreditation of Informatics Programmes" talk
Session chair: Letizia Tanca, Politeenico di Milano, Italy

15:15-16:15 PANEL: TOWARDS EUROPEAN STANDARDS FOR GRADUATION, ACCREDITATION AND CERTIFICATION IN INFORMATICS
Moderator: Gregor Engels, University of Paderborn, Germany.
Panellists: Vasile Baltac (CEPIS), Gordon Davies (ACM Education Board), Enrico Nardelli (University of Rome Tor Vergata), John O'Sullivan (CEN/ISSS) and Wilhelm Schaefer (University of Paderborn).

Discussion paper: download
Documentation (example): download
Documentation (example): download
Talks: talk 1 talk 2 talk 3 talk 4

16:15-16:30 Closing Remarks: Jan van Leeuwen, Utrecht University, The Netherlands

Please register here.
2007 - 2008, Informatics europe
1 Header


Contributor: prof. dr. ir. Frank Gielen is Professor in Computer Science Engineering with the Department of Information Technology (INTEC), Ghent University, Belgium.

2 Summary

The goal of the SoftEnterprise program is to develop the entrepreneurial skills of computer science graduates majoring in software engineering. This is mainly achieved through a unique enhancement of the current curriculum that we combine with other disciplines. This will be explained further in this paper. The end result: students recognize the importance of operating from a business perspective in software development to a much larger extent than before. As such, they are well prepared for a career path in an business or venturing environment.

3 Strategy

Nowadays, it’s no longer sufficient for an engineer to possess only good technical and scientific qualifications. Students need to become familiar with other disciplines that are required to create value from technical innovation. At least, they are expected to acquire knowledge of and experience with marketing, sales, financing, business development. In this way, they are prepared to create and to capture value from their technical innovations. Our experiences in the field and contacts with industrial partners have convinced us that the business aspect of innovation is way too often neglected in engineering curricula: students should learn that the business aspect is necessary to capture the economical benefits of technology.

Numerous educational institutions (universities, management schools) try to bridge this gap with supplementary tracks governing economics, law and finance to name only a few. As the name readily suggests however, these have to be followed in addition to the already demanding technological and scientific program. Our approach consists of a logical sequence of existing technical courses in which we embed the business perspective of technology.

The process starts with the Software Architecture course. Students get introduced in the domains of architectural design, patterns, case studies and architecture evaluation methods. They are assigned to come up with a detailed architectural specification for a given new product proposal, presented in the first week. One of the key elements of their report is the state-of-the-art research report which covers both scientific, industrial and standardization work in the domain of the project. They have to investigate potential customers, partners, competitors, existing industrial and academic research, and last but not least existing intellectual property such as patent and copyrighted open-source projects.

During the Christmas break, the academic staff evaluates the results and decides which ones will make it to the next stage in the second semester. During the second semester they have to implement a proof of concept of their project while students from the business school prepare a value proposition for the potential applications of the technology. Both team work closely together and have joint weekly project reviews. The
software engineering students have to take to courses in the second semester to complete the project: the Software Design Project & Software management.

The Software Development project is a tight 12-week scheduled technical project. A typical project is implemented in groups of 10 students. This is the often the first time that the students have to work in a large team on 1 project: project management and team communication become the key success factors of the project. The students have to elaborate one of the architectural designs of the first semester and turn it into a software prototype of alpha version quality. This means that the majority of technical risks should have been dealt with at the moment of the exam presentation. They are trained and coached by senior entrepreneurs from existing enterprises, who work closely together with the academic staff.

In parallel, students in business and economics masters work with the team to formulate a value proposition and a business opportunity plan. This sets the stage for the technical features that have to be implemented by the technical team of engineering students. The features are prioritized based on the technical risk and complexity as well as the importance that they represent for a customer. Also here the communication between multidisciplinary teams represents a valuable learning experience.

During the 12 project weeks, the development team has to deal with different real world situations: additional requirements requested by the business team, conflicts or disagreements within the group regarding the planned activities, regular meetings with the involved stakeholders, ... The outcome, in other words, is not fixed. The participants have a major influence on the end result by means of their decisions and actions, in face of both successes and troubles. The goal is to simulate a real life environment where they still have to be capable to deliver the proof-of concept on time (before the exam !), within the budget and complaint to the specifications.

Simultaneously, Software Management course, which runs in parallel with the software development project, provides them with insight into software quality and software processes which they apply in the project: such as process definition like reviews, measurement & metrics, project planning, configuration management and quality assurance. The focus here lies on how they do it, instead of what they are doing. The exercise in this course is an appraisal of the Software Development project using the CMMI framework.

The last step in our SoftEnterprise program is a joint master thesis performed by both an economy graduate and an engineering graduate during the second year. The prototype demonstrator from Software Development will be further elaborated into a beta version product, accompanied by a first business plan. The deliverables should be sufficient for the students to raise early stage funding for the continuation of the project. Those are typical government grants or loans (pre seed funding) or early stage venture capital (seed capital). It gives the students the possibility to start their own venture if they want to. After all, the goal of the SoftEnterprise program is to create entrepreneurial computer science students.

4 Results and conclusions

As a result of this program a number of startup companies have been launched or are in the process of being launched and are raising early stage venture capital. VodTec – online and mobile video – and Mobixx – developing internet applications and extensions for mobile devices – constitute our current flagships.
SoftEnterprise clearly proves that introducing entrepreneurial and business aspects in the engineering program will motivate and drive young entrepreneurs to take the stage and engage in new ventures. It is a key innovation in the academic curriculum that can help to maintain our economic position in a competitive landscape.