



HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI

Software Factory

an experimental R&D laboratory on
entrepreneurship, research and education

Pekka Abrahamsson
Professor

SEMAT, Zurich
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Overview: Challenges

- Technology develops rapidly in the field of software engineering.
- Software education has had hard time in keeping up with current developments.
- Often there is a gap between the research, education and practice, which all seem to travel in their own pace.
- Software Factory creates a common, co-operative platform for software business, basic & applied software engineering research and education.



Three Functions of Software Factory at UH

- Software factory is an experimental software lab aiming to stimulate
 - Growth business: high-expectation entrepreneurships (Curley, Formica 2009)
 - Cross-disciplinary research: Both basic and applied, empirical software research
 - Education: Empirical computational thinking (Johnson 2009)
- Software factory physically is located at Univ. of Helsinki but operates in global space. Satellite hubs are being set-up in several locations globally.





Software Factory Use Cases

INTEREST GROUP	<i>Learn</i>	<i>Share</i>	<i>Grow</i>
Companies	<ul style="list-style-type: none">• Global Software Development	<ul style="list-style-type: none">• Open Innovation• future skill and competence needs	<ul style="list-style-type: none">• business-driven prototypes
Investors	<ul style="list-style-type: none">• software product development	<ul style="list-style-type: none">• prospects• expectations	<ul style="list-style-type: none">• spin-offs
Researchers	<ul style="list-style-type: none">• software business	<ul style="list-style-type: none">• experiments	<ul style="list-style-type: none">• Cloud software competences
Students	<ul style="list-style-type: none">• professional skills (e.g., teamwork)	<ul style="list-style-type: none">• teaching material• lessons learnt	<ul style="list-style-type: none">• careers



Business facet: High Expectation Entrepreneurship

- A 7-week software business prototype engine
- A series of experiments running 2010-2013 under the Cloud Software research program
- First business prototype in business driven alpha tests by 1.3.2010.
- Co-operation with University of Helsinki, Helsinki Univ. of Technology and Metropolia





Business facet: High Expectation Entrepreneurship

- The backbone of a successful economy is entrepreneurship
- Finnish software business lacks high-expectation entrepreneurship start-ups
- Software factory targets to stimulate the following spin-offs and business prototypes 2010
 - **MicroVC:** A people/ community driven business angel model for Europe
 - **ScienceBook:** A collaboration engine for small groups working together
 - **EuropeToday:** A mash-up newspaper print-ready in your printer tray
 - **ChineseMobile:** A community service for identifying new mobile services for chinese markets (service available only in chinese)
 - ... You tell us! And let's implement it!



Research facet

- Software Factory is designed to operate as a test-platform for novel tools, techniques and methods.
- Software Factory is equipped with multiple means to collect data including interview, observation, video/audio (when necessary) and seamless measurements as well.
- Each research target has its own research design plan to guide the research work.





Preliminary research topics already identified

- Software Factory is launched with several research goals already identified including:
- Bottom-up modeling by Pietu Pohjalainen (PhD)
- Ambient user-experience by Timo Jokela (post-doc)
- Psychometric measurements & teamwork by Fabian Fagerholm (PhD)
- Web-service maintenance by Juha Gustafsson (PhD)
- Validity of observation as a means to collect valid software engineering research data by Pekka Abrahamsson





Education in Software Factory

- While software is a knowledge medium, software development is about learning.
- Software Factory, therefore, is ultimately a learning vehicle. It operates at three layers of education:
 - Software Factory course (8op)
 - Software Factory integrated to other software courses in University of Helsinki and outside
 - PhD training & education





Software Factory course

- Software Factory course is an intensified course setting where students learn about
 - Real-life agile development setting with deadlines and deliverables
 - Teamwork dynamics
 - Incremental, iterative & continuous planning
 - Integration, testing in web-development
 - Implementation technologies
- As a result of 7 week of work, a concrete business prototype is to be delivered to real markets





Software Factory course expectations

- Software Factory course is not a traditional course. The course is intense, exciting and full of surprises (like real life).
 - Software Factory operates four days a week, 6 hours a day (be aware of this!)
 - Team decides the working hours
 - Team decides the split up of tasks between different sub-teams
 - Teams self-organize
- This is an advanced course; thus, you use all the skills acquired in your studies to perform to meet the highest expectations

are YOU ready for this?