

Technology Transfer – Requirements Engineering Research to Industrial Practice

An Open (Ended) Debate

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Abstract—Technology and knowledge have been recognized as main sources of competitive advantage of corporations, industries and nations, particularly in the software domain. They have led to the creation of local ecosystems devoted to development and transfer activities, which ensure not only personal and institutional motivation/recognition, but also social and economic gains. An open (ended) debate panel is proposed in order to develop greater awareness and seek deeper understanding of such activities from Requirements Engineering research to industrial practice. The panel involves researchers and practitioners with the perspective of eliciting: (i) experiences in knowledge and technology development and transfer; (ii) awareness and effectiveness of models and patterns; and (iii) factors for having successful collaboration between research institutions and industry. The organizers also plan to run a survey during and after the conference, summarizing their conclusions in specific post-conference reports.

Index Terms—Technology and Knowledge Transfer, Requirements Engineering, Empirical Methods, Software Industry.

I. INTRODUCTION: MOTIVATION AND OBJECTIVES

Technology and knowledge have long been recognized as main sources of competitive advantage of corporations, industries and nations. This is particularly true concerning the software domain, which has led to the creation of local technology ecosystems devoted to development and transfer activities, which ensure not only personal and institutional motivation/recognition, but also social and economic gains.

Whereas it is certain that successful knowledge and technology development and transfer activities require close cooperation and collaboration between researchers and practitioners [1], the conceptual structures underlying such activities appear to be dependent on domain and culture. For example, Joseph and Abraham recognize in [2] that the models observed in developed economies reflect the long term stable relationships established between their institutions, whereas the patterns found in developing nations mirror the more open and fragmented environment of the corresponding economies.

The authors have studied this subject for from their particular complementary realities. In [1,3], Gorschek and others argue that software research can be characterized as a cooperative activity leading to long term win-win relationships. Based on case studies with Swedish companies, they derived a cooperation model that begins

with problem understanding and goes on with problem formulation, state of the art study, selection of a candidate solution, validation with the academia, static and dynamic corporate validation and the solution release. In [4], based on his experience fostering the software industry in Brazil, Duarte formalizes and reports examples of patterns of cooperative software technology development and transfer activities. He argues that the existence of fostering instruments, leaderships and long term partnerships are among the most important success factors of such activities.

These studies suggest that it is worthwhile not only to develop greater awareness and debate, but also to seek a deeper understanding of technology and knowledge development and transfer in the software domain. The Requirements Engineering Conference (RE), which involves researchers and practitioners with diverse backgrounds from different parts of the world, appears to be the ideal forum to host such discussions in order to seek evidence and/or answers for the existing questions.

In particular, technology and knowledge transfer in the software domain is regarded as the transfer or acquisition of processes, tools, products, methods, techniques, models, frameworks and others that enable or support the creation of software intensive products or services (independent of application domain). Are there relevant past experiences that would enable widespread dissemination? Which stages of the software technology life cycle are covered? What are the major thresholds to overcome in terms of knowledge and technology transfer? There are conceptual structures, models and patterns [1,3,4], to enable knowledge and technology transfer. However they might be lacking or may not be widespread in our community. Also, to what extent they are connected to maturity [5] and transfer readiness [6] is something that needs to be explored further. Finally, are there golden rules (or silver bullets) for technology and knowledge development and transfer from research to practice in the software domain? What are the recurring success factors? Do the adopted models and/or patterns affect the chance of success of a project?

These questions lead us to believe that it is worthwhile to promote a debate panel during RE'2015. The panel will involve researchers and practitioners in order to discuss technology and knowledge development and transfer in the software domain, with the perspective of eliciting the awareness of model/patterns and successful collaboration factors between research institutions and industry.

II. PANEL FORMAT AND STRUCTURE

The panel is expected to run for nearly 90 minutes, divided into rounds, each of which clearly indicated and guided by the projection of a single theme slide. Each of the rounds is described in more detail below:

1. **Introduction** (10 minutes): The participants (panelists and organizers) briefly introduce themselves, by providing their affiliation and background, as well as their overall views on the subject.
2. **Previous Experiences and Critical Success Factors** (40 minutes): The panelists are asked to describe their past experiences in technology development and transfer, listing the context information of the actual projects they were involved in, as well as their views on critical success factors.
3. **Models and Patterns of Technology Transfer** (20 minutes): The panelists are asked to mention their awareness of models [1] and patterns [4] of knowledge and technology development and transfer activities, as well as technology transfer maturation [5] and readiness [6] assessment models. They are also requested to comment on the effectiveness of such conceptual structures and on their possible connection with critical success factors.
4. **Closing session** (20 minutes): The organizers allow the audience to present remaining questions and comments. In the end, they summarize the discussions.

The two intermediate rounds will have a fixed structure, in which the academic panelist opens the discussions by addressing the round theme, industry panelists follow on with their vision and in the end the audience and the panel organizers are allowed to formulate brief questions to be debated by the whole group. The available time for presentations and debates will be divided proportionally among the panelists.

The panel subject is in the scope of and fosters the interaction between the industry and research tracks of the conference. Therefore, it is expected that the audience will consist in conference attendants from both tracks.

In fact, there is widespread interest and vast experience on knowledge and technology transfer among usual participants of RE. A panel to recognize the transfer readiness of Requirements Engineering technologies from academic research to industrial practice has happened during RE since 2011 [7]. Our focus, however, in running an additional panel in the same conference, is to identify past experiences and success factors to industrial practice, developed in cooperation with academic institutions.

III. ORGANIZERS AND PANELISTS

We expect to have at least four panelists in order to ensure an interesting debate during the panel. The organizer and panelist biographies will be made available online at <https://sites.google.com/site/techtransfersurvey>

so as to attract interest and serve as a reference point for connected activities.

The invited panelists will have a background in Requirements Engineering and experience in industry-academia collaborations. Ideally, they will be outgoing persons, with many years of experience in these activities, making their participation in the panel dynamic and attractive to the audience. Optimally, we will choose 50% of the panelists to be working mainly in industry and 50% working mainly as researchers.

The panel organizers have experience from both industrial practice and research, with focus on technology transfer activities. Their background will be used to facilitate the discussions and moderate the debate during the panel.

IV. CONCLUDING REMARKS

The discussions during the panel will be recorded and should serve as the basis for preparation of a two page summary report to be included in conference proceedings, substituting this pre-conference summary. The authors also plan to run an online survey on technology and knowledge development and transfer during and after the conference, involving panel attendees and other people. With such activities, we hope to foster discussion, develop greater awareness and seek a deeper understanding of technology and knowledge development and transfer from Requirements Engineering research to industrial practice.

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