

Conducting a Long-Term Case Study in a Software Firm

Experience Report

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The research

- Research agenda:
 - ✦ To define the software architecture process in different development methodologies and the role of the software architect within them
- Research field
 - ✦ One of the world's largest software providers
- Research population
 - ✦ Software architects employed in the firm with different levels of seniority
 - ✦ Software developers practicing software architecture
- Research plan
 - (1) analysis of the current state
 - (2) development and improvement of a proposed solution
 - (3) evaluation and validation of the developed solutions


Classification of our study within academia-industry collaboration

- Completion project [Cohen, Nelson and Walsh, 2002]
 - ✦ Funding
 - ✦ Non-financial benefits (access to data)
[Perkman and Walsh , 2009; Walsh et al, 2012]
- Technology development research
 - ✦ Development of process and tool
[Perkman and Walsh , 2009]

The challenges

Challenge	Explanation	Consequences
Perceived importance of academic research	<p>Immediate contribution of the research is not evident to developers.</p> <p>It is hard to convince them to take it seriously.</p>	Attitude towards researchers is distrust.
Resource allocation – time budget	Dedicating time for interview or questionnaire is often perceived as a waste of time, by both middle management and developers.	Leads to the perception that time spent on the research becomes an investment of the developer's own time budget.

The challenges (cont')

Challenge	Explanation	Consequences
Concerns regarding providing data	The advantage of managers' motivating developers to collaborate with the researchers.	Developers providing only partial information, sometimes even inaccurate data.
	 Developers cannot be sure that information provided in the questionnaire or interview would not harm them in the future.	This, in turn, may also lead to suspicious attitude towards research outputs.
Concerns regarding the research outcomes	Developers' concerns regarding research outcomes' influence.	Developers providing only partial information or none at all.

The challenges (cont')

The challenge	Explanation	Consequences
Applying research outcomes in the field	The lack of firms' motivation to cooperate once the main purpose of the research has been achieved.	There is no motivation to validate, generalize and publish the results, which is highly important to the academic researcher.

Discussion – enhancing collaboration

- Bringing the contribution of academic research to industry to the software developers' awareness
 - Providing developers with academic literature
 - Promoting participation in academic seminars
 - Encouraging research-related discussions
- Facilitating better communication
 - Providing both parties with common terminology
 - Providing both parties with common interests
- Bridging the gap via education
 - Including topics related to the contribution of academic research to industry in CS and SE curriculum.

Questions?

Thank you!