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

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Explanation</th>
<th>Consequences</th>
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| Perceived importance of academic research | Immediate contribution of the research is not evident to developers.  
It is hard to convince them to take it seriously. | 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’)

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<tr>
<td>Concerns regarding providing data</td>
<td>The advantage of managers’ motivating developers to collaborate with the researchers. Developers cannot be sure that information provided in the questionnaire or interview would not harm them in the future.</td>
<td>Developers providing only partial information, sometimes even inaccurate data. This, in turn, may also lead to suspicious attitude towards research outputs.</td>
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<tr>
<td>Concerns regarding the research outcomes</td>
<td>Developers’ concerns regarding research outcomes’ influence.</td>
<td>Developers providing only partial information or none at all.</td>
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<td>Applying research outcomes in the field</td>
<td>The lack of firms’ motivation to cooperate once the main purpose of the research has been achieved.</td>
<td>There is no motivation to validate, generalize and publish the results, which is highly important to the academic researcher.</td>
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Discussion – enhancing collaboration

• Bringing the contribution of academic research to industry to the software developers’ awareness
  o Providing developers with academic literature
  o Promoting participation in academic seminars
  o Encouraging research-related discussions

• Facilitating better communication
  o Providing both parties with common terminology
  o Providing both parties with common interests

• Bridging the gap via education
  o Including topics related to the contribution of academic research to industry in CS and SE curriculum.
Questions?

Thank you!