

## Assignment: Case Study Research in Software Engineering

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Estimated time: 2 hour evening session plus 2 days of work after the session. We suggest working in the teams defined by the GSM.

### Introduction and objectives

In this assignment you should conduct a light-weight case study in Software Engineering, guided by the Runeson and Höst article (cf. reference below). You should select one company and one product that you should study. Your objectives in the study are to:

- Characterize the company, the project, and the product with respect to
  - Product (e.g., is it a small component or is it a “system of systems”?)
  - Process (e.g., is it a simple process for a few persons or a synchronization of different processes?)
  - Organization (e.g., is it a small team in a single building or a world-wide collaboration of different companies?)
- Understand why the company has decided a set-up according to the characterization above? What challenges or issues has the company solved by choosing this set-up? What are the advantages of the chosen set-up?
- Discuss and elaborate current challenges and what changes and transformations you would expect in the company in the future. Relate the discussion to the material provided in the lectures and the reading material.

### Procedure

1. Select a company and a product with a related project from the group. This should preferably be one of the companies that are represented by an industrial PhD student in the group. If you have more companies represented in your group, you may even compare them.
2. Define your case study in terms of the template in the case study guidelines (cf. section 3.1): Objective, The case, Theory, Research questions, Methods, Selection Strategy. Also discuss ethical considerations (cf. section 3.3.) and document your findings.
3. Prepare a set of interview questions that can be used to meet the objectives according to aforementioned items (cf. section 4.2).
4. Conduct the interview with the industrial PhD student(s). Spend maximum one hour in the interview. In this light-weight study, you may only take notes in writing. If you have access to an additional employee of the company, or the industrial PhD student is not able to provide enough information, you may conduct a second interview.
5. Analyze the results from the interview and draw conclusions (cf. section 5.2.1). Tag each statement in your notes with a code (keyword). Group the statements related to each code and summarize the information related to each code. If you have multiple codes attached to statements, create multiple clusters of information. Merge codes during the analysis process into more general codes. In the analysis, look for surprises, contrasts, adherence or lack of adherence to the software engineering theory (cf. lectures and literature).

6. Discuss the validity of the results, e.g., with respect to selection of data to analyze. Discuss also what further research could be carried out in order to increase the validity.
7. Report the results, by preparing a presentation according to the structure in table 9. The presentation should be delivered at one of the local sessions at your university. Take the ethical considerations into account in the presentation, in particular integrity of the individuals providing information and secrecy for sensitive company information to be protected.

### Reporting format

The results shall be presented as a 15-20 minute PowerPoint/Keynote presentation (or similar format). The presentation should include relevant aspects like objective, methodology, results, conclusions, and discussion. As target-audience choose “yourself before you started this project”. The presentation will be given and discussed at a local session.

### Literature

P. Runeson and M. Höst. Guidelines for conducting and reporting case study research in software engineering. *Empirical Software Engineering*, 14(2):131–164, 2009