CHALMERS | UNIVERSITY OF GOTHENBURG
Department of Computer Science and Engineering
Software Engineering Master Thesis Proposal, 30hec

<Title of your thesis work>

Name 1: *Completed courses relevant for thesis work: <list here all the relevant courses>*

Name 2: *Completed courses relevant for thesis work:*

1 Introduction

An introduction provides readers with the background information for the research proposed (or reported in the paper), with the purpose to provide an understanding of how the research is related to other research (Wilkinson 1991). In an introduction, the writer should (Creswell 2002):

- Create reader interest in the topic
- Lay the broad foundation for the problem that leads to the study
- Place the study within the larger context of the scholarly literature
- Reach out to a specific audience

2 Statement of the problem

The statement of the problem is the foundation for the construction of any research proposal. In addition to being an integral part of selecting a research topic, it also helps to select research design. It serves as the bases for determining research objectives, formulation of research hypotheses or research questions, and planning the research design (Booth et al 2003). It allows the researcher to describe the problem systematically, to reflect on its importance, its priority and to point out why the proposed research on the problem should be undertaken.

A problem might be defined as the issue that exists in the literature, theory, or practice that leads to a need for the study. It is important in a proposal that the problem stands out and that the reader can easily recognize it.

- A problem statement should be presented within a context, and that context should be provided and briefly explained, including a discussion of the conceptual or theoretical framework in which it is embedded.
- Clearly and succinctly identify and explain the problem within the framework of the theory or line of inquiry that supports the study.
- State the problem in terms intelligible to someone who is generally sophisticated but who is relatively uninformed in the area of your investigation.

Effective problem statements answer the question: Why does this research need to be conducted? If the writer is unable to answer this question clearly and succinctly, the statement

of the problem will be perceived as vague and diffuse.

3 Purpose of the study

The purpose statement should provide a specific and accurate summary of the overall purpose of the study. Briefly define and delimit the specific area of the research. Incorporate the rationale for the study. A commonly used sentence starts with: "The purpose of this study is . . .". The purpose should clarify who is anticipated to benefit from the results of your study and how the results may be used.

4 Review of the literature

The literature review provides the background and context for the research problem. It should establish the need for the research and indicate that the writer is knowledgeable about the area. The literature review:

- Describes the results of other studies that are closely related to the study being proposed (or reported)
- Relates a study to the larger, ongoing dialogue in the literature about a topic, filling in gaps and extending prior studies
- Provides a framework for establishing the importance of the study, as well as a benchmark for comparing the results of a study with other findings
- "Frames" the problem earlier identified

The literature review should demonstrate to the reader that you have a comprehensive grasp of the field and are aware of important recent substantive and methodological developments. Define the starting point for your study - how will your study refine, revise, or extend what is now known?

In a proposal, the literature review is generally brief and to the point. Select and reference only the more appropriate citations. Make key points clearly and succinctly. Later in your thesis, you will elaborate on this section.

5 Research question and/or Hypotheses

Questions are relevant to descriptive, normative or census type research. (What are relevant factors? How many of them are there? Is there a relationship between them?) Hypotheses are relevant to theoretical research, and when you state hypotheses the reader is entitled to have an exposition of the theory that lead to them (and the assumptions underlying the theory).

In general, you should be prepared to interpret any possible outcome with respect to the questions or hypotheses. Try to visualize in your mind tables or other summary devices, which you expect to come out of the research, short of the actual data.

6 The Design – Methods and Procedures

Any research or problem solving requires a systematic approach with methods and procedures. Indicate the steps you will take to answer every question or to test every hypothesis indicated in the previous section, to solve the problem that you are addressing. There are several research methods, e.g. design research (Collins 2004, Vaishnavi & Kuechler2004/5), case study (Runeson & Höst 2009, Yin 1994), action research (McKay & Marshall 2001), Survey (Grover 1998), and experiment (Basili et al 1986) just to mention a few. Different research methods and procedures require different descriptions.

For example for a survey, it becomes vital to describe sampling and instrumentation. The sampling, i.e. the population and how the sample has been drawn from that, needs to be described to clarify to what extent the findings of a study can be generalized to people or situations. You should also outline the instruments you propose to use (surveys, scales, interview protocols, observation grids). For a case study or a design research, other aspects become vital.

Data collection
For all studies, you need to have a systematic approach for data collection. Outline the general plan for what data to collect, and how. This may include survey administration procedures, interview or observation procedures. Also, provide a general outline of the time schedule you expect to follow.

Data Analysis
For all studies, you need to have a systematic approach for data analysis. Specify the procedures you will use to analyze your data. If coding procedures are to be used, describe these in reasonable detail. For evaluations, describe the criteria to be used in reasonable detail.

7 Limitations and Delimitations

A limitation identifies potential weaknesses of the study. Think about your analysis, the nature of self-report, your instruments, and the sample. Think about threats to external or internal validity that may have been impossible to avoid or minimize and explain these.

Delimitation addresses how a study will be narrowed in scope. This is where you explain the things that you are not doing and why you have chosen not to do them. For example, the literature you will not review (and why not), the population you are not studying (and why not), the methodological procedures you will not use (and why not). Limit your delimitations to the things that a reader might reasonably expect you to do (given your topic and problem statement) but that you, for clearly explained reasons, have decided not to do.

8 Significance of the study

Indicate how your research will refine, revise, or extend existing knowledge in the area under investigation. Note that such refinements, revisions, or extensions may have substantive, theoretical, or methodological significance. Think pragmatically.

Most studies have two potential audiences: practitioners and researchers. Think about implications: What implications may the results of the study have on research? What implications may the results of the study have on practice?

9 References

Reference all sources that are cited in your proposal. Use established guidelines for references in text and in the reference list, e.g. the APA[1], Harvard[2], or IEEE[3] style.

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[1] http://www.apastyle.org/

[2] http://libweb.anglia.ac.uk/referencing/harvard.htm

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