Abstract

Your thesis should start with an abstract. The abstract should be approximately 150 words long, written in Georgia 11 points, italics. It must include the research question, basis for research, method, findings and conclusions. That is, you want to tell the reader what you did, why you did it, how you did it, what was the result of what you did, and how does this contribute to research? An example abstract can be found in Appendix 1. Beneath your abstract, you should list some keywords. These give the reader a quick overview of the most important concepts in your thesis.

Keywords: Form, content, style, User Experience, Tangible, music production

1. General

The first chapter (1. General) should start immediately after the abstract, not on a new page, and there should be no index in the thesis. Master thesis work at the department of informatics is digitally published in the DIVA system, administered by the University library, and we want them to be consistent when it comes to format and style.

This document provides information concerning the required layout of the thesis when published. Note that this document itself uses the layout template it describes. Every word in this document belongs to a style, so by clicking on different places you will see the style is used to implement all features of the layout. Your thesis has a specific page limit (20–25 pages for Master's 15 credits and Magister's 15 credits, and 25–30 pages for Master's 30 credits, excluding references and maximum 10 pages of appendices). Use them well, and remember that your thesis should not have an index!

2. Headings (Heading 1)

Divide your article into clearly defined and numbered sections. Subsections should be numbered 1.1 (then 1.1.1, 1.1.2, ...), 1.2, etc. The abstract is not included in section numbering. Any section or subsection should be given a brief heading. Each heading should appear on its own separate line. Headings on different levels have different layout (be consistent!). Section headings are written with 16 points, bold. The spacing before should be 24 points and after 6 points. The font in all headings should be Georgia.

2.1 Heading 2

Sublevel headings are 14 points bold. Spacing before should be 12 points, and after 3 points.

2.1.1 Heading 3

Third level headings should be 12 points bold. Spacing before 12 points, and after 0 points. Try to avoid more sublevels. If you feel it is absolutely necessary, do the next level like Heading 3, but not in bold.

3. Layout

3.1 The body of the text

The body of the text should be written using Georgia, 11 points. The line spacing should be exactly 16 points. The margins should be justified (i.e. stretched towards both margins).

New paragraphs are indented 0.5 cm in the first line, except the first paragraph after a heading, quote or figure. There should not be empty lines between paragraphs. Page numbers must be centred in the footer and start on the same page as your abstract and introduction. All margins should be set to 2.5 cm.

3.2 The first page

The first page of the thesis should start with an abstract. The purpose of an abstract is to give the reader a quick overview of the major points of the thesis. The abstract should be approximately 150 words long, in Georgia 11 points, italics. The heading should be centred. An example can be found in Appendix 1. After the abstract, you should list some keywords central for your thesis. Then you move on to your introduction.

3.3 The title page

The published thesis should have a cover page. That page has no page number. The design of the cover is an Umeå University standard. Just edit the template (another than this one) page by filling in your data instead of the dummy data found in this template. Before publication, your thesis will get a unique number in the department's publication series. This should be put at the bottom of the title page. The course administrator will provide that number when it is time for publication of the thesis.

3.4 Footnotes and references

Footnotes should be used restrictively, numbered in sequence, and be placed at the bottom of the page. The text in these should be Georgia, 10 points and the line spacing should be single[1]. A footnote can for example be used for short clarifications.

References in the text are done by stating the author(s) and year of publication within parenthesis, for instance (Churchman, 1968) or Churchman (1968) dependent upon if you want to use a strong or weak referencing style. If the reference list contains more than one item by the same author(s) from the same year, they are separated by adding a, b and so on, to the year, for instance (Churchman, 1968b).

If there are more than two authors, you should list all authors the first time the reference appears in the text (Jonsson, Westergren & Holmström, 2008) and the next time you only name the first author and use et al. for the others (Jonsson et al., 2008). The full reference should be provided in the reference list at the end of the thesis. The layout for the reference list is shown in Appendix 2.

3.5 Tables, figures, pictures

For this kind of content there is no specific layout, just make sure it is clear, easy to interpret and informative. All tables, figures and pictures should be numbered, centered and have a text describing their content. The number of the figure and the text should also be centered, written in Georgia, 11 points, *italics*, with 12 points spacing before and 6 points after. The paragraph following the figure text should have no indentation.

3.6 Quotes

If you are citing someone else's work, you must do this by enclosing the cited text with quotation marks, followed by a reference including author and page number. There are two main ways to do this:

Example 1) Mason (2002, p. 39) states: "If your research is valid, it means that you are observing, identifying or 'measuring' what you say you are".

Example 2) On the subject of validity it has been said that "If your research is valid, it means that you are observing, identifying or 'measuring' what you say you are" (Mason, 2002, p. 39).

For longer quotes (more than 3 lines) you should use the specific quotation style. It is the same as the body, except that the text is in italics and the lines start and end 1 cm inside the normal margins. Also, the line spacing is 15 points. A long quote should look like this:

"The fourth implication concerns the risk of going from stable to rigid. The interlocked behaviour cycle was seen as "solving" the problem of finding the necessary stability for organizational operations. The problem of finding stability shifts in information systems, such systems have different problems. In information systems,

[1]This is what a footnote looks like. Please try to use footnotes as little as possible.

the balance may tilt too far in the direction of stability. Instead, avoiding rigidity becomes a problem" (Nordström, 2003, p. 94).

3.7 Appendix

Note that as an appendix to the essay, there must also be a short account - at most one page - of each student's contribution to the thesis project. There are no formal requirements for this report that may be formulated freely. The reason why this appendix should be included with the report is that students' performance should be able to be assessed individually also in connection with group work. Note that each student must contribute to all assessment criteria for the thesis project, but within each criterion you can of course divide work.

As the thesis has a page limit, you might want to consider placing some images and tables (that are not crucial for understanding your argumentation) in an appendix (as this is excluded from the page count). All appendices should be numbered and placed at the end of the thesis, after the reference list. The same layout instructions should be applied to the text in the appendix. The only difference is that you must include a header, like in the two appendices to this document. A maximum of 10 pages can be used for appendices.

Abstract

The open innovation model embraces the purposive flow of internal and external ideas as a foundation for innovation and network formation. While the open innovation paradigm has been successfully applied in high-tech settings, there is a lack of research on adopters of open innovation in other settings. We describe a case study conducted in a process industry setting, focusing on the LKAB minerals group as it makes a transition from a closed to a more open innovation context by adopting remote diagnostics technology. This process has resulted in the creation of new value networks. By tracing the reasoning behind the organizational transformation and studying the technology used to carry it through, we seek to explore the preconditions for open innovation and provide insight into the role of IT in the process. Our findings show that adoption of the open innovation model is grounded in developing organizational environments that are conducive to innovation, including expertise in creating a culture for knowledge sharing, building a trustful environment, and a resourceful use of IT.

Keywords: Open innovation, remote diagnostics, trust, value networks

1. Introduction

Contemporary industrial firms are under pressure. While they once took pride in producing sought-after, superior quality products and exporting them for profit, manufacturers are now being overtaken by firms located in high-tech, low wage nations where products of comparable quality are produced at much lower costs (Banker, Bardhan, Chang & Lin, 2006; Houseman, 2007). In order to regain its competitive advantage, industry must re-invent itself by looking for alternative approaches to value production. One approach is to improve the effectiveness and efficiency of production, partly by organizational re-structuring, but also by investing heavily in new information technology (IT) to develop industrial processes. By using IT to monitor the production line, the process can be speeded up and made more efficient, more streamlined, and more cost-effective. To this end, the evolution in remote sensing technology holds particular promise as it enables firms to monitor complex processes from a distance.

Remote sensing has to date received some, but not sufficient, attention within our field, for example through the work of Zuboff (1988), who studied the use of smart machines within the pulp-and paper industry, Puri (2007), with his work on the use of GIS in India, and Østerlie, Almklov and Hepsø (2012) who studied undersea oil well maintenance. These researchers have all shown how the use of IT creates possibilities for knowledge generation. As industries now embrace the use of remote sensing, they come into close contact with the technological potential for boundary-spanning activities (Jonsson, Holmström & Lyytinen, 2009), hence providing the firms with an opportunity for both internal and external process innovation and new ways of value creation.

References (this is the heading you must use, and it should not be numbered)

All of you should know that this is the general format for all of your references in your reference list. The references must be listed in alphabetical order. In this example, the references are listed in the appendix. In your thesis, they should be listed after your final section. For further examples of how to write your references, please see the next page!

Berggren, U. and Bergkvist, T. (2006) Industrial Service Innovations –A Disregarded Growth Engine. NUTEK, Report B2006:6, Available at: http://pubikationer.tillvaxtverket.se, Accessed May 6, 2009.

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For books	Surname, Initials (year) *Title of Book*. Place of Publication: Publisher Mason, J. (2002) *Qualitative Researching*. London: Sage Publications
For book Chapters	Surname, Initials (year) Chapter title. In Editor's Surname, Initials, (Ed(s).), *Title of Book*, Place of Publication: Publisher, Pages Walsham, G. (1997) Actor-network theory and IS research: Current status and future prospects. In Lee, A.S., Libenau, J. & J.I. DeGross (Eds.), *Information systems and qualitative research*, New York: Chapman & Hall, pp. 466-480
For journals	Surname, Initials (year) Title of article. *Journal Name*, Volume (Number), Pages Robey, D. (1981) Computer information systems and organization structure. *Communications of the ACM*, 24(10), pp. 679-687
For published conference proceedings	Surname, Initials (year) Title of paper. In Surname, Initials (Ed.), *Title of published proceeding which may include place and date(s) held*, Place of Publication: Publisher, Pages Öbrand, L., Augustsson, N.-P., Holmström, J., Mathiassen, L. (2012) The Emergence of Information Infrastructure Risk Management in IT Services. In Sprague, R. H. Jr. (Ed.), *Proceedings of 45th Annual Hawaii International Conference on System Sciences (HICSS)*, Los Alamitos: IEEE Computer Society, pp. 4904-4913
For unpublished conference proceedings	Surname, Initials (year) Title of paper. Paper presented at *Name of Conference*, Place of Conference, Date of Conference Westergren, U. H. (2007) Partnership Outsourcing Evolution -The Process of Creating and Maintaining a Network of Actors. Paper presented at *the Fifteenth European Conference on Information Systems*, St. Gallen, Switzerland, June 7-9
For working papers	Surname, Intitials (year) Title of article, (Name and number of Working paper series), Institution or organization, Place of organization Nilsson, K. (1989) Designing for Creativity - Toward a Theoretical Basis for the Design of Interactive Information Systems. (UMADP-RRIPCS-8.89), Institute of Information Processing, Umeå University, Umeå

For newspaper articles	Surname, Initials (year) Title of Article, *Newspaper*, Date, Pages Smith, A. (2012) New IT frightens teenagers. *Daily News*, Jan. 23, pp. 7-8
For electronic sources	If available online, the full URL should be supplied at the end of the reference, as well as a date that the resource was accessed. Berggren, U. and Bergkvist, T. (2006) Industrial Service Innovations –A Disregarded Growth Engine. NUTEK, Report B2006:6, Available at: http://publikationer.tillvaxtverket.se, Accessed May 6, 2009.