Project report

Fill in a descriptive name of the project, something catching attention and telling what it is about.

Names and student numbers of the group members. For a thesis, it would only be one name. Preferred way of filling this is like 'John Doe (123456)

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Version Version number, in the format x.y, where x is the major revision number, y the minor revision number

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# Management Summary

This chapter does not have a number on purpose, as it stands outside the main text. It summarizes the research from context to conclusion. Size depends on the size of the project; for a thesis, it would usually be at most 700 words, for a smaller project it would be less. The summary is aimed at readers who do not know the details of the situation, but have to decide on whether to use the results or not. Examples of those readers are a Chief Technical Officer who needs to decide whether to fund the full implementation of an application, or the Security Officer who needs to decide whether or not to start using the new encryption protocols.

You write this chapter last of all, as you first need to have the rest of the document in order to be able to summarize.

*Note: the name Abstract is used for relatively small papers such as project reports. For large papers (theses), it is called Management Summary.*

# Introduction

This chapter contains all the information needed for the reader to understand the situation at hand, the needs and / or problems derived from this situation, and the research which is going to be conducted to solve the problems or answer the needs. Here, we see subheadings; in a small project, you can omit the subheadings, instead only having the chapter with all content.

## Context

The situation at hand. This paragraph contains the factual description of what’s going on. After reading this paragraph, one should understand the situation, know the reason the organization exists, how they earn money or provide services to the public / other organizations / other organizational units, and how they operate.

After this context, a description of the needs / problems follows, without giving the solution to them. Then the objective(s) of the research is stated; what is the thing which, if achieved successfully, would make the project a success? Do not include test on how to achieve the objective(s), only what to achieve.

This paragraph is mostly founded on knowledge gained during the preliminary research phase.

## Main research question and subquestions

Here, the problem and objectives are translated first to a main research question, which, if answered in full, would achieve the objectives. Then, the main research question is broken down into about three to five subquestions, which, if answered, would answer the main question.

Use a numbered list for the subquestions, making referring to them more practical.

# Methodology

In the previous chapter, you described what to research. In this chapter, you will describe how it has been researched.

## Research Strategy

The research strategy is a general thing, applying to both main research question and all subquestions. It covers the kind of research (quantitative, qualitative) and the depth of it (exploratory, explanatory, predictive). It also describes how the validity and reliability of the data collection has been ensured.

## Research Design

For each subquestion, you describe how to answer it. It is common to have one method for each subquestion, such as literature study to get an overview of potential algorithms, a questionnaire to get insight in the current usage of an application, or an experiment to determine which data mining tool would have the best performance.

More than one method for a subquestion is possible if they are complementing each other. It could also indicate you need to split the subquestion.

Also describe how the operationalization of the chosen methods works, unless it is self-evident. Put another way: how will you actually *do* the somewhat abstract design you described?

Use the numbered list for the subquestions here as well.

*Note: instead of strategy and design, one can also combine it and describe methodology per subquestion. In that case, keep in mind to actually make the difference while figuring it out.*

# Results and analysis

This is a large chapter. In here, you give the results of each data collection step. After the results, you analyse them and draw intermediate conclusions. This you repeat for each data collection step, so analyses and intermediate conclusions are entwined.

As stated, this chapter could become quite large, which makes it less readable. It is usual to split this into several chapters instead of using paragraphs and subparagraphs, for example:

* By phase in the research
  + Literature study
  + Questionnaire
  + Experiments
  + Proof of Concept
* By subquestion
  + Subquestion 1
  + Subquestion 2
  + Subquestion 3

This chapter (or chapters) is the place where the ‘proof what you state’ is extremely important. Show what alternatives you examined, what criteria you used to filter the options, what reasoning has been followed to come to a conclusion. The burden of proof lays upon the plaintiff; what can be stated without evidence, can be dismissed without evidence.

Each chapter or paragraph should end with a intermediate conclusion for that part. That demand is the reason most people find the splitting by subquestion easier to do.

# Conclusion

First repeat the main question and subquestions. Then answer the subquestions one by one, all the time referring to the chapters and paragraphs where the details can be found. Never give information here not available in the previous chapters!

After having answered the main questions this way, answer the main question, using the answers to the subquestions.

A good way to cross-check what you wrote is to mark all places you refer to. After that, all of chapters 2 and 3 should have been marked. If not, you might either have superfluous text there, or missed using results in this chapter.

# Discussion

This chapter is a description of the strengths, weaknesses and possible alternate interpretations of the results. Some research results might have been less reliable than you aimed for; in that case, explain why and how it influences you conclusions. Other results might have turned out stronger; in that situation, also describe why and how it influences the research.

There might be other explanations for some results. Don’t ignore those, put them here and describe why you preferred your conclusion over the alternative(s.)

If possible, give suggestions for further research.

If possible and relevant, give clear advice on how to proceed in the future. Don’t discard this too quickly; giving an advice like this is quite often possible.

This chapter is not about how the process went. It is not a personal reflection; that can be added in a separate document and has a completely different structure and flavor. No ‘I spoiled a week trying to figure out…’, but maybe a ‘X might have worked as well, but would have taken too much time to implement…’

# References

The list with all literature having been used. Use the same style all the time; APA is preferred, and MS Word has templates for that. Other acknowledged styles are allowed.

Keep this list up-to-date all the time, don’t try ‘filling it in’ afterwards. Aim for high-level sources such as scientific papers or thorough, recent text books written by specialists in the field. Just technical sites are almost always weak sources, as they tend to be focusing on the ‘click here and type this’ approach instead of explaining why something is done that way and proving that as well.

Always refer to the original source whenever possible. When you use a pdf from a scientific paper, do not refer to the URL of the pdf, but to the original publication in a magazine.

# Appendix A

Here, all materials not critical to understanding the report go. The main text should be readable without being swamped in details, so all details which might be interesting to some readers go here. The main text should be self-contained, i.e. readable without having to consult the appendices.

# Appendix B

More additional materials

# Appendix C

And more……