

Developing Technical Reports

A technical report typically takes the form of a short, focused scientific review of a topic, using a limited number of references (about 5 to 8 papers). The purpose of a technical report is to produce a brief critical analysis of the selected papers. This analysis could either be used to make an informed choice about a method or approach to follow, or to determine whether there is sufficient value to warrant a deeper or broader engagement with the topic. Typically, a technical report will not be published or peer-reviewed, but rather it is presented in a meeting as a working/thinking document.

The benefit of writing a technical report, rather than a full review, is that it can save time, especially if, following a discussion, the decision is reached to abandon the topic or go in a different direction.

- A technical report must communicate information gained through a process of reviewing literature
- It must present facts and conclusions about designs, experiments, and other projects
- It includes research about technical concepts and often includes visual depictions of designs and data
- Provide clear background on a method or process of carrying out a specific work/project
- It is the writer's responsibility to explain the specifics of the subject, experiment, process, or project.
- Technical reports must be written in a clear and easily understandable manner

Since technical reports are not published, they are used as 'launch pads' for enabling discussion in research and report meetings and/or journal clubs. Colleagues, peers, and supervisors can then offer insight and guidance about the value of pursuing the topic further.

There are no set rules for how a technical report should be written, but following the structure below will help to enhance and clarify your thinking. One option is to follow a typical essay format with an introduction, body and conclusion. As the technical report is written quite succinctly, the layout is usually systematic, with multiple subheadings to organise the flow of information, and to direct the reader's focus without the need for lengthy explanations. It should however still contain sufficient detail and analysis to allow readers to understand and compare methods or discussion across publications on a topic. Below is a brief outline of each section with some tips and guidelines.

Title

Give your report a clear and informative title, for example:

Technical Report on different methods of curly hair fibre analysis

Introduction

A technical report introduction:

- provides context for the problem being addressed,
- states your aim
- provides the roadmap for the papers/methods you will review in the report

To help, consider these questions:

- What are you planning to investigate?
- How does this focus area fit into the larger field of research?
- Why is this area worth investigating/considering?

Body

The body of a technical report contains the summary of findings on the identified methods/techniques that you are critically analysing and/or describing. It is structured according to the needs of your reader and what you would want to share in the discussion, the nature of the project, and how the writer (you) wants to relate the findings on the topic. Similar to a literature review, it can be written in a chronological or thematic manner, although sub-headings are still recommended.

To help, consider these questions:

- What have previous studies found on the topic?
- What are the strengths and weaknesses of said topic/methods/techniques?
- What does the reader need to know on the topic? (related to the aim of the report)
- What is the most logical way to develop the story of the report?

Conclusion

The conclusion of a technical report summarises the main points made in your report with regards to the techniques/methods discussed. It is important as the writer to highlight which technique you are proposing and why in comparison to the other techniques/methods it should be used.

Your conclusion should relate to/mirror your introduction. This can be achieved by starting off with your technical report aims then speaking to the key findings of each of the articles reviewed in relation to your aims.

Be sure to:

- Refer to your aim(s)
- Summarise your key findings, and
- State your major outcomes/recommendations and highlight their significance.
- Keep the conclusion brief

Some last tips and guidelines:

- Although it will be presented at a meeting/discussion, use a clear and well-structured layout - subheadings can be very useful to gather your thoughts in a meaningful manner
- Write for the reader in a concise and precise way
- Take a critical approach to analysing the selected papers

Reference: <https://students.unimelb.edu.au/academic-skills/resources/report-writing/technical-report-writing>

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