

3

An Abstract, a Summary, an Executive Summary

Note: For detailed information about a journal paper *Abstract*, see *Abstract*, Chapter 6: *A Journal Paper*, page 88.

This chapter covers:

- The purpose of an *Abstract/Summary/Executive Summary*
 - Definitions: *Abstract/Summary/Executive Summary*
 - Difficulties in writing
 - General information for all types of *Abstracts and Summaries*
 - The different types of content of an *Abstract/Summary* (descriptive, informative and descriptive/informative)
 - Length of an *Abstract or Summary*
 - A conference paper *Abstract* (two to three pages)
 - An *Executive Summary*: purpose, length and format
 - Common mistakes of *Abstracts and Summaries*
 - Checklists
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Purpose of an Abstract/Summary/Executive Summary

- To give readers a miniaturised version of the document, so they can identify the key information quickly and accurately.
- To provide a navigational tool for the whole document. Overview information is very important in helping the reader understand and assess the information in the rest of the document.
- To help readers decide whether they need to read the whole article.
- To help conference organisers decide from your **conference abstract** whether to invite you to present a paper.

Definitions: Abstract/Summary/Executive Summary

Note: In technical documentation, the words *Abstract* and *Summary* are often used interchangeably to mean the same thing. The specific differences are given below.

In different circumstances, you may be asked to write an *Abstract*, a *Summary* or an *Executive Summary*. Each of these presents an overview of the material in your document, but they differ in their purpose and wording.

An *Abstract* presents the overview to an expert audience. *Required* in specialised documents such as journal papers, conference papers and posters.

A *Summary* presents the overview to a less-specialised audience. Anyone reading it should be able to gain an understanding of the main features and findings of your document, without the detail. *Required* at the beginning of every document you write, if an *Abstract* or *Executive Summary* is not specifically asked for.

An *Executive Summary* presents the overview to an executive audience in non-specialist language as far as possible. It is generally longer than a *Summary* and should present the work in greater detail than a standard *Summary* does. *Required* in a management or consulting document, specifically for the management personnel of an organisation. They may have no scientific or technical expertise. The language therefore needs to be understood by non-experts.

Difficulties

Many people find it extremely difficult to adequately summarise their document in a specified number of words. The difficulties arise from:

- Not knowing the difference between descriptive and informative abstracts.
- Deciding on the core information.
- Making sure that all aspects are covered.
- Making sure that the abstract is not concentrating on only some aspects at the expense of others.
- Linking the information into a coherent story.
- The final cutting-down process. For instance: you have written a good 400-word abstract, but only 300 words are stipulated. The final process of paring it down even further, without dropping important information, can often be very difficult.

How to Write It: General Information for All Types of Abstract or Summary

1. The elements of information needed – in this order – are the following:

a. A statement that places your work in context

This is a statement that presents the big picture. But avoid an overall statement of generally known fact.

- b. Your method of investigating it (if appropriate)**
This might be a description of an experimental technique, an analytical method, a design technique, a system design and so on.
 - c. Your main results or observations**
This could be an experimental finding, a theoretical result, an improved design or system, a body of information (if you have done a literature search on a specific topic) and so on.
 - d. Your main conclusion(s)**
Your deduction about what your work means. An *Abstract/Summary* should contain only one or two main conclusions; the complete set of conclusions is then presented in a *Conclusions* section (see *Conclusions*, Chapter 2: *The Core Chapter*, page 39).
 - e. Your main recommendation(s) (if appropriate)**
If you have several recommendations, use a section called *Recommendations* (see *Recommendations*, Chapter 2: *The Core Chapter*, page 40).
- 2. Aim for an informative, not a descriptive summary/abstract** (see below). This is important.
 - 3. An *Abstract/Summary* should not contain any information that does not appear in the main body of the document.**
 - 4. Don't use tables, figures or literature references in a brief *Abstract/Summary*.** However, they are needed in a conference abstract of the longer type (see *A Conference Abstract*, this chapter), and they can be used in a long *Executive Summary* if appropriate.
 - 5. Write the final version of the *Abstract/Summary* after you have completed the paper.** If you write it early in the process to focus your thoughts, revise it later. It is vital to get the same emphasis and perspective as is in the main body of the paper.
 - 6. Section summaries.** Larger documents may benefit from having short summaries at the beginning of each section, in addition to the main *Abstract/Summary*. Section summaries give an overview of the information in that section and are useful navigational tools for the reader. Each one should be headed *Section Summary*. (See Chapter 1: *Structuring a Document: Using the Headings Skeleton*, page 13.)

Aiming for an Informative Abstract/Summary

Based on their content, *Abstracts/Summaries* are generally classified into the following types:

- 1. Descriptive or indicative.** This type should be avoided.
- 2. Informative.** This is the type to aim for.
- 3. Informative–descriptive.** A thesis may need this type.

1. The Descriptive or Indicative *Abstract/Summary*

Example of a descriptive *Abstract/Summary*. Avoid writing this type.

Title of document: *On-road monitoring of ambient carbon monoxide levels*

Abstract

This study aims to measure the on-road spatial distribution of levels of carbon monoxide, a health hazard known to be increasing in Middletown. Methods of measurement are discussed, and the difference between on-road and fixed-site

data is analysed. The influence of temperature, wind speed and humidity is considered. Conclusions as to the effectiveness of this method of carbon monoxide monitoring are given, together with suggested recommendations for future air-quality sampling programmes.

You need to actively avoid writing this type. This describes the structure of the document. It does not give the main findings and conclusions but instead acts more as a *Table of Contents*.

This structural description is generally used only in a long, self-contained literature review. Post-graduate writing nearly always needs the informative type of abstract (see below). Assessors, journal editors and conference organisers can specifically ask for the descriptive type to be avoided. Care is needed to avoid drifting into its typical phrasing and structure.

How to recognise this type of *Abstract/Summary*. Many people write this type in the mistaken belief that this is what is needed. You can recognise it by the following:

- **It describes the *structure* of the document, instead of giving the facts.**
- **It gives no *real* information.** It doesn't help the reader understand what the writer actually did and concluded.
- **It uses stock phrases that are easily recognised.** If you find yourself writing any one of the following words or phrases, you can be almost sure that you are in a sentence that describes structure instead of one that gives real information:

...is analysed/analyses
...is considered/considers
...is described/describes
...is discussed/discusses
...is examined/examines
...is presented/presents
...is given/gives

2. The Informative *Abstract/Summary*

For an example of an informative abstract, the following is the rewritten version of the descriptive *Abstract* above.

Title of document: **On-road monitoring of ambient carbon monoxide levels**

A statement to place your investigation in context To state why you have done the study (the gap in the knowledge)	This study measures the on-road distribution of levels of carbon monoxide, a health hazard known to be increasing in Middletown and compares the levels with those obtained from fixed-site monitors. Data from fixed sites have been previously used in air-quality monitoring programmes, but there has been doubt about their accuracy in determining levels of carbon monoxide at the adjacent on-road sites.
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Method of investigation The results, quantitatively expressed	Levels of carbon monoxide at 1.5 m above road level were monitored during commuter traffic at peak hours, using a moving vehicle on a selected route where fixed monitors were located. The on-road concentrations were found to be greater by three times than those recorded at the adjacent fixed sites (mean values of 11.4 ± 2 SD ppm and 3.9 ± 1 SD ppm relatively). Levels were also found to increase with decreased temperature and wind speed, and increased relative humidity.
Your conclusions	It is concluded that fixed-site data are significantly under-representing ambient levels, and that the methods were effective in measuring the spatial distribution of carbon monoxide, estimating commuter exposure and assessing the effectiveness of fixed site monitors.
Your recommendation	An on-road monitoring programme is recommended as a supplement to the present system of monitoring air quality.

Note: Do not refer to any figures or cite any references in a Summary.

Aim for this type of abstract. It describes the purpose of the work, the methods, results, the main conclusion(s) and possibly the main recommendation(s) as briefly and quantitatively as possible. It is almost 100% certain that this is the type of abstract needed for any post-graduate writing.

- **For an experimental investigation:** It gives specific, quantitative information about methods, results and conclusions.
- **For other types of document:** It gives specific information about the topic under investigation, including hard facts and your main conclusions.
- **Wording:** It avoids the stock phrases of a descriptive *Abstract/Summary* (see above).
- **If you find yourself using one of these stock descriptive phrases when you are writing an informative *Abstract/Summary*,** it probably means that a piece of information seems too large to summarise. Reassess it and work out the information that the reader needs.

3. The informative–descriptive abstract

This is a combination of the two types, which gives specific information about the main results, together with general information about the contents of the rest of the document.

A Ph.D. or master’s thesis could possibly need this type of abstract. The final results should be specifically stated, and the various kinds of supporting information should be outlined in a more general way. But you need to make sure that you don’t slip into too many generalisations.

Length of an Abstract or Summary

For a conference or journal, there will be a stated word number requirement.

When it is your choice: it should be brief: a lengthy abstract defeats its purpose. As a rough guide to lengths:

- A short document (up to 2000 words): 200–300 words may be enough.
- A relatively long document: 300 words to half a page.
- A Ph.D. thesis: usually about 500–800 words or one to two pages.

Abstract specifically for a journal paper, see *Abstract*, Chapter 6: *A Journal Paper*, page 83.

This material gives detail about structure and signalling words, together with a formula for writing it.

A Conference Abstract

Background information: The process of submitting a paper to a conference

1. The general details of a conference are first made known by means of brochures and notes in journals.
2. If you (or your supervisor) register your interest, you will receive a *Call for Abstracts*. The abstract is used to judge whether you will be invited to attend the conference.
3. If you are invited to attend the conference, you will then later receive the *Call for Papers*.
4. You will be told whether your presentation is oral or a poster.
5. Occasionally, abstracts that have been rejected for the conference (i.e. you won't be asked to attend) are still made available to the conference participants, so that they know what work is being done elsewhere. These are sometimes called *Unpublished Abstracts*.
6. The collected papers – usually from all of the participants, but sometimes only from selected ones – will be published in the conference proceedings either as a hard copy or in a digital format.

Formatting and appearance of the conference abstract and paper. Conference organisers strive for a uniform appearance; the *Instructions to Authors* will give precise requirements for font type and size, margin size and so on.

Be sure that you meticulously follow the *Instructions to Authors*. Even if you think you can improve the appearance by using a different font or size from those that are stipulated, don't do it. You don't want your work to stand out in any way other than in its content.

Purpose of a Conference Abstract

1. **Initial purpose: To enable the conference organisers to decide whether to invite you to present your work at the conference.** There are several aspects to this. They need to decide the following:
 - a. Whether your work fits in with the theme of the conference
 - b. Whether your work is good enough
 - c. If you are invited to the conference, whether you will be asked to present your work orally or as a poster presentation

- 2. Purpose during the conference: To enable conference participants to decide whether your work is of interest to them.** They may then do the following:
- Attend your oral presentation *or* seek out your poster.
 - Try to make personal contact with you during the conference.
 - Contact you after the conference, if they haven't met you during it.

How to write a Conference Abstract (two to three pages)

To get the organisers' invitation to attend the conference, you have to present the **problem, your methods and your results** clearly and in enough detail, *without any other supporting information*.

This is hard discipline: it's not easy. You have to write a self-contained, mini-paper. Therefore, the following are important:

- You need to strip away the detail and decide on the hard-core material of your work.
- Avoid writing in descriptive terms (see Descriptive or Indicative *Abstract/Summary*, page 55).
- You will not be able to fit in more than one or two small figures or tables.
- You need to restrict the number of references, so that the *List of References* does not take away too much of your limited space.
- Think of it as a short story with a clear logical flow: a beginning (*the context and motivation*), a middle (*methods and results*) and an end (*the conclusions or outcome*). Each one of these parts needs to be clearly defined and signalled and in the correct order.
- Use the same formula for the structure and signalling words as for a journal paper *Abstract* (see *Abstract*, Chapter 6: *A Journal Paper*, page 83).

Possible headings

Short abstract (100 words to about half a page): no headings.

Longer conference abstract (two to three pages): Conference organisers usually require the standard *TAIMRAD* (*Title, Abstract, Introduction, Methods, Results and Discussion*) structure of the journal paper.

Section	Cross-Reference to Detail in This Book
Title	See Title , Chapter 2: <i>The Core Chapter</i> , page 19
Authorship and Affiliation	See Authorship and Affiliation , Chapter 6: <i>A Journal Paper</i> , page 87
Abstract (<i>very brief</i>)	This chapter
Keywords (<i>possibly</i>)	See Keywords , Chapter 5: <i>A Journal Paper</i> , page 87
Introduction	See Introduction , Chapter 2: <i>The Core Chapter</i> , page 28
Materials and Methods	See Materials and Methods , Chapter 2: <i>The Core Chapter</i> , page 36
Results	See Results , Chapter 2: <i>The Core Chapter</i> , page 37
Discussion (<i>or combined Results and Discussion section</i>)	See Discussion , Chapter 2: <i>The Core Chapter</i> , page 38
List of References	See List of References , Chapter 15: <i>Referencing</i> , page 167.

Common mistakes in Abstracts or Summaries

- Too long and too detailed
- Conversely – in the attempt to cut it down to the required number of words – large editorial inconsistencies (usually gaps in the logical flow of the information)
- Vague, imprecise information
- No clear statement of the main problem
- No clear description of the methods
- Non-quantitative description of the results
- A descriptive abstract that describes only the structure of the document and gives no real information

For common mistakes in a journal paper, see *Common Mistakes, Abstract*, Chapter 6, *A Journal Paper*, page 90.

An Executive Summary

Purpose

- To provide a document in miniature that may be read instead of the longer document. The *Executive Summary* is directed at managerial readers who may not read the whole report and who may not have the appropriate technical knowledge.
- To explain your work in terms understandable by the non-expert reader.

Length

An *Executive Summary* is longer than the conventional abstract/summary (apart from some conference abstracts); typically it is 10–25% of the whole document.

Format

- **Unlike a standard (short) summary, it can be organised under appropriate headings and numbered blocks of information and be highlighted in boldface.**
- It should be formatted for accessibility of information and the speed and convenience of the reader.

Structure and Content

- The structure should follow that of the body of your report.
- Although the body of your report may contain technical or scientific terminology, the *Executive Summary* should, as far as possible, be written in non-expert terms.

Checklist for Summary/Abstract/Executive Summary

- ☐ Does it include the following (if appropriate to the subject matter):
 - ☐ A statement that places your work in context
 - ☐ Your method of investigating it
 - ☐ Your main results or observations
 - ☐ Your main conclusion(s)
 - ☐ Your main recommendations(s)
- ☐ If these are inappropriate to your subject matter, does it give *real* information?
- ☐ Have you avoided writing a descriptive type of abstract/summary?
- ☐ Is there any information that doesn't appear elsewhere in the document? If so, incorporate it somewhere.
- ☐ No tables, figures, literature references? (*Except for a Conference Abstract, see below.*)
- ☐ Was the abstract/summary written as the final stage of the document?
- ☐ **A Conference Abstract**
 - ☐ Does it conform to the conference guidelines (page number and so on)?
 - ☐ Have you included only one or two small illustrations?
 - ☐ Is there a clear logical flow: a beginning (*the context and motivation*), a middle (*methods and results*) and an end (*the conclusions or outcome*)?
 - ☐ Have you included an appropriate number of citations and a short *List of References*?
- ☐ **An Executive Summary:**
 - ☐ Does it give the information appropriate to a managerial readership?
 - ☐ Is it written so that a non-technical person can understand it?
 - ☐ Does it follow the structure of the main document?
 - ☐ Does it have appropriate descriptive headings and numbered blocks of information, and is it highlighted in boldface?
 - ☐ Is it written for accessibility of information, and the speed and convenience of the reader?
- ☐ **A journal paper Abstract:** See Checklist, *Abstract*, Chapter 6: *A Journal Paper*, page 90.