Aviation case study report

What is a case study?
- An account of an activity, event or problem
- Real or hypothetical, past or present activity/event/problem
- Applies knowledge or particular theories to support analysis and recommendations
- Requires analytic, reasoning & decision making skills in order to:
  - Identify issues or problems
  - Make recommendations or suggest solutions to the problems

Case studies are used to:
- answer a series of specific questions about a case
- analyse the causes and consequences of a real situation and discuss the lessons learned
- solve a problem where you need to first write a clear description of the case before you can analyse the situation & make recommendations
- solve a problem by developing a new design
- imagine or role play a situation and make plausible recommendations
- respond to a more general topic or situation

Structure of a case study report
(NOTE: Check your assignment instructions for any specific requirements)

<table>
<thead>
<tr>
<th>Preliminary Sections</th>
<th>Title page</th>
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<tbody>
<tr>
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<td>This is a separate page with title of the report, name, ID and other identifying details as requested.</td>
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<th>Letter/Memorandum of Authorisation (if required)</th>
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<td>This may be a separate page containing the letter or memo from the individual or organisation who requested the report. This would normally contain details of the purpose, the scope and the limitations of the report.</td>
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<th>Acknowledgements</th>
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<td>Acknowledge any assistance, editing or contribution by another person or organisation.</td>
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<th>Table of contents</th>
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<tr>
<td></td>
<td>This is a list of sections/headers and page numbers. The heading of this page is Contents.</td>
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<td>A list of tables and a list of figures may also be included on a separate page if more than a few of each are used.</td>
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<th>Abstract or Executive Summary</th>
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<td>This is an overview or brief synopsis of the whole report. The length depends on the word requirement of your assignment (usually 150-250 words).</td>
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### Main Sections

**Introduction**
This section provides contextual information to set the scene for your report and also usually includes these subsections: background, purpose, methods used to gather and analyse information and an outline of your report. The length depends on your word requirement (usually 10%).

**Literature Review**
This is a more detailed presentation of information related to your case. You will draw on literature related to your topic including journal articles, reports and other scholarly sources.

**Findings**
This section includes the details of what you found out through your investigation or research into your report topic.

**Conclusion**
This is the summary of the major findings and analysis of these findings (discussion), along with their implications.

**Recommendations**
This includes what needs to be done as a consequence of the conclusion.

### Supplementary Sections

**References**
This is a list of the references cited in the report. For further guidance about referencing and avoiding plagiarism, check the [UniSA website on referencing](#).

**Appendices (if required)**
This includes supplementary materials placed at the end rather than in the main section where they might distract from the flow of the discussion.

### Sample abstract

On 22nd May 2010, Air India Express Flight IX-812, a Boeing 737-800, on route from Dubai to Mangalore overshot the runway and fell into a gorge. Due to impact and fire, 152 passengers and 4 crew died. The Indian government established a Court of Inquiry to investigate the incident. This report presents a case study of the incident focusing on one major cause and its consequences. Drawing on the Court of Inquiry report and literature relating to human factors in Aviation, it reveals the accident was the result of the impact of sleep inertia on the Captain’s decision making capacity. Further, it was found that at the time of the incident India did not have an independent Civil Aviation Safety Board. An analysis of the case study identifies the importance of having in place a robust Fatigue Risk Management System (FRMS) and a Crew Resource Management (CRM) system. In order to mitigate such incidences in the future, it is recommended that crew training includes a greater focus on the impact of sleep inertia on performance.

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<th>Set the scene</th>
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<td>Methods</td>
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<td>Main findings</td>
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<td>Conclusion, based on findings</td>
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<td>Recommendations</td>
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Sample introduction

The impact of sleep on a pilot’s performance has attracted the interest of both aviation authorities and researchers for some time. One specific factor, sleep inertia which is the physiological state that immediately follows awakening has been found to impair mental and manual operations. Sleep inertia has been linked to a number of aviation incidents involving pilot error. This case study report will analyse the role sleep inertia may have played in the crash of Air India Express Flight IX-812 at Mangalore in India on May 22nd 2010. The report of the subsequent Court of Inquiry along with literature relating to sleep inertia will form the basis of the analysis. The first section of this report will examine research findings about sleep inertia generally and sleep inertia in aviation specifically. Next, an account of this particular incident and the major findings of the Court of Inquiry will be provided. The report will then present a discussion of the impact of sleep inertia played in this incident and the lessons that can be learnt from this. Finally, recommendations are presented for how such incidents can be avoided in the future.

Sample conclusion

This case study examined the role sleep inertia may have played in the crash of Air India Express Flight IX-812 at Mangalore in India on May 22nd 2010. Studies of human factors in aviation have shown that a variety of factors influence the severity and duration of sleep inertia. These factors include depth of sleep, timing of sleep and chemical influences. If a crew member is awakened from a deep sleep, then it is likely their reaction time performance will be adversely affected. This appeared to be the case for Air India Express Flight IX-812 where the Captain was in a long sleep during the flight. As a result, upon awakening, the Captain’s judgment appeared to have been impaired, resulting in a series of poor decisions. This case highlights the need for an effective Fatigue Risk Management System (FRMS) and a Crew Resource Management (CRM) system, along with focused training to ensure crew are fully aware of the impact of sleep inertia on performance, particularly decision making.
Sample recommendations

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<tr>
<th>Based on the main findings of this case study, it is recommended that:</th>
<th>Recommendations:</th>
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<tr>
<td>• CRM training and refreshers for all flight crew should be conducted as required by DGCA vide Operations Circular No 2 of 2001</td>
<td>- Relate back to the issues discussed in the Conclusion.</td>
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<td>• CRM training must include both classroom and simulator training</td>
<td>- Are stated briefly but clearly</td>
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<td>- Are expressed as action statements or directives to do something</td>
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<td>- Use persuasive or firm language such as ‘must’, ‘ought to’ etc.</td>
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Why reference?

- Avoids plagiarism and maintains academic integrity
- Shows exactly where the information comes from
- Strengthens your argument or provides evidence to support your position

When to reference?

- Paraphrasing the words and ideas of others
- Summarising the words and ideas of others
- Quoting the words of others
- Copying the data, graphs, images and tables of others
- Mentioning the ideas or work of others (unless it is considered general knowledge)

How to reference?

1) Include in-text references which provide:
   - Author’s surname or family name
   - Year of publication
   - Page number (when quoting, using data, graphs, tables and images from a specific page or pages)

2) Include a reference list which provides full bibliographic details of sources referenced in your report

Additional resources:

For resources on referencing (including UniSA Harvard and APA referencing styles) and academic integrity, go to UniSA’s referencing website.

References