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Modelling Fatigue for Management Decision Making: A Case Study

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Abstract

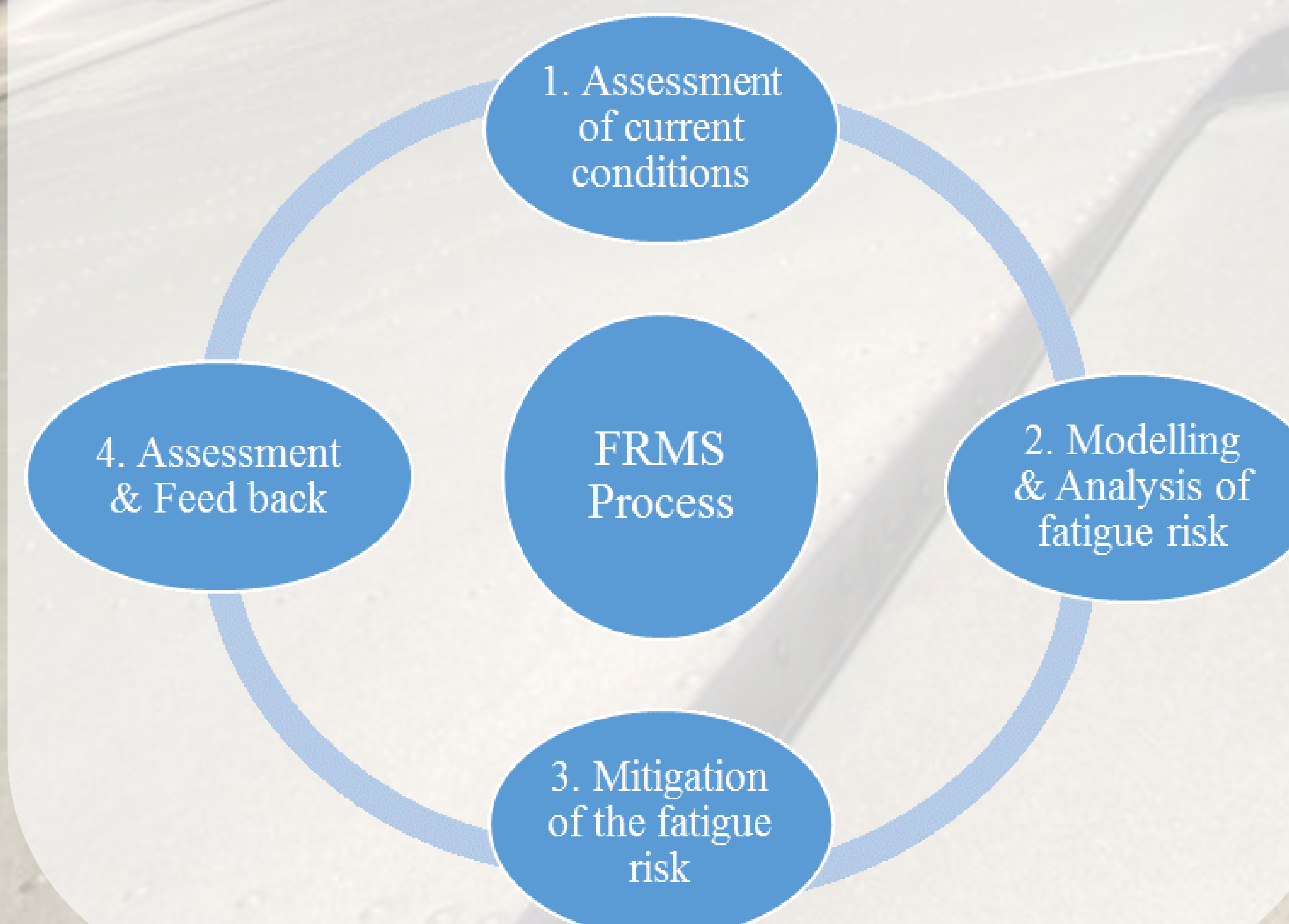
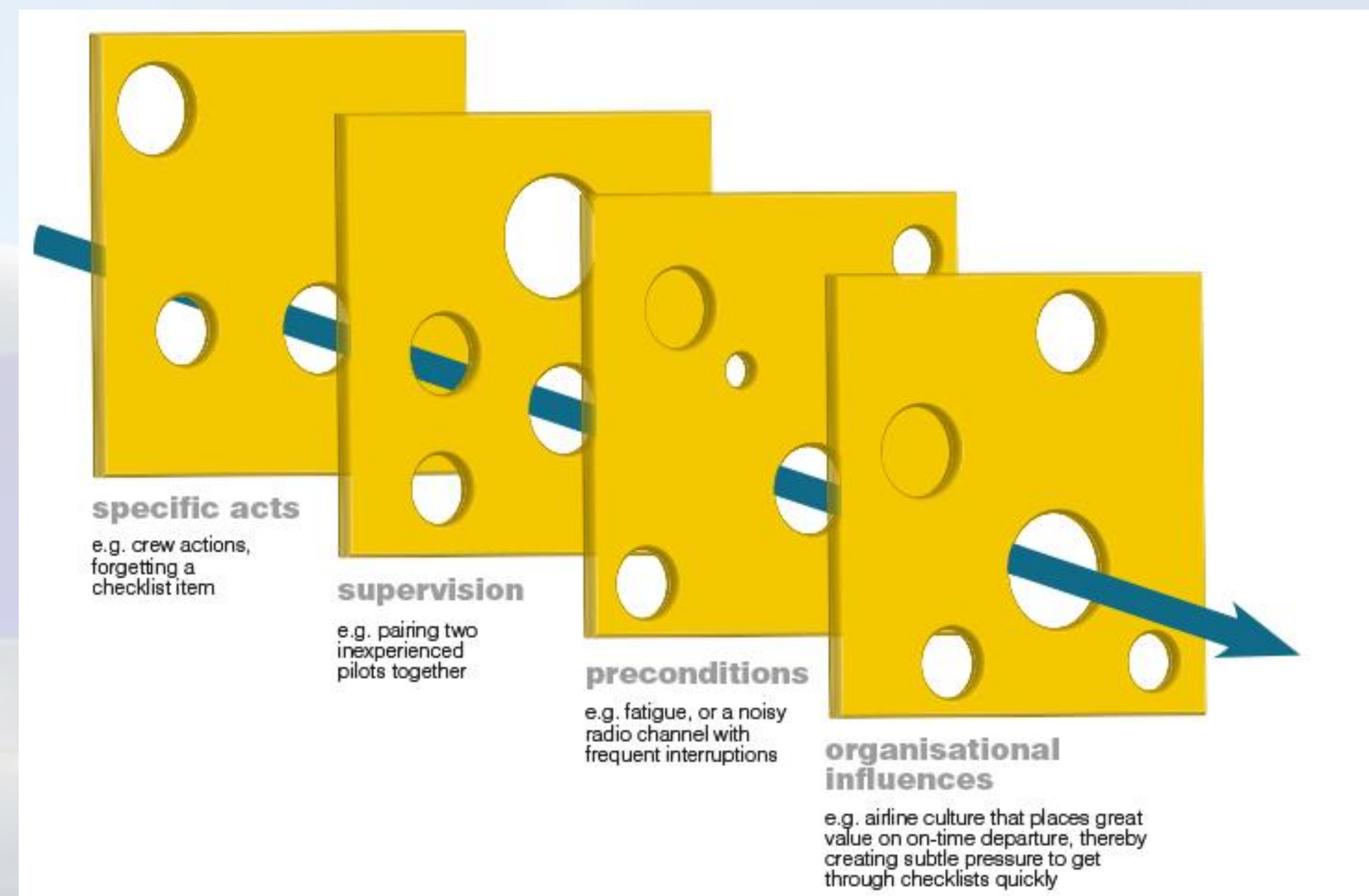
- Fatigue is one major contributing factor that reduces the human ability and leads to accidents, and threatens the safety of aircraft and human lives.
- Though fatigue is seen in all the disciplines associated with the aviation industry, this paper will discuss only pilot fatigue. Based on the literature examined, this study first examines the significance of the problem.
- Investigation of the inflight, pre/post flight countermeasures (both pharmacological and non-pharmacological methods) practiced at present, discusses the Fatigue Risk Management System (FRMS) – in this first, it defines the FRMS, briefly discusses its history, describes the organizational structure of FRMS.

Research Method

- To determine the effect of fatigue in aviation industry, and to evaluate the impact of fatigue among pilots, an online literature search was undertaken.
- Based on the literature examined, this study first examines the significance of the problem, then discusses what is fatigue, the types and causes of fatigue, reviews the fatigue-related accidents and incidents, examines the fatigue in different flight operations and its impact on the well-being of pilots, then investigates the counter-measures practiced at present, discusses the fatigue risk management system and concludes with some recommendations for future research/study in this field.

Fatigue Risk MGMT System (FRMS)

- International Civil Aviation Organisation (ICAO) has identified Fatigue Risk Management System (FRMS) as a systematically based, data-driven, addition/alternative to prescriptive flight and duty-time limitations which can manage crew fatigue in a flexible manner appropriate to the level of risk exposure and the nature of the operation (ICAO, 2008).



Significance of the Issue

- The most significant risk factor in the aviation industry is fatigue, especially with regard to occupational safety and effective performance.
- Pilot fatigue is substantially the most important one due to the long duty periods, unpredictable hours of work, disruption of the circadian rhythms and lack of quality sleep.
- An effective management strategy is essential for managing the issues related to fatigue.

Conclusions

- The most devastating problem faced by this generation that has damaging effects not only on the mental and physical well-being of an individual but also that affects the quality of their performance level is fatigue.
- Negative impacts of fatigue affect the pilot's ability to identify a problem in a timely manner to take the relevant corrective measure and also affects their ability in implementing the right solution.
- FRMS is a holistic approach that is based on scientific research and the data obtained from the industry.
- It involves both the proactive and reactive approach to identify, mitigate and manage the risk with a transparent policy.

References

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