CHALLENGES OF USING AI-AHP FOR STRUCTURING DECISION-MAKING: A CASE STUDY IN THE BANKING SECTOR

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Highlights

- Explores the challenges of using an AI-AHP approach for structuring decision-making.
- The context for the study is a decision-making course primer at college level.
- The decision-making structuring is done in the context of a financial institution.

ABSTRACT

In today's business environment, decision-making has become more complex and reliant on data. This research examines decision-making structuring using the Analytic Hierarchy Process (AHP), employing traditional research techniques like expert interviews and literature reviews, along with support from artificial intelligence (AI), specifically the ChatGPT tool. This study explores the challenges of using AI-AHP, drawing on students' experiences in tackling a tactical issue related to *Internet Security Vulnerabilities* in the current version of a new application within a financial organization.

Keywords: AI in problem structuring, AI-AHP integration, AI-AHP challenges.

1. Introduction

While tools like AHP and AI hold promise for enhancing decision-making processes, they also face notable challenges that can limit their effectiveness and adoption. The present study explores the challenges faced by using an AHP-AI approach to structure a decision-making problem in the financial sector.

2. Literature Review

The key literature that informed the present work includes the following papers. Shrestha et al. (2019) discuss organizational decision-making through an integrated hybrid approach combining AI and human decision-making. On the other hand, Csaszar et al. (2024) examine the role of artificial intelligence in strategic decision-making and raise questions regarding the challenges posed by the integration of AI and human decision-making.

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3. Objectives

The present study has two objectives: first, to explore the challenges of using AI in structuring decision-making problems along with the AHP method; and second, to propose a preliminary decision-making model for a target financial institution.

4. Research Design/Methodology

The methodology involved several steps: first, a review of the existing literature was conducted, followed by an interview with a banking expert. Next, Generative AI (ChatGPT) was employed to explore alternative decision-making model variations.

5. Results/Model Analysis

Some important findings were as follows:

- Overreliance on AI can result in bad decision-making - AI tools are designed to process and generate vast amounts very fast. However, this efficiency can lead to a dangerous dependency where project managers completely hand over critical decisions to AI without adequately understanding or questioning its reasoning and recommendations.

- AI's decision-making capabilities are only as reliable as the data it processes - As AI models rely heavily on the quality and quantity of input data and prompts, one can easily "feed" various information into the model, specify exactly what they need, and generate a satisfactory result. However, flawed, incomplete, or biased data can lead to inaccurate predictions and poor recommendations.

6. Conclusions

While AHP and AI offer powerful tools for structuring decision-making, they come with fundamental challenges that must be addressed for effective implementation. AHP's reliance on human judgment can lead to inconsistencies in complex scenarios, while AI's dependence on data quality and the risk of overreliance also poses concerns. To properly benefit from AI, we must factor in human oversight and intuition. Ultimately, a balanced approach that combines human expertise with technological advancements is essential.

7. Limitations

The main limitation of the present study is that it is done within the specific context of a financial institution in a specific national context. Therefore, the findings cannot be considered comprehensive or generalizable to other contexts.

8. Key References

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