

# Analyzing Stakeholder Perceptions of AI-Enhanced Risk Management in the Pakistani Construction Industry Through Survey

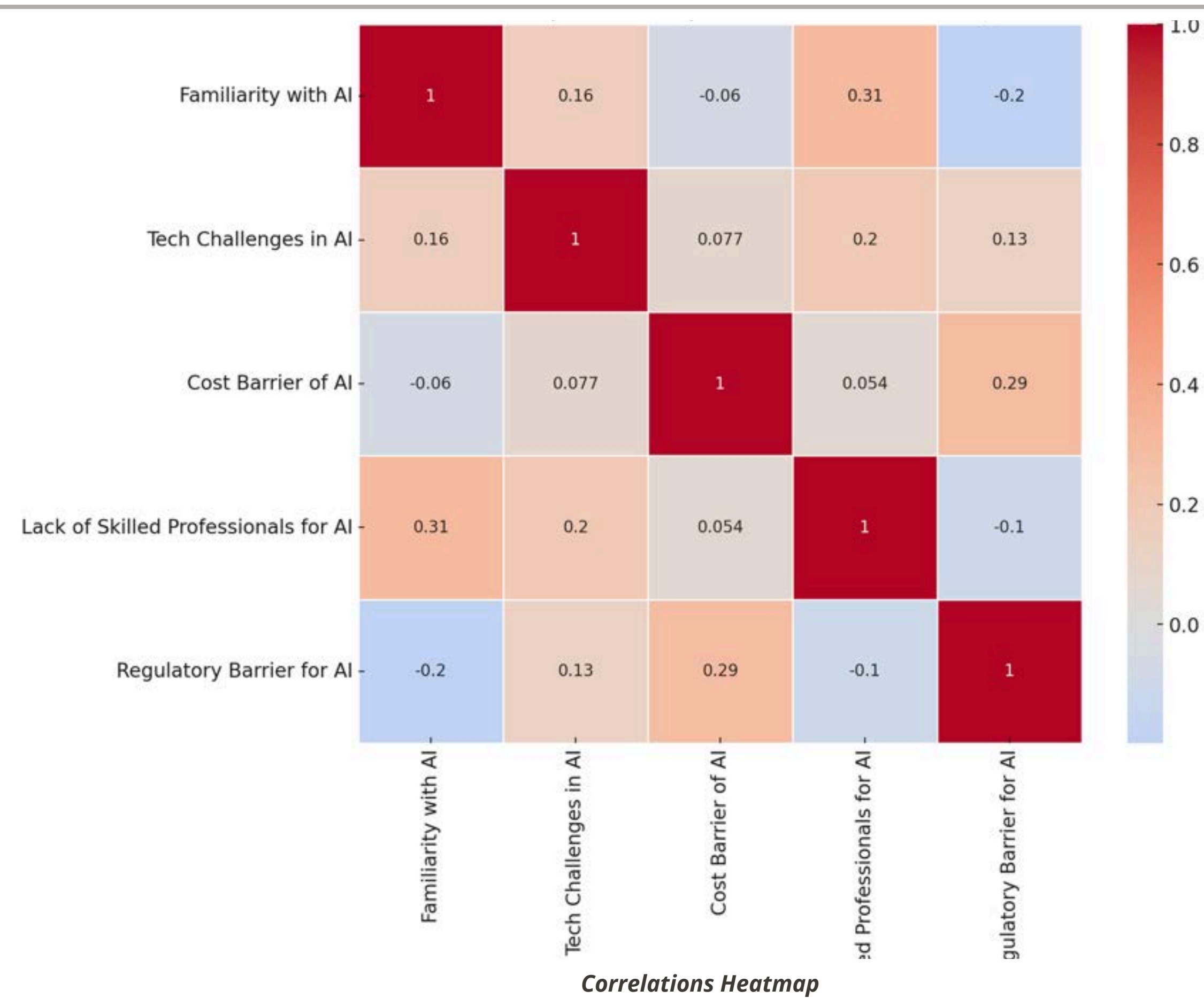
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The aim of this research project is to analyze the perceptions of stakeholders in the Pakistani construction industry regarding the adoption and effectiveness of AI-enhanced risk management.



### 03. Methodology

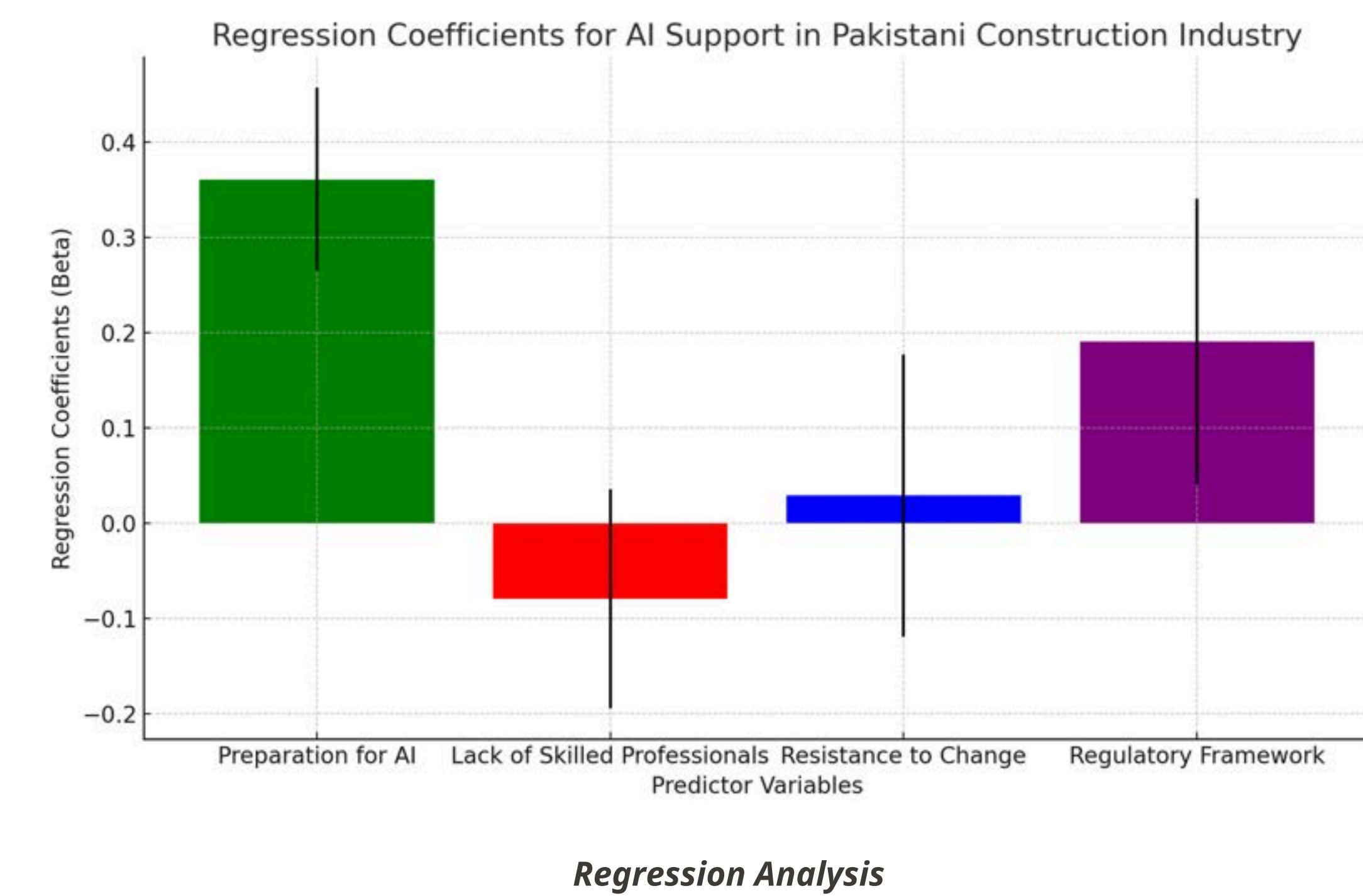
The research approach adopted in this study is quantitative. An online survey was conducted to determine respondents' acquaintance with AI technology, perceived benefits, difficulties, and overall views about AI adoption in risk management.

- 93 employees from the Construction Industry
- Purposive sampling approach
- SPSS for data analysis

Descriptive statistics, Chi-Square tests, One-Way ANOVA, correlation analysis, multiple regression, component analysis, and T-tests were used to investigate variable associations, evaluate group differences, and predict overall AI support.

### 04. Results/Findings

- The chi-square test found no significant relationship between age and familiarity with AI ( $p = .749$ ).
- However, a regression analysis found that organizational preparation is a significant predictor of support for AI-enhanced risk management ( $\beta = .376, p < .001$ ).
- Stakeholders with greater experience with AI are more positive about its ability to improve risk assessments and cut costs. However, major technical, organizational, and legal impediments were discovered, such as a shortage of experienced experts (factor loading = .700) and unwillingness to change (factor loading = .649).
- These limitations are consistent with prior literature, highlighting the difficulty that industries confront when seeking to integrate modern technologies.



### 05. Discussion

The analysis revealed numerous noteworthy findings across multiple dimensions, including familiarity with AI, age, gender, professional roles, and perceived barriers to AI deployment. Primarily, stakeholders' awareness of AI is closely related to their recognition of the requirement for experienced experts to manage AI technologies (Aliakbar et al, 2023). The lack of a significant age-related variation in familiarity may suggest that the adoption of AI in risk management is impacted by larger, industry-specific factors rather than demographic features. When compared to existing research, the findings differ from studies that imply younger people are more comfortable and conversant with developing technology (Diego et al, 2024; Ikechukwu et al., 2023). Raising AI awareness and understanding among construction professionals could play an important role in facilitating its adoption. This study adds to the expanding body of knowledge on the use of AI in risk management by providing significant insights into the perceptions of stakeholders in Pakistan's construction industry.

### 06. References

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- Diego, C., Franz-Ferdinand, G., Eder, M. and Svenja, L. (2024) 'Understanding Professional Perspectives about AI Adoption in the Construction Industry: A Survey in Germany', Proceedings of the International Symposium on Automation and Robotics in Construction (IAARC). DOI: 10.22260/isarc2024/0046
- Ikechukwu Sylvester, O., Behzad, E. and Sébastien, H. (2023) 'Examining the Implications of Automaticity Theory in the Construction Industry', Proceedings of the Human Factors and Ergonomics Society Annual Meeting. DOI: 10.1177/21695067231194338

### 01. Introduction

This study investigates stakeholder perceptions of AI-enhanced risk management within the Pakistani construction industry, focusing on the potential benefits, challenges, and barriers to its adoption. Given the rising complexity of construction projects, artificial intelligence (AI) presents a viable route for improving risk management processes, but its application is riddled with challenges. The rationale for this study derives from the growing importance of artificial intelligence (AI) in numerous industries, including construction, and the necessity to understand its impact on risk management techniques.

### 02. Research Questions

- How do construction project managers in Pakistan understand the potential of AI to transform various aspects of risk management (identification, assessment, mitigation, etc.)?
- What are the primary benefits, barriers (technical, organizational, financial), and ethical concerns that influence construction project managers' attitudes toward adopting AI-enhanced risk management systems?

