

Final Project 1

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The Impact of Artificial Intelligence on the Banking Sector in Saudi Arabia

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1. Chapter 1: Introduction

1.1. Research Background

Artificial Intelligence (AI) is no longer a futuristic concept—it's already reshaping the way we live, work, and interact with the world around us. In the banking sector, AI is driving a quiet revolution, changing how financial institutions operate behind the scenes and how customers experience banking on a daily basis. From smart chatbots that answer questions instantly to algorithms that detect fraud before it happens, AI is becoming an essential part of modern banking infrastructure.

In Saudi Arabia, this transformation is happening at an especially fast pace. As part of the Kingdom's ambitious Vision 2030 plan, which aims to diversify the economy and position Saudi Arabia as a global leader in innovation, banks are being encouraged to adopt cutting-edge technologies—including AI—to improve efficiency, enhance customer service, and stay competitive in a rapidly evolving financial landscape.

What makes this shift particularly interesting is how deeply it's being embraced by both traditional banks and newer fintech players. Institutions like Riyadh Bank, Al Rajhi Bank, and STC Bank are investing heavily in AI-powered solutions. These range from predictive analytics that help banks make smarter decisions, to virtual assistants that offer personalized financial advice, to AI-driven platforms that streamline operations and reduce costs.

But while the benefits of AI in banking are clear, the journey isn't without its challenges. Banks must navigate complex issues like data privacy, cybersecurity, regulatory compliance, and the potential impact on jobs. There's also the question of trust—how do customers feel about machines making decisions that affect their money?

This paper explores the multifaceted impact of AI on the banking sector in Saudi Arabia. It looks at how banks are using AI today, what benefits they're seeing, what obstacles they're facing, and what the future might hold. By examining real-world case studies and current trends, the goal is to provide a deeper understanding of how AI is shaping the financial landscape in the Kingdom—and what that means for banks, customers, and the broader economy.

1.2. Research Problem

Banks in Saudi Arabia are moving fast to adopt Artificial Intelligence, and it's changing everything—from how customers interact with their bank to how decisions are made behind the scenes. But with all this excitement, there are still some big questions that need answers. Are banks using AI in ways that truly benefit customers and employees? What risks come with relying on machines to handle sensitive financial data? And how do banks make sure they're following the rules while still innovating?

Even though AI is becoming more common in Saudi banks, there's not enough research that looks closely at how it's really affecting the industry. This project aims to explore those effects -both the good and the challenges- and help people understand what AI means for the future of banking in the Kingdom.

1.2.1. Theoretical Gaps

Even though there's a lot of research about Artificial Intelligence in banking, most of it focuses on countries like the U.S. or Europe. That means we don't have enough studies that look at how AI is being used in Saudi Arabia, where the culture, economy, and government goals as Vision 2030 are very different.

Also, many academic papers talk about the technical side of AI, like how it helps with automation or data analysis. But they don't really explore how AI affects things like customer trust, employee roles, or long-term strategy in Saudi banks. There's a missing piece when it comes to understanding how AI fits into the bigger picture here.

1.2.2. Practical Gaps

Moreover, many banks in Saudi Arabia are starting to use Artificial Intelligence, they're not all using it in the same way—or to its full potential. Some banks have advanced tools like chatbots and fraud detection systems, while others are still figuring out how to apply AI effectively in their daily operations.

There's also a gap in how ready employees are to work with AI, and how much customers trust these new technologies. Many banks face challenges like training staff, protecting sensitive data, and making sure their AI systems follow the rules.

How is Artificial Intelligence transforming the banking sector in Saudi Arabia, and what are the key benefits, challenges, and future implications of its adoption?

1.3. Research Significance

This research is important because it explores how Artificial Intelligence is changing the way banks operate in Saudi Arabia a topic that's gaining momentum but still lacks deep academic and practical understanding.

1.3.1. At the theoretical level

This study contributes to academic knowledge by offering a focused look at how Artificial Intelligence is shaping banking in Saudi Arabia—a region that's rapidly evolving but still underexplored in scholarly literature. While global research often highlights AI's technical capabilities, there's limited theoretical work that connects these technologies to the specific goals, values, and transformation strategies of the Saudi financial sector.

By grounding the research in the local context, this study helps expand existing theories to include regional dynamics such as Vision 2030, digital infrastructure development, and shifting consumer expectations. It also encourages a broader academic conversation about how AI influences not just operations, but also strategic thinking, trust-building, and institutional change in emerging markets. The recent launch of **Money20/20 Middle East in Riyadh**—a major global fintech event—underscores the urgency and relevance of this topic. As Saudi Arabia positions itself as a digital finance leader,

1.3.2. At the practical level

On the practical side, this research gives real-world insights that banks and decision-makers can actually use. It looks at how AI is being applied in Saudi banks today—what’s working well, what’s still a challenge, and where improvements are needed.

For example, it highlights issues like staff training, customer trust, and data protection, which are often overlooked in tech discussions. The findings can help banks make smarter choices about how to invest in AI, improve their services, and prepare their teams for future changes. It also supports Saudi Arabia’s push toward innovation and digital growth under Vision 2030.

1.4. Research Questions

- 1- Are AI based underwriting models performing better than traditional ones in Saudi Arabia?
- 2- Do robots and AI automate back-office tasks, and do they actually save time and reduce errors?
- 3- Do AI helping banks manage payments and transfers more safely and efficiently?
- 4- How effective is AI at spotting cyber threats in Saudi banks, and what governance do banks use to manage these tools?
- 5- What risks come with AI in security, and how do banks guard against them?
- 6- How do sandboxes and regulatory programs influence real-world AI deployment?

1.5. Research Objectives

To understand how Saudi banks are using artificial intelligence today, and what rules, governance and policies shape that AI deployment.

1.6. Research Hypotheses

H1: Customers who interact with AI-powered chatbots and personalized recommendations will show higher satisfaction and greater product uptake than those who use only human-assisted services.

H2: Banks with stronger data governance and explainable AI practices will have higher trust from regulators and customers in their AI lending decisions.

H3: Banks in Saudi Arabia that invest more in AI will report faster turnaround times for onboarding and loan processing than banks with lower AI investment.

1.7. Research Model

The research model is illustrated in Figure #1

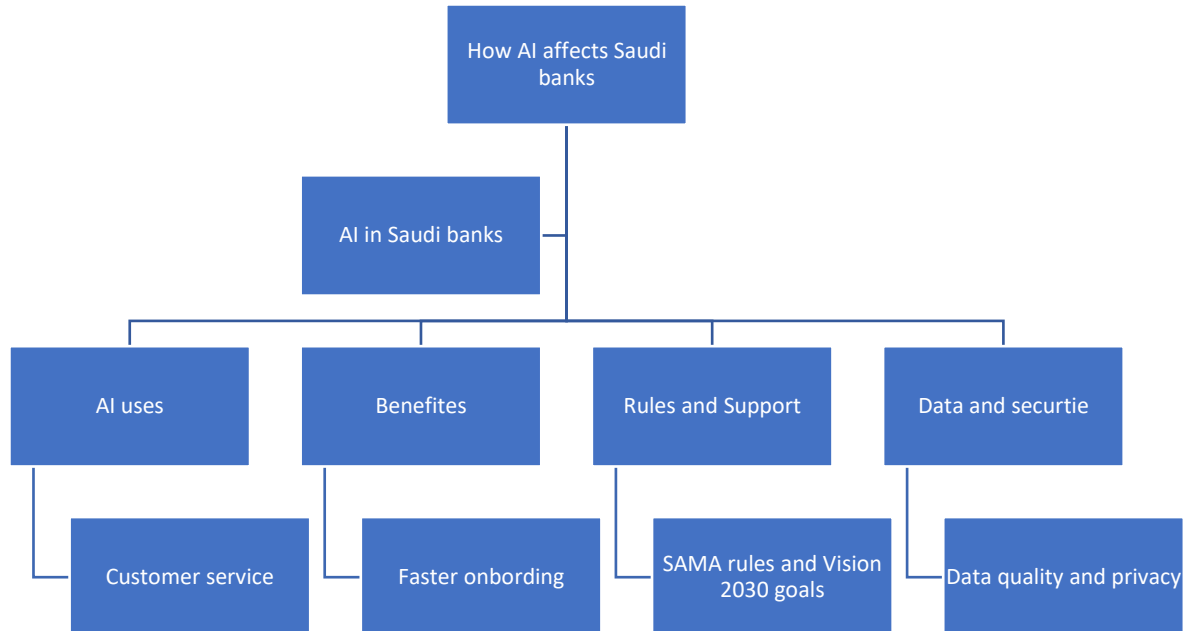


Figure #1 The research model diagram

1.8. Research Methodology

This study looks at how Saudi banks use AI, the benefits they gain, and how rules and data practices shape it. We'll combine banks interviews, articles and we'll check regulator guides and Vision 2030 materials for context. We'll follow ethical standards like consent and anonymity, and finish with a clear report for banks and regulators.

1.9. Scope of The Study

STC Bank a strong fit for an empirical study on AI in Saudi banking. Why STC Bank makes sense; Market position: A prominent local bank with a clear emphasis on digital transformation and customer experience.

Data strategy: Investigate data quality, lineage, privacy controls, and how STC Bank handles data localization and sharing with fintech partners.

1.10. The Suggested Project Structure

The proposed structure for the research project is as follows, (Midocean University, 2025):

1. Introduction: showing overview of the study subject.
 - 1.1. Research Background: it illustrates the project idea.
 - 1.2. Research Problem: capturing the problems would appears within the usage of the subject.
 - 1.3. Research Significance: clarified the importance of the chosen subject.
 - 1.4. Research Questions: present the hypotheses in this subject.
 - 1.5. Research Objectives: presents the goals and outcomes for the subject.
 - 1.6. Research Hypotheses: will present the hypotheses for the subject.
 - 1.7. Research Model: will show the diagram for the research subject.
 - 1.8. Research Methodology: will explain the methodology of the subject.
 - 1.9. Scope of The Study: it define the scope of the project.

2.Chapter 2: Literature Review

2.1. Introduction

The banking sector in Saudia Arabia sits at crossroads of rapid digital change and a strategic national agenda. As part of Vision 2030 the country has prioritized the modernization of financial services. This research shows how AI is transforming Saudi banks.

2.2. The independent variable

- 1- AI Maturity level.
Organizational preparedness and capability to leverage AI.
- 2- Data quality and integrity.
The reliability of data feeding AI system.
- 3- IT and Cloud Modernization.
AI effective often depends on underlying infrastructure and scalability.
- 4- Regulatory compliance leverage.
Compliance environment can enable constrain AI benefits.
- 5- The bank size / digital maturity.
Larger banks may realize different AI impact.

2.3. The dependent variable

- 1- Financial performance.
Ai aims to reduce costs and boost efficiency.
Ai can streamline piecing, risk and product design.
- 2- Operational and process metrics.
volume of tasks completed per period with AI support.
Direct reflection of operational efficiency.
- 3- Risk management and credit quality.
severity of losses and accuracy of impairment models
AI improves risk scoring and monitoring.

2.4. Conclusion

Artificial intelligence is reshaping Saudi banks in ways that touches every part of the organization. The benefits of AI are strongly mediated by two factors: data quality and the governance and regulatory environment. Saudi Arabia vision 2030 framework and the evolving regulatory landscape create both opportunities and constraints. From a practical standpoint the key takeaway is not simply to deploy more AI, but to deploy it wisely.

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