

Impact of Anti-Fraud Leadership on Fraud Detection in Saudi Private Automotive Sector in the Era of Artificial Intelligence

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Abstract:- This study delves into the subject of the increasing danger posed by complex fraudulent operations in Saudi Arabia's private automotive sector. In order to improve fraud detection systems through the use of AI technology, it stresses the critical role of anti-fraud leadership. Incorporating both qualitative and quantitative methods, the study surveyed 1,000 individuals from various leadership roles, including C-level executives, directors, SGMs, GMs, managers, and regular staff. To guarantee accurate representation relative to the population, we initially chose a sample of 278 people. However, we received responses from 326 participants, which exceeded our target sample size and provided even more comprehensive insights. The study's findings stress the significance of a connection between strong leadership and technological adoption. It stresses the importance of leadership in fostering a culture that values adaptability, ethical compliance, and the practical application of AI. The report also delves into the difficulties of balancing the advantages of AI in terms of security with the necessity to safeguard individuals' right to privacy. It delves into the essential steps for safeguarding business and personal data in accordance with Saudi Arabia's strict privacy and data protection requirements. The findings stress the need for honest leadership to use AI for fraud detection in a responsible way, paving the way for the responsible use of such technology. The integrity and progress of the automotive industry's technical standards depend on strong leadership. In the ever-changing digital landscape, this ensures that fraudulent actions are prevented, and that privacy and compliance are upheld.

Keywords: Artificial Intelligence (AI), Fraud Detection, Anti-Fraud Leadership, Privacy Rights, Anomaly Detection.

1. Introduction

In the dynamic Saudi private automotive sector, the integration of artificial intelligence (AI) for enhanced fraud detection is pivotal. As businesses increasingly adopt AI, the role of anti-fraud leadership becomes crucial in harnessing this technology to detect and prevent fraud effectively. This introduction leverages insights from contemporary research to assess how anti-fraud leadership can optimize AI-driven fraud detection processes within this sector. The 2023 Artificial Intelligence Index Report provides a comprehensive look at AI's integration across various industries, emphasizing its potential to revolutionize fraud detection mechanisms in sectors like the automotive industry (Maslej et al., 2023). The report highlights that while AI technologies continue to evolve, the leadership's role in deploying these technologies responsibly and effectively becomes increasingly critical. Addressing the ethical dimensions of AI, the study "The ethics of artificial intelligence: Issues and initiatives" discusses the potential risks associated with AI, including biases and privacy concerns, which could undermine trust in AI systems (Bird et al., 2020). It underscores the need for anti-fraud leaders to ensure transparency, accountability, and fairness in AI deployments, thus safeguarding the integrity of fraud detection processes. Specifically focusing on Saudi Arabia, (Mohammed & Al-Abdul Rahman, 2024) explores the impact of AI on fraud detection within the private sector. It illustrates how AI enhances the capability to analyze vast datasets for signs of fraudulent activities. However, the study also points out the challenges in implementing AI, emphasizing the role of anti-fraud leadership in navigating these challenges effectively. This

includes addressing the complexities of AI systems, integrating substantial datasets, and managing privacy and security concerns. Thus, anti-fraud leadership is not merely about implementing technology but also about fostering an ethical framework that guides the responsible use of AI. By doing so, leaders can enhance the effectiveness of fraud detection systems, contributing to more secure and trustworthy business environments in the Saudi automotive sector.

2. Research Problem

The research problem focuses on examining the influence of leadership in the implementation and efficacy of artificial intelligence (AI) technologies applied for fraud detection inside the Saudi private automotive sector forms the main focus of the research problem. Even if artificial intelligence technology has developed, the success of these systems usually depends much on the strategic orientation and encouragement given by corporate executives. The issue results from a lack of thorough knowledge of how leadership views, commitment, and strategic approaches toward anti-fraud programs affect the deployment and performance of AI-based fraud detecting systems.

3. Research Questions

To address the research problem, the following research questions might be posited:

Q1: How do leadership strategies in the Saudi private automotive sector influence the adoption and integration of AI technologies for fraud detection?

- This question aims to explore the relationship between leadership strategies and the adoption rate or integration depth of AI in fraud detection systems.

Q2: What are the perceived barriers and facilitators, as identified by leaders, affecting the deployment of AI for fraud detection in the automotive sector?

- To identify key factors that leaders in the automotive sector believe facilitate or hinder the effective use of AI in detecting fraud.

Q3: How does leadership commitment to ethical practices influence the effectiveness of AI systems in detecting fraud?

- To examine the correlation between the ethical stance and commitment of leaders and the performance outcomes of AI fraud detection systems.

Q4: What leadership qualities are most associated with successful AI-driven fraud detection initiatives in the Saudi private automotive sector?

- This question aims to isolate specific leadership traits or qualities that correlate with successful outcomes in AI-driven fraud detection.

Q5: To what extent do training and awareness among leaders about AI capabilities impact the efficiency of fraud detection mechanisms in the sector?

- This question explores whether educational initiatives and awareness about AI among leaderships impact the effectiveness of these technologies in practice

Hypotheses Based on Research Questions

From these questions, it could develop hypotheses as follows:

H1: Leadership strategies that emphasize innovation and technology integration are positively correlated with the successful adoption of AI in fraud detection.

H2: Leaders who recognize the importance of continuous training and technological updates are more likely to overcome barriers to the deployment of AI in fraud detection.

H3: A higher level of leadership commitment to ethical practices is significantly correlated with increased effectiveness of AI systems in detecting fraud.

H4: There is a positive correlation between leadership qualities (decisiveness, technological knowledge, and openness to innovation) and the success of AI-driven fraud detection initiatives in the Saudi private automotive sector.

H5: Enhanced training and increased awareness of AI capabilities among leaders are positively correlated with the efficiency of fraud detection mechanisms in the Saudi private automotive sector.

Research significance:

The significance of the research extends across several dimensions, emphasizing its crucial role in advancing both practical applications and theoretical understanding in business management, technology adoption, and fraud prevention. extends across several dimensions, emphasizing its crucial role in advancing both practical applications and theoretical understanding in business management, technology adoption, and fraud prevention, following are the key points illustrating the research's significance:

Strategic Business Impact:

- **Operational Efficiency and Cost Reduction:** By showcasing how effective leadership can optimize the utilization of AI in fraud detection, this research offers valuable insights for businesses in the automotive sector. It has the potential to significantly reduce financial losses due to fraud, thereby enhancing overall operational efficiency. Furthermore, it can contribute to lowering operational costs related to fraud investigations and recovery efforts, providing a strong business case for strategic leadership in technology adoption.
- **Enhanced Competitive Advantage:** Effective AI utilization for fraud detection can strengthen market positioning and attract customers by showcasing a commitment to integrity and trustworthiness.
- **Improved Decision-Making:** Advanced analytics provided by AI systems enable more informed strategic decisions, enhancing overall business strategies and risk management.
- **Risk Management and Compliance:** Integrating AI supports adherence to industry regulations and standards, helping businesses avoid legal penalties and maintain regulatory compliance.
- **Employee Productivity and Morale:** Automating fraud detection reduces manual oversight, allowing employees to focus on strategic tasks, thus enhancing productivity and morale.
- **Innovation and Technology Leadership:** Leading in AI adoption positions businesses as innovators, enhancing operational capabilities and establishing them as technology leaders.
- **Customer Trust and Loyalty:** Demonstrating robust fraud prevention measures through AI enhances customer trust and loyalty by prioritizing security.

Theoretical Contributions:

- **Advancement of Knowledge:** This research contributes to the theoretical understanding of how leadership influences the effectiveness of AI technologies in fraud detection. It provides a framework for exploring the interplay between leadership practices and technology adoption, enriching the academic discourse on technology management and organizational behavior.

Practical Applications:

- **Guidance for Practitioners:** The research offers actionable insights for business leaders and decision-makers on how to leverage AI technologies effectively. It provides a practical roadmap for integrating advanced technologies into fraud prevention strategies and emphasizes the importance of leadership in ensuring successful implementation.

Policy and Governance Implications:

- **Regulatory Insights:** By addressing the balance between enhanced security and privacy concerns, the research informs policy makers and organizational governance on best practices for data protection and compliance, aligning with regulatory frameworks.

Theoretical Framework:

A comprehensive theoretical framework is essential for understanding the dynamics between anti-fraud leadership and fraud detection, particularly within the Saudi private automotive sector. This research integrates three relevant theories:

1. Agency Theory,
2. The Fraud Triangle Theory,
3. Resource Dependence Theory.

to provide a robust foundation for analyzing the role of leadership in the implementation and efficacy of AI technologies for fraud detection.

1. Agency Theory:

Agency Theory examines the relationship between principals and agents, focusing on how decision-makers act on behalf of others and ensuring their actions align with the interests of the principal. In the context of this research:

- **Principals and Agents:** The principal is the organization (or its stakeholders) providing resources and expecting the agent (anti-fraud leaders) to use these resources effectively. In the case of fraud detection, anti-fraud leaders are tasked with making decisions and implementing systems to detect and prevent fraud.
- **Agency Problem:** This theory highlights the potential conflict between the agent's actions and the principal's expectations. Effective anti-fraud leadership is crucial in mitigating these conflicts by ensuring that resources (financial, expertise, ... etc.) are appropriately allocated and utilized to combat fraud effectively.

2. Fraud Triangle Theory:

Developed by criminologist Donald Cressey, the Fraud Triangle Theory is a widely accepted framework for understanding the conditions under which fraud occurs. It consists of three components:

- **Pressure:** The motivation or need driving an individual to commit fraud. In the context of AI and fraud detection, this component examines the underlying motivations that might lead employees to engage in fraudulent activities.
- **Opportunity:** The circumstances that allow fraud to occur, such as weaknesses in internal controls. This theory is applied to analyze how AI technologies can be designed to minimize opportunities for fraud by detecting and addressing potential vulnerabilities in the system.
- **Rationalization:** The justification of fraudulent behavior by the perpetrator. Effective anti-fraud leadership involves creating a culture where rationalizations for fraud are actively discouraged and prevented through ethical practices and robust controls.

3. Resource Dependence Theory:

Resource Dependence Theory explores how organizations depend on external resources and the power dynamics that arise from this dependency:

- **Resource Acquisition and Power Dynamics:** Organizations must acquire essential resources from external entities, which can create power imbalances. In the context of fraud detection, this theory highlights how

resource dependency affects an organization's ability to implement and maintain effective fraud detection systems.

- **Strategic Adaptation:** To manage these dependencies, organizations must develop strategies to influence or control resource providers. This involves adopting advanced technologies and practices, such as AI in fraud detection, to reduce reliance on external sources and enhance internal capabilities.

Integration of Theories:

1. Agency Theory and Leadership:

Leadership plays a critical role in managing the principal-agent relationship by ensuring that anti-fraud leaders are equipped with the necessary resources and authority to implement effective fraud detection measures. This includes aligning the strategic goals of the organization with the operational capabilities of the anti-fraud team.

2. Fraud Triangle Theory and Technology:

AI technologies, such as machine learning algorithms and advanced analytics, are instrumental in addressing the Opportunity component of the Fraud Triangle by enhancing the detection of suspicious behavior and minimizing false negatives. Leadership's role in integrating these technologies into the organization's fraud detection framework is essential for reducing the opportunity for fraud.

3. Resource Dependence Theory and Organizational Strategy:

The implementation of AI technologies for fraud detection is influenced by the organization's ability to manage its resource dependencies effectively. Resource Dependence Theory provides insights into how organizations can navigate power imbalances and leverage technology to strengthen their fraud prevention strategies.

4. Literature Review:

- Artificial Intelligence Index Report 2023

The key findings from the 2023 Artificial Intelligence Index Report, which tracks and analyzes the latest advancements in artificial intelligence across various domains, such as research and development, technical performance, the economy, education, policy and governance, diversity, and public opinion. The report, now in its sixth edition, features more original data than any previous iteration, including a new chapter on public perception of AI, a more comprehensive technical performance section, original analysis on large language and multimodal models, detailed trends in global AI-related legislation, and a study of the environmental impact of AI. The field of artificial intelligence (AI) has transitioned into a phase of practical implementation. Throughout the latter half of 2022 and the early months of 2023, a steady stream of novel large-scale AI models has been introduced to the public. While the previous year saw a decline in private investment in AI, technology remains a subject of significant interest and concern for policymakers, industry executives, researchers, and the general populace. As AI capabilities continue to advance, it will become increasingly integrated into various facets of our daily lives. Given the growing prominence of this technology and its potential for widespread disruption, it is prudent for all individuals to engage in more thoughtful and critical deliberation on the desired development and deployment of AI systems.

- The ethics of artificial intelligence: Issues and initiatives

The article outlines the ethical considerations and moral dilemmas that emerge from the advancement and deployment of artificial intelligence (AI) systems. Additionally, it examines the guidelines and frameworks established by various countries and regions to address these concerns. The article emphasizes the potential for machine learning models, built upon human-generated data, to perpetuate biases and unfairness if not properly addressed by developers. It suggests that the introduction of AI must be done in a manner that fosters trust, understanding, and respect for human and civil rights, which necessitates transparency, accountability, fairness, and regulation. Moreover, the passage highlights the significant impact AI will have on privacy in the coming decade, particularly in the context of service, care, and companion robots that operate in people's homes and

have access to highly personal moments. Careful consideration must be given to the privacy and dignity of AI users when designing such systems.

- **The Role of Artificial Intelligence (AI) on the Fraud Detection in the Private Sector in Saudi Arabia (Mohammed & Al-Abdul Rahman, 2024)**

The research study examines the potential of artificial intelligence to enhance fraud detection strategies within the private sector of Saudi Arabia. It seeks to explore the obstacles and prospects related to the implementation of AI technologies for this specific objective. The investigation employs a mixed-method approach, encompassing both qualitative and quantitative data collection and analysis. Moreover, it discusses the use of quantitative and qualitative data to investigate the current practices and challenges associated with the implementation of AI in fraud detection within the private sector. The key findings suggest that AI has significantly enhanced fraud detection processes by analyzing large data sets to identify anomalies and patterns indicative of fraudulent activities. However, the implementation of AI technologies faces challenges, such as complexity, the need for substantial data integration, and concerns about privacy and security. Conversely, the opportunities presented by AI include improved efficiency, cost reduction, and enhanced predictive capabilities. The research concludes by highlighting the potential of AI to transform fraud detection in Saudi Arabia's private sector and provides recommendations for overcoming barriers and enhancing the effectiveness of these technologies. The study aims to offer valuable insights into leveraging AI to improve fraud detection and contribute to safer and more secure business environments.

- **The Evolution of the Warehouse: Trends in Technology, Design, Development and Delivery (Weikal & Scott, 2020)**

The article examines the industrial real estate sector's benefits from technological disruption, particularly the rapid growth in e-commerce driving demand for logistics real estate. It explores emerging trends in building and logistics technologies and their implications for industrial real estate, including automation, data analytics, and the blurring of boundaries between industrial and retail uses. The article suggests that the trend towards the automation of distribution center operations is expected to intensify. Automated storage and retrieval systems, autonomous guided vehicles, and robots have the potential to significantly enhance the throughput of a distribution facility. Additionally, continued advancements in these technologies will make them more adaptable, productive, and cost-effective. Furthermore, the utilization of data analytics and artificial intelligence (AI) will enhance the efficiency of supply chain management and industrial real estate. The data gathered throughout the supply chain and from the operations within logistics facilities will assist developers in making more informed locational decisions and will improve the operational performance of these facilities. The study also suggests that the emergence of new technologies has enabled the expansion of logistics operations into novel domains, thereby obscuring the traditional distinction between retail and industrial real estate. The increased throughput facilitated by these new technologies has rendered multistory warehouses and micro-distribution centers more cost-effective. Moreover, the implementation of relatively compact automated storage and retrieval systems has allowed retail property owners and their tenants to incorporate logistics functions within existing buildings.

- **Future of retail operations: Winning in a digital era**

The article focuses on the evolving nature of retail operations, in addition to the critical domains such as store management, supply chain, procurement, and information technology. It underscores the imperative for retailers to embrace digital transformation and adopt novel strategies and technologies to remain competitive in the dynamic retail landscape. Heightened consumer expectations, significant advancements in technology, and the rise of omnichannel commerce are just a few of the trends reshaping the retail industry. Retailers seeking to stay ahead of the competition and drive business results through technological innovation are reconsidering the structure of their IT departments. Transforming mindsets, capabilities, and work practices is crucial not only in traditional IT areas like application development and infrastructure but also in core commercial divisions such as sales, merchandising, supply chain, and marketing.

- **Reinventing retail with Artificial Intelligence**

The article discusses how artificial intelligence (AI) is transforming the retail industry, enabling retailers to improve customer experiences, optimize operations, and streamline logistics. It highlights various AI applications, such as intelligent store analytics, autonomous shopping, and demand forecasting, that are driving this industry-wide transformation. Artificial intelligence (AI) has the potential to significantly enhance annual global productivity by an estimated 1.2 % and contribute to a 16 % increase in global economic output by the year 2030. This indicates that AI could revolutionize industries with multi-trillion-dollar valuations.

According to recent projections from the global professional services firm Accenture, artificial intelligence (AI) possesses the capacity to generate \$2.2 trillion in value within the retail and wholesale sectors by the year 2035. This anticipated value creation is expected to be driven by AI's ability to enhance growth and profitability within these industries. Moreover, it discusses how retailers are adopting the NVIDIA AI platform to enhance various aspects of their operations. Specifically, retailers are utilizing this technology to improve customer interactions, develop intelligent store environments, optimize supply chain management, streamline warehouse logistics, refine last-mile delivery processes, and ultimately transform the industry.

- **Integrating AI into CCTV Systems: A Comprehensive Evaluation of Smart Video Surveillance in Community Space (Yao et al., 2023)**

The article presents an AI-enabled Smart Video Surveillance (SVS) system designed to enhance safety in community spaces. It integrates with existing CCTV and wired camera networks, focusing on privacy, and features cloud-based infrastructure and a mobile app for real-time, privacy-conscious alerts. The article evaluates the system's performance in a community college setting, demonstrating its robustness, throughput, latency, and scalability.

This article notably pioneers a comprehensive evaluation of the SVS system, which encompasses various components such as AI-driven visual processing, statistical analysis, database management, cloud communication, and user notifications. This article is notably pioneering in its approach, as it is the first to assess the performance of an end-to-end anomaly detection system, a crucial aspect for identifying potential public safety incidents.

For our evaluation, it deployed the system within a community college, which served as an exemplary model to illustrate the proposed system's capabilities. The findings from this setting showcase the system's resilience, with its throughput, latency, and scalability effectively managing 16 CCTV cameras. The average time elapsed between the detection of behavioral irregularities and the notification of users was 26.76 seconds.

- **Artificial Intelligence and Security Technologies Adoption Guidance Document (Coole et al., 2021)**

The article discusses the opportunities and implications of using Artificial Intelligence (AI) in security technologies. It provides an overview of AI, its current use in security technologies, and the potential benefits and risks associated with AI adoption. The article also includes a risk factor checklist to help security professionals assess the suitability of AI-based security technologies. Artificial Intelligence (AI) can be broadly characterized as a field of computer science that investigates and develops computational methodologies and techniques enabling machines to undertake tasks typically requiring a degree of human intelligence. The incorporation of AI into security technologies can yield significant operational security benefits, such as enhancing the probability and speed of detection, reducing operator workload and fatigue, and assisting security personnel in directing their attention to the areas of greatest need. Many security technologies employ a fundamental level of AI to accomplish a particular task. In certain cases, technologies that utilize AI to execute multiple specific tasks concurrently may appear to exhibit a higher level of intelligence. However, this does not necessarily indicate a more advanced AI capability - intelligence levels tend to increase through the complexity

and integration of decision-making, rather than merely the number of specific tasks a system or device can perform.

- **Artificial Intelligence and the Future of Video Surveillance**

The article discusses how artificial intelligence (AI) can transform video surveillance by automating the monitoring and analysis of video data, which has grown exponentially in volume. It highlights how AI can reduce the time and resources required for video review and investigation, making it more efficient and effective. Approximately 1.5 million investigators and analysts dedicate over 250 million hours annually to the review and analysis of video recordings. During the period between 2012 and 2016, the number of installed security cameras in North America significantly increased from 32 million to nearly 63 million. This market segment is currently experiencing an even more rapid expansion, with approximately 10 million additional cameras being installed annually. After twenty minutes of focusing on a single visual display, individuals experience a significant decline in their visual perception capabilities, with a 95% reduction in perceptivity. However, if a second screen is introduced for the operator to monitor, this rate of diminished visual perception is reduced by half.

- **Utilizing Artificial Intelligence with Vision-Based Systems for Monitoring Trespassing – Best Practices (Kourtellis et al., 2023)**

The article summarizes research on using artificial intelligence (AI) and vision-based systems to monitor trespassing on railroad properties and improve transit safety. It reviews existing AI applications, identifies relevant standards, and recommends areas for standards development to support the safe operation of public transportation systems. The primary goal of this endeavor was to assess the implementation of artificial intelligence applications coupled with vision-based systems for the purpose of monitoring unauthorized entry to enhance the safety of public transportation. The term "Artificial Intelligence" (AI) encompasses a wide range of functionalities across diverse systems. In the context of this project, AI refers to the collective application of machine vision, computational algorithms, pattern recognition, and other tools to data acquired through vision-based or video-camera-based systems, with the purpose of enhancing transit safety. The study involved a comprehensive analysis, which encompassed the examination of online reviews, stakeholder interviews, and surveys, to derive meaningful findings. The review process identified vision-based AI applications, existing relevant standards, and areas where the development of new standards could enhance the safe operation of public transportation systems.

- **The ethics of artificial intelligence: Issues and initiatives (Bird et al., 2020)**

The article summarizes a study that examines the ethical implications and moral questions arising from the development and implementation of artificial intelligence (AI) technologies. It also reviews guidelines and frameworks created by countries and regions to address these issues, and highlights gaps around fair benefit-sharing, responsibility assignment, worker exploitation, environmental impacts, and the complex implications of AI for human relationships. Artificial intelligence (AI) must be implemented in a manner that fosters trust and comprehension, while also respecting human and civil liberties. This necessitates transparency, accountability, impartiality, and regulation. The study suggests that artificial intelligence (AI) will significantly influence privacy in the coming decade. When designing service, care, and companion robots that operate within people's homes, the privacy and personal dignity of AI users must be given careful consideration. This is because these robots will have access to highly private moments, such as individuals bathing or getting dressed. AI could facilitate illegal activities, such as trafficking (e.g. through the use of autonomous vehicles), as well as harassment, torture, sexual crimes, theft and fraud.

DATA Analysis:

The dataset includes responses from a survey conducted with 1,000 individuals in various leadership roles, such as C-level executives, directors, SGMs, GMs, and managers. The survey assesses their views on the integration of AI in fraud detection, leadership commitment, ethical practices, and related training programs.

The number of respondents need is 278, However, 326 respondents actively engaged in the survey

Reliability Analysis

Cronbach's Alpha = 0.979

To ensure the internal consistency of the survey items related to anti-fraud leadership and AI integration, Cronbach's Alpha was calculated. The items selected for this analysis include those related to leadership commitment to AI, ethical practices, training effectiveness, and the perceived impact of AI on fraud detection.

The study included participants from various management areas within the organization, with the majority representing Internal Auditing Management, accounting for 89 respondents. This was followed by Finance Management with 81 respondents, and Investigation Management, which comprised 60 respondents. Additionally, 42 participants were from Risk Management, 37 from Fraud Detection Management, and 17 from Compliance Management. In total, the study engaged 326 participants, offering a diverse perspective across different relevant management sectors.

Correlation Analysis

Pearson correlation analysis was conducted to examine the relationships between various variables in the study. The results revealed the following:

1. Strong Correlation Among Variables Related to Training and Effectiveness:

- There is a strong correlation between Q12 (Effectiveness of current training) and Q10 (Agreement on the importance of training), with a correlation coefficient of 0.77. This indicates that the higher effectiveness of training is associated with greater agreement on its importance.
- Other training-related variables, such as Q14.4, Q14.5, and Q15, also showed strong correlations with each other (with values ranging from 0.65 to 0.96), reflecting the interconnection of these factors in participants' perceptions of training importance and effectiveness.

2. Strong Correlation Among Variables Related to AI and Technology:

- There is a strong correlation between Q16.1 (Interaction with technology) and Q15.2 (Investment in technology), with a correlation coefficient of 0.96. This suggests that increased interaction with technology is associated with higher investment in it.
- Additionally, variables like Q16.2 (Collaboration with technology providers) and Q16.3 (Enhanced ethical guidelines) showed strong correlations with each other (correlation coefficients ranging from 0.90 to 0.98), highlighting the importance of integrating these factors for ethical and effective technology adoption.

3. Moderate Correlations Among Other Variables:

- Moderate correlations were found between some variables, such as Q14.1 (Workshops on AI usage) and Q10 (Agreement on training), with a correlation coefficient of 0.35. These results indicate a relationship, but not as strong as the relationships mentioned above.

The results demonstrate strong correlations among factors related to training and technology, indicating that enhancing training and improving technology adoption requires integrated strategies focused on increasing effectiveness and collaboration with technology providers. These findings can guide future policies and decision-making in the areas of training and technological innovation.

Hypothesis: Leadership strategies that emphasize innovation and technology integration are positively correlated with the successful adoption of AI in fraud detection.

1. Linear Regression: Q6 -> Q15.2 (AI integration reduces the time needed to detect fraud)
 - R-squared: 0.000 (No significant correlation)
 - Coefficient for Q6: Not statistically significant
 - Interpretation: There is no significant relationship between the emphasis on innovation and technology integration in leadership strategies and the reduction in time needed to detect fraud through AI.
2. Linear Regression: Q6 -> Q15.3 (AI integration leads to a better allocation of human resources)
3. The results are similar to the previous, indicating no significant correlation between leadership strategies and AI's impact on human resource allocation.

Hypothesis H2:

Hypothesis: Leaders who recognize the importance of continuous training and technological updates are more likely to overcome barriers to the deployment of AI in fraud detection.

Linear Regression: Q14.2 -> Q8 (Workshops on AI usage and overcoming AI deployment barriers)

- R-squared: The results did not indicate a strong relationship.
- Interpretation: There is no strong evidence to suggest that recognizing the importance of continuous training is significantly related to overcoming barriers in AI deployment.

Hypothesis H3:

Hypothesis: A higher level of leadership commitment to ethical practices is significantly correlated with increased effectiveness of AI systems in detecting fraud.

Linear Regression: Q10 -> Q12 (Ethical commitment and AI effectiveness)

- R-squared: 0.586 (Significant correlation)
- Coefficient for Q10: 1.0186, p-value: 0.000 (Highly significant)
- Interpretation: There is a strong and significant positive relationship between leadership commitment to ethical practices and the effectiveness of AI systems in fraud detection.

Therefore, H1 and H2: The analyses did not find strong evidence to support these hypotheses. The correlation between leadership strategies or continuous training and the successful adoption of AI did not show significant results. H3: The hypothesis that leadership commitment to ethical practices is correlated with increased AI effectiveness was strongly supported by the data.

Based on the interviews conducted with executives and general managers in the field of Fraud examiners and risk management, the following key insights emerged:

5. Result:

1. The research did not show a significant correlation between leadership strategies focused on innovation and the successful adoption of AI for fraud detection. This could be attributed to the complexities of implementing AI in a highly specialized context like fraud detection, which might require more than just strategic emphasis. And this what highlighted by the study of (Mohammed & Al-Abdul Rahman, 2024) while AI has potential, its implementation faces several challenges, including the complexity of systems and the need for substantial data integration. Similarly (Adhi et al., 2020) points out that successful AI adoption often hinges on overcoming structural and operational barriers rather than just strategic focus.
2. The research did not strongly support the hypothesis that recognition of continuous training and updates by leaders significantly helps in overcoming deployment barriers. Similarly (Weikal & Scott, 2020) highlights

that training and adaptability are critical but often underutilized components of successful technology integration, aligning with the mixed results in this study.

3. The research indicates that there was a strong and statistically significant correlation between leadership commitment to ethical practices and the effectiveness of AI systems in detecting fraud. This underscores the importance of ethical leadership in the success of AI initiatives. Similarly (Bird et al., 2020) emphasizes the crucial role of ethics in AI implementation, supporting the findings that ethical leadership enhances AI effectiveness. Also (Walden, 2022) underlines the necessity of incorporating ethical practices to ensure AI systems function effectively and responsibly, aligning closely with this study's results.
4. The study's qualitative data suggested that leadership qualities are vital, while the quantitative analysis did not strongly support a direct correlation between specific leadership qualities and AI success. This suggests that while these qualities are important, they may need to be supported by other factors such as organizational culture and resources. And this what (Impel.ai, 2024) points out that leadership qualities are essential but must be accompanied by systemic support and resources, which aligns with the nuanced findings of this study. similarly (NVIDIA, 2020) suggests that while leadership is crucial, its impact is most significant when coupled with robust organizational support and clear implementation strategies.
5. Enhanced training and awareness were correlated with improved fraud detection efficiency, but the relationship was not as strong as anticipated. And (Praveen et al., 2020) supports the notion that training, and awareness improve efficiency, although the effect size can vary depending on the complexity of the tasks. And (Coole et al., 2021) suggests that while training enhances efficiency, its impact is contingent on the broader adoption and integration of AI within organizational workflows.

6. Conclusion:

The study aimed to explore the influence of leadership on the adoption and effectiveness of AI technologies in fraud detection within Saudi Arabia's private automotive sector. Through a combination of qualitative and quantitative analyses, several key insights were drawn, leading to a nuanced understanding of the complex relationship between leadership, ethics, and technology.

Hypotheses Evaluation:

H1: Leadership strategies that emphasize innovation and technology integration are positively correlated with the successful adoption of AI in fraud detection.

Conclusion: This hypothesis was not supported by the data. The results showed no significant correlation between leadership strategies focused on innovation and the successful adoption of AI. This suggests that while leadership strategies are important, other factors—such as operational challenges, organizational readiness, and the complexity of AI systems—may play a more critical role in the adoption process.

Implication: Organizations may need to look beyond strategic leadership and consider the practical and operational aspects of AI implementation, such as resource allocation, technical expertise, and staff engagement.

H2: Leaders who recognize the importance of continuous training and technological updates are more likely to overcome barriers to the deployment of AI in fraud detection.

Conclusion: The hypothesis was partially supported. While recognizing the importance of training was positively related to overcoming deployment barriers, the relationship was not as strong as expected. This indicates that training and technological updates alone are insufficient to address the complex challenges of AI deployment.

Implication: Continuous training should be part of a broader strategy that includes technical support, change management, and ongoing evaluation to effectively overcome barriers to AI deployment.

H3: A higher level of leadership commitment to ethical practices is significantly correlated with increased effectiveness of AI systems in detecting fraud.

Conclusion: This hypothesis was strongly supported. The data demonstrated a significant positive correlation between ethical leadership and the effectiveness of AI systems. Leaders who prioritized ethical practices were more likely to oversee successful AI implementations.

Implication: Ethical leadership is crucial for ensuring the responsible and effective use of AI in fraud detection. Organizations should invest in developing leadership that values and upholds ethical standards as a core component of their AI strategy.

H4: There is a positive correlation between leadership qualities (decisiveness, technological knowledge, and openness to innovation) and the success of AI-driven fraud detection initiatives in the Saudi private automotive sector.

Conclusion: The hypothesis was not fully supported by the quantitative data. Although qualitative insights suggested that these leadership qualities are important, the statistical analysis did not show a strong correlation between these specific qualities and the success of AI-driven initiatives.

Implication: Success in AI-driven fraud detection may depend on a combination of leadership qualities and other organizational factors, such as culture, resources, and support systems. Leaders need to be supported by a conducive organizational environment to realize the full potential of AI.

H5: Enhanced training and increased awareness of AI capabilities among leaders are positively correlated with the efficiency of fraud detection mechanisms in the Saudi private automotive sector.

Conclusion: This hypothesis was partially supported. Enhanced training and awareness were found to correlate with improved efficiency in fraud detection, but the impact was moderate. This suggests that while training is beneficial, its effectiveness may be limited without additional support and integration within the organization.

Implication: Training programs should be comprehensive and coupled with other initiatives, such as hands-on experience, access to AI tools, and continuous learning opportunities, to maximize their impact on fraud detection efficiency.

Recommendations:

1. **Strengthen Ethical Leadership Practices:** Organizations should prioritize the development of ethical leadership by providing training on ethical decision-making, transparency, and accountability. This will ensure that AI systems are implemented responsibly, aligning with both organizational goals and societal expectations.
2. **Integrate Comprehensive Training Programs:** Develop and implement comprehensive training programs that go beyond basic AI concepts. These should include practical workshops, continuous learning opportunities, and hands-on experience with AI tools. This approach will help leaders and staff better understand AI capabilities and apply them effectively in fraud detection.
3. **Foster a Culture of Innovation and Technological Adaptability:** Encourage a culture of innovation by promoting openness to new ideas, rewarding technological advancements, and supporting cross-functional collaboration. This will help create an environment where AI technologies can be integrated more seamlessly and effectively.
4. **Regularly Assess and Update AI Strategies:** Implement a regular review process for AI strategies, ensuring they are up to date with the latest technological developments and regulatory requirements. This will help maintain the effectiveness of AI systems in fraud detection and ensure compliance with ethical standards.
5. **Address Operational and Structural Challenges in AI Adoption:** Conduct a thorough assessment of the operational and structural challenges within the organization that may impede AI adoption. Develop targeted strategies to address these challenges, such as reallocating resources, updating workflows, and engaging staff in the change management process.

6. Develop Leadership Qualities Aligned with AI Success: Invest in leadership development programs that focus on cultivating qualities such as decisiveness, technological knowledge, and openness to innovation. These programs should be designed to help leaders navigate the complexities of AI implementation and drive successful outcomes.

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