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Title in English

The role of modern technology in enhancing risk assessment and decision-making. A Case Study of the
Zakat, Tax and Customs Authority

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Year:2023

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1.1. Introduction

In the contemporary landscape of rapid technological advancement, the symbiotic relationship between modern technology and risk assessment, as well as decision-making, has appeared as a transformative force across industries and sectors. The fusion of cutting-edge technologies with these fundamental processes has unlocked unprecedented capabilities, allowing organizations to navigate an increasingly complex and uncertain world with greater precision and insight (Smith, & Johnson, 2020).

Modern technology has become the linchpin for organizations looking to expect, manage, and mitigate risks while making informed decisions that drive success. Whether in finance, healthcare, environmental management, or countless other domains, the adoption of technological tools and methodologies has redefined the parameters of risk assessment and decision-making. This transformation encompasses a wide array of innovations, including big data analytics, artificial intelligence, machine learning, predictive modeling, and data visualization (Patel, 2019).

This exploration delves into the multifaceted realm of modern technology's impact on risk assessment and decision-making, offering a comprehensive view of its far-reaching implications. It delves into how these technologies empower organizations to better understand and respond to risks, make data-informed decisions, and foster resilience and agility in a world characterized by unpredictability (Chang et al., 2018).

Through real-world examples and case studies, we will examine how modern technology has disrupted traditional approaches, enabling businesses, governments, and individuals to confront and manage risk with greater efficacy and efficiency. From the dynamic world of financial markets, where algorithmic trading strategies are deployed to find and capitalize on opportunities, to the healthcare sector, where predictive analytics and machine learning assist in diagnosing and treating diseases, the impact of technology is omnipresent (Wang, 2017).

Moreover, the integration of modern technology in risk assessment and decision-making transcends individual organizations and sectors; it carries significant implications for society as a whole. By harnessing the power of data and technology, governments can better respond to public health crises, natural disasters, and national security threats. Likewise, environmental organizations can employ satellite data and machine learning to check and combat climate change, while educational institutions can tailor learning experiences to the individual needs of students (Gonzalez & Martinez, 2016).

In this era of unprecedented connectivity, data proliferation, and technological innovation, the role of modern technology in enhancing risk assessment and decision-making is a transformative narrative that touches every side of our lives. The pages that follow will unveil the remarkable ways in which these innovations are reshaping our approach to risk and decisions, offering a glimpse into a future where

knowledge, insight, and adaptability will be the driving forces behind successful and sustainable endeavors (Anderson, 2015).

1.2. Study Problem

The integration of modern technology in risk assessment and decision-making processes has heralded a new era of efficiency and precision. However, as organizations across sectors increasingly rely on technology-driven solutions, a complex and multifaceted problem appears how to harness the full potential of these technological advancements while addressing the challenges and risks associated with their application. This problem statement underscores the need to critically examine the role of modern technology in enhancing risk assessment and decision-making and the inherent dilemmas it poses. (Brown et al., 2014) While technology offers the promise of more correct predictions, better-informed decisions, and increased organizational resilience, it also introduces concerns related to data privacy, algorithmic bias, cybersecurity threats, and the potential obsolescence of human ability. The overarching problem is how to use modern technology's potential while mitigating its inherent risks and challenges. Addressing these issues is vital for organizations and policymakers looking to harness the transformative power of technology in the domains of risk assessment and decision-making effectively. Failure to do so could lead to costly errors, ethical dilemmas, and an erosion of public trust in technology-driven decision processes.

1.3. The importance of the research

Research on the role of modern technology in enhancing risk assessment and decision-making is important for several reasons:

1- Theoretical importance

- ✓ **Advancement of Knowledge:** Research in this area contributes to the advancement of theoretical knowledge by expanding our understanding of how modern technology is reshaping the fundamental processes of risk assessment and decision-making. It explores the underlying principles and mechanisms, shedding light on the evolving dynamics of these concepts.
- ✓ **Theoretical Frameworks:** This research helps in the development of theoretical frameworks that can be applied across disciplines. It supplies the basis for creating models and concepts that can be used to analyze and understand the broader impact of technology on decision-making, risk management, and organizational behavior.
- ✓ **Interdisciplinary Insights:** Theoretical exploration in this field fosters interdisciplinary insights, drawing from fields such as data science, artificial intelligence, psychology, economics, and sociology. It encourages the cross-pollination of ideas and approaches, enriching our theoretical understanding of complex systems.

2- Practical importance:

- ✓ **Operational Efficiency:** The practical significance lies in the tangible benefits derived from incorporating modern technology in risk assessment and decision-making. Organizations can streamline operations, reduce costs, and enhance overall efficiency by using technology to automate processes and analyze vast datasets.
- ✓ **Risk Mitigation:** Modern technology aids in finding, assessing, and mitigating risks more effectively. This is crucial across industries, from finance and healthcare to disaster management and environmental protection. It allows organizations to proactively manage uncertainties and minimize potential negative impacts.
- ✓ **Data-Driven Decision-Making:** The use of technology enables data-driven decision-making, ensuring that choices are based on correct, real-time information. This, in turn, leads to more informed and strategically sound decisions, resulting in improved outcomes and competitive advantages.
- ✓ **Innovation and Competitiveness:** Embracing modern technology can drive innovation and bolster an organization's competitive edge. Companies that integrate advanced technology into their risk assessment and decision-making processes are better positioned to adapt to changing circumstances and seize emerging opportunities.

- ✓ Societal and Environmental Impact: In a broader context, the practical importance of this research extends to the societal and environmental realms. For instance, technology-enabled risk assessment and decision-making can play a pivotal role in addressing global challenges like climate change, public health crises, and resource management.

1.4. Objective of the study

This study aims to identify.

- 1- Identify the reality of the role of modern technology in enhancing risk assessment and decision-making.
- 2- Know the challenges facing the application of modern technology to enhance risk assessment and decision making?
- 3- Study the impact of the role of modern technology in enhancing risk assessment and decision-making.

1.5. Study Questions

the current Study tries to answer the following question:

2. What is the reality of the role of modern technology in enhancing risk assessment and decision-making?
3. What are the challenges facing the application of modern technology to enhance risk assessment and decision-making?
4. What is the impact of the role of modern technology in enhancing risk assessment and decision-making?

1.6. Previous studies and theoretical framework.

In this section, we will discuss earlier studies and literature that previously addressed variables.

- 1- Study by (Brown-Liburd et al.,2015). Title: Behavioral implications of Big Data's impact on audit judgment and decision making and future research directions.

The aim of this paper is to investigate the information processing challenges and constraints that can hinder the efficient use and analysis of Big Data within an audit context. By synthesizing insights from both psychology and auditing literature, the paper explores the behavioral consequences of Big Data on audit judgment, focusing on issues such as information overload, information relevance, pattern

recognition, and ambiguity. The study also delves into the difficulties auditors face when integrating Big Data into audit procedures and examines the diverse analytical tools currently employed by organizations for Big Data analysis. In conclusion, the paper not only highlights these challenges but also poses questions for future research that pertain to the effective integration of Big Data in auditing practices.

2- Study by (Höchtel, et al., 2016). Title: **“Big data in the policy cycle: Policy decision making in the digital era”**

The aim of this article is to address the relatively overlooked relationship between technological change, specifically in the era of Big Data, and political change within the field of political science. While earlier studies have predominantly focused on the improvement of existing government activities through technology, particularly in the realm of e-government and e-governance, this article seeks to go beyond the conventional service delivery approach. To achieve this, the article proposes bridging the gap between e-governance and theories of public administration. It suggests exploring how policy decision-making processes can be conducted using Information and Communication Technology (ICT) and Big Data, with the policy cycle serving as a foundational model for policy processes and development. By adopting this perspective, the article aims to shed light on new possibilities and approaches for using ICT and Big Data in policy decision-making. It emphasizes the potential of these technologies to enhance

and transform the policy cycle, offering insights into how data-driven approaches can inform policy development and improve decision-making processes. The article looks to contribute to a deeper understanding of the intersection between technological advancements, particularly in the realm of Big Data, and political change within the field of political science. It encourages a broader exploration of the impacts and implications of technology in policymaking beyond the traditional scope of e-government research.

3- Study by (Zou, et al., 2017). Title: **“A review of risk management through BIM and BIM-related technologies”**

The aim of this study is to address the global challenge of risk management in the Architecture, Engineering, and Construction (AEC) industry. Inadequate risk management not only affects project success but also influences future urban planning and design. With the rapid adoption of Building Information Modeling (BIM) and related digital technologies, the research trend is shifting towards using these tools for risk management. This paper supplies a comprehensive overview of traditional risk management and reviews the latest developments in risk management technologies, including BIM, automatic rule checking, knowledge-based systems, and IT-based safety systems. The findings suggest that BIM can serve not only as a systematic risk management tool but also as a central data source for other BIM-based tools to conduct in-depth risk analysis. Most of the current efforts have focused on

technical advancements, particularly in the realm of construction personnel safety. However, due to technical limitations and a lack of testing concerning the human factor, BIM-based risk management is not yet widely employed in practical settings. To bridge this gap, the study proposes future research directions, emphasizing a multidisciplinary system approach, the investigation of implementation methods, the integration of traditional risk management with emerging technologies, and support for the development process. This research aims to enhance risk management in the AEC industry by using the potential of BIM and other innovative technologies.

4- Study by (Rostamzadeh et al., 2018). Title: "Evaluation of sustainable supply chain risk management using an integrated fuzzy TOPSIS-CRITIC approach"

The aim of this study is to address the underrepresentation of sustainability issues in the context of supply chain risk management and to develop a framework for evaluating sustainable supply chain risk management (SSCRM). In traditional risk management, the focus has been on finding, analyzing, and mitigating risks in the economic and production cycle, often overlooking sustainability considerations. To achieve this goal, the study proposes an integrated fuzzy multi-criteria decision-making (MCDM) approach, using the "Technique in Order of Preference by Similarity to Ideal Solution" (TOPSIS) and the "Criteria Importance through Inter-Criteria Correlation" (CRITIC) methods. The researchers reviewed the existing literature to find potential criteria for SSCRM and then filtered these criteria through expert

panel input. The final SSCRM framework includes seven main criteria and forty-four sub-criteria. Notably, the most influential sub-criteria in each category were identified as machines and equipment risks, key supplier failures, demand fluctuations, government policy risks, IT security, economic issues, and the absence of proper sewage infiltration. In the context of a real case company, A2 (Nouri complex) appeared as the top performer based on the framework's evaluation. This study successfully applies the proposed method and supplies a comprehensive account of the implications and **limitations** of the research. It serves as a significant step towards incorporating sustainability considerations into supply chain risk management, offering a structured approach to assess and improve sustainability practices within the supply chain.

5- **Study by (Shrestha et al., 2019). Title: “Organizational decision-making structures in the age of artificial intelligence “**

The aim of this study is to explore how the introduction of artificial intelligence (AI)-based decision-making algorithms influences organizational decision-making processes. The article finds five critical contingency factors that differentiate human and AI-based decision-making: the specificity of the decision search space, interpretability of the decision process and outcomes, the size of the alternative set, decision-making speed, and replicability. By comparing human and AI-based decision-making across

these dimensions, the article sets up a new framework that suggests how both forms of decision-making can be integrated to perfect the quality of organizational decision-making.

6- Study by (Lin et al.,2022). Title: "Risk evaluation of excavation based on fuzzy decision-making model"

This study presents a novel risk evaluation model specifically designed for excavation systems. The model incorporates a unique combination of the Technique for Order Preference by Similarity to an Ideal Solution (TOPSIS) and hybrid fuzzy sets, specifically Pythagorean and triangular fuzzy sets. The model is divided into three key phases to facilitate the risk evaluation process. In the Decision Hierarchy Construction phase, a structured hierarchy of decisions is established to streamline the subsequent risk assessment. The model incorporates various data sources, including expert judgments and monitoring data, to ensure a comprehensive evaluation of risk factors. The High-Risk Factor Identification phase aims to identify high-risk factors within the excavation system using integrated data. To enhance the reliability of the results, an expert confidence index is incorporated, assigning appropriate importance to the judgments provided by consulted experts. To validate the model's performance, real-world data from an excavation engineering project in Tianjin, China, is utilized for evaluation. The results of this evaluation demonstrate the model's effectiveness in identifying high-risk factors within excavation projects. This model serves as a valuable decision-making tool for project managers and construction

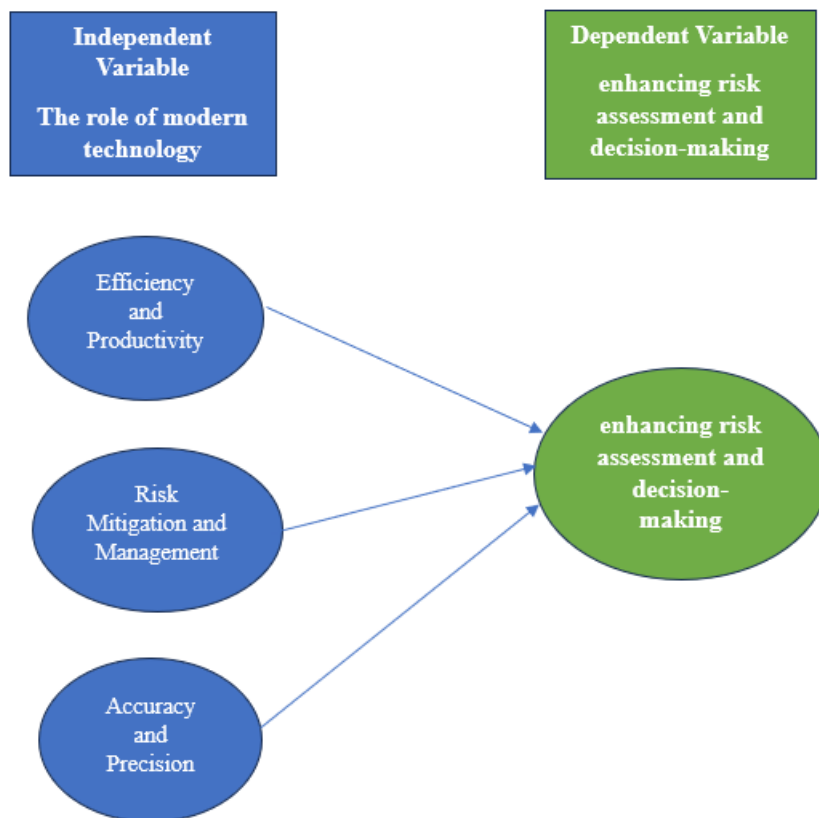
professionals involved in excavation systems. It aids in the analysis and evaluation of risks associated with such projects, offering a structured approach to enhance risk assessment and support more informed decision-making in the construction industry.

7- Study by (Ionescu& Diaconita2023). Title: “Transforming Financial Decision-Making: The Interplay of AI, Cloud Computing and Advanced Data Management Technologies”

The objective of this paper is to examine how modern financial institutions are tackling the challenges posed by complex financial transactions and large volumes of data by leveraging advanced data management technologies, specifically artificial intelligence (AI) and cloud computing. The study provides a comprehensive analysis of the transformative impact of these technologies on financial decision-making across various domains and applications. The research methodology follows the PRISMA 2020 guideline, encompassing both foundational and recent advancements in the field. The findings demonstrate that a significant number of major financial institutions are increasingly adopting AI-driven solutions to enhance real-time risk assessment, transactional efficiency, and predictive analytics. These solutions offer benefits such as accelerated decision-making and reduced operational costs. However, they also present challenges related to data security and integration complexities, which necessitate further research and development. Looking ahead, the paper envisions a future financial ecosystem characterized by greater integration, responsiveness, and security. This ecosystem

is anticipated to leverage the convergence of AI, cloud computing, and advanced data storage to further enhance the efficiency and effectiveness of data-driven financial services. The synthesis emphasizes the crucial role of contemporary data management solutions in shaping the trajectory of the financial industry and provides guidance for stakeholders operating within this evolving domain.

1.7. Theoretical premises of study



It is clear to us from the earlier figure, that the current research attempts to study the impact of operations strategy on project management.

- 1- **The independent variable:** The independent variable for research is represented in.
 - **The role of modern technology** (Efficiency and Productivity, Risk Mitigation and Management, Accuracy and Precision)
- 2- **The Dependent variable:** The dependent variable for research is represented in:
 - **Enhancing risk assessment and decision-making**

Therefore, the current research is based on the following hypotheses.

- There is a statistically significant effect of the role of modern technology in enhancing risk assessment and decision-making.

1.8. Methodology and Research method

This study relied on the descriptive analytical approach to identify the reality of the role of modern technology (Efficiency and Productivity, Risk Mitigation and Management, Accuracy and Precision) in enhancing risk assessment and decision-making, Know the challenges facing the application of modern technology to enhance risk assessment and decision-making, Study the impact of the role of modern technology in enhancing risk assessment and decision-making.

1.9. Study Tools (data collection tools)

- The questionnaire will be used as a research tool, which will be applied to the selected sample in order to create reliable statistical results and indications.

1. Study Sample

In order to create reliable data, a survey will be conducted to apply the research to a number of A group of workers in customs, taxes and zakat.

2. Statistical Methods

The study will use some of the statistical tools used, which can be said as follows:

3. Linear regression coefficient
4. The arithmetic mean and standard deviation will be used to answer the study questions.

1.10. Study limitations.

2. **Time limits:** This study will be conducted during the first semester of the 2023-2024 academic year.
3. **Spatial boundaries:** Customs, taxes and zakat sector to identify the reality of the role of modern technology (Efficiency and Productivity, Risk Mitigation and Management, Accuracy and Precision) in enhancing risk assessment and decision-making, Know the challenges facing the application of

modern technology to enhance risk assessment and decision-making, Study the impact of the role of modern technology in enhancing risk assessment and decision-making.

4. **Human limits:** The application will be applied to the number of workers in customs, taxes and zakat.

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