

Risk Management in Public and Private Sector Organizations in the Kingdom of Saudi Arabia: An Exploratory Study

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Abstract

The objective of this study is to evaluate risk management practices in Saudi public and private organizations, and to identify the risks that face these organizations, in order to come up with recommendations that contribute to raising the level of maturity in risk management. To achieve these goals, the study used the descriptive survey method to assess the maturity level of risk management. A self-administrated structured questionnaire was developed which consist of 23 statements grouped in five dimensions that measure the levels of risk management in addition to organizational variables. Data was collected using the convenience sampling method from a sample of 468 trainees from the study population, which consists of trainees of the Institute of Public Administration in the Asir region branch in the 2023, whose number is 10050 trainees.

The main study results include most public and private sector organizations face different types of risks, foremost of which are operational risks and most of the organizations do not have administrative units for risk management. In addition, most public and private organizations do not pay much attention to the diffusion of risk management culture, have no methods of identifying risks, do not carry out risk assessment procedures and do not have risk response plans and do not assess, monitor and control risks. The results also indicated that there is a large variation in the levels of maturity in risk management, and that the level of maturity in most organizations is medium.

Based on the results; the study presented a number of recommendations, most notably: spreading and strengthening the culture of risk management, establishing administrative units concerned with risk management and preparing strategic and operational plans for potential risks and ways to mitigate them.

Keywords: risk, risk management, risk management maturity, Saudi Arabia, public sector, private sector.

Introduction

Risk has existed since the dawn of humanity, as people have continuously sought ways to adapt to life's demands. Through trial and error, they employed various strategies to ensure protection at times, while experiencing setbacks at others. As a result, risk has become an inherent and critical component of every organization, regardless of its form, size, or nature. This underscores the need for organizations to shift their management approaches, adapting to the ever-evolving and complex reality by fostering a culture and methodologies that address risks. Such approaches enhance the survival prospects of organizations and strengthen their capacity to confront future challenges in varying conditions [1,2]. This place institutional leaders in a challenging position, requiring them to effectively address risks and their potential consequences. Risk management is a crucial administrative domain essential for every organization aiming to achieve its mission and goals. It is a proactive measure to control risks by identifying, analyzing, and evaluating them, thereby reducing their potential impact on the organization's activities (Mohammed et al., 2008). Risk management is a unique skill, honed through continuous training and practice to enhance the predictive capacity for events before they occur, thereby increasing the effectiveness of decision-making,

especially concerning non-routine decisions. This empowers decision-makers to accept, reject, or coexist with certain risks.

The concept of organized risk assessment, governed by scientific methodologies, first emerged in 1967, following the Apollo spacecraft fire. This incident led to the formation of an agency responsible for establishing safety standards for space missions. With the advent of globalization, global openness, and technological progress, distinct types of risks have arisen, compelling organizations to pay greater attention to risk management.

The lack of adherence to risk management principles can often be attributed to a reliance on personal judgment, limited expertise, and insufficient use of practical methodologies. Risk management is defined as a rational, informed administrative process that helps protect and improve organizational performance and addresses potential future challenges (Al-Luwaymi, 2021). Furthermore, risk management plays a vital role in safeguarding organizations, enabling them to continue their operations effectively and efficiently (Al-Anazi et al., 2015). This is achieved by defining roles and responsibilities and providing a regulatory framework that supports the organization's coordinated and monitored future activities. It

includes refining decision-making, planning, and prioritization methods through an awareness of organizational activities, both positive and negative changes, as well as opportunities and threats (Al-Najjar, 2017).

Study Problem and Research Questions:

Organizational performance is closely tied to an uncertain future filled with both opportunities and threats (Qaddou et al., 2009). Risks are an inseparable reality of life, necessitating mitigation efforts, especially as risk management has become an indicator of administrative effectiveness (Kharrouba et al., 2018) and a cornerstone of project success and effectiveness (Tahir et al., 2020). Although risk management practices are common in the private sector, the public sector has not given them adequate attention in terms of research, application, and analysis. The unique nature of the public sector makes it essential to examine risks and management strategies from a different perspective aligned with the sector's objectives, policies, and goals. This includes understanding the types and challenges of risks in the public sector and the existing approaches to dealing with them (Ahmeti et al., 2017). The public sector faces unique challenges influenced by political, economic, and legal factors, alongside changes in population demographics and preferences, adding complexity to the design and delivery of services and products [3].

Several countries, including the United States and Poland, have enacted policies to ensure risk management practices within their public sectors. For instance, Poland revised its regulations to mandate risk management practices, creating a new challenge for institutional leaders [4,5], thereby enhancing organizations' abilities to achieve their objectives [2].

Despite the growing support for risk management in the public sector, sometimes it fails to meet its goals. This may occur when risk management is merely a formality imposed by regulatory and legislative authorities or when employees view it as an administrative burden with routine procedures that do not directly serve the organization's operational goals [4]. Additionally, improper responsibility allocation, lack of a collective sense of risk importance, and limited perception of risk management as a shared responsibility often leave risk management departments solely accountable for all required practices [6]. Training, a critical component of effective risk management, remains insufficient, despite its vital role in building risk management capabilities [2]. Moreover, risk management in the public sector is an intricate and complex issue due to the broad societal impact of public institutions [7]. Recently, specialized risk management units have been established, as recommended by studies such as Al-Anazi and Al-Dulaimi (2015). However, questions remain about whether these institutions have fulfilled their roles and what maturity levels they have reached. The present study aims to address these questions, focusing on the current state of risk management practices in both the public and private sectors.

The study problem can thus be formulated in the following main question: **What is the current state of risk management practices in public and private sector organizations in the**

Kingdom of Saudi Arabia? This main question is further divided into the following sub-questions:

1. What types of risks do public and private sector organizations face, and what are their sources?
2. What are the levels of risk management practices in public and private sector organizations?
3. What is the maturity level of risk management in public and private sector organizations?
4. What variables influence risk management?

Study Objectives:

This study aims to explore the current state of risk management in public and private sector organizations in the Kingdom of Saudi Arabia. Specifically, the study seeks to:

1. Identify the main risks facing public and private sector organizations.
2. Examine the levels of risk management practices in public and private sector organizations.
3. Assess the maturity of risk management in public and private sector organizations.
4. Identify the variables influencing risk management.

Significance of the Study:

The importance of this study lies in its scientific and practical contributions to the field of risk management. Scientifically, risk management has become a critical topic that draws the attention of researchers across various disciplines as they work to develop optimal knowledge models for practical application. This interest has grown in the wake of global crises such as the COVID-19 pandemic, the Russia-Ukraine war, and earthquakes in Turkey and other parts of the world, all of which have had profound economic and social impacts on nations' economies and alliances. Additionally, a review of the literature reveals a scarcity of studies specifically addressing risk management in the Saudi work environment and the Arab world more broadly. This study opens the door for further exploration of risk management and its effects on other aspects of administrative practice.

From a practical standpoint, this study is valuable in assessing the current state of risk management practices within public and private sector organizations, identifying risk management maturity levels, and offering recommendations aimed at enhancing administrative practices to address various levels and types of risks. The study provides guidance for practitioners, establishes a foundation for addressing risk-related challenges, and supports Saudi Vision 2030 programs by enhancing the effectiveness of decision-making related to risk management. Additionally, it raises awareness of the importance of risk management in the Saudi context.

Study Terminology:

- **Risk:** Defined as uncertain future events that may affect an organization's efforts to achieve its objectives [8]; [9]. The Institute of Risk Management defines risk as a combination of the likelihood of an event occurring and its consequences [10].
- **Risk Management:** A set of targeted activities undertaken by management to understand the nature of potential risks, their processes, and causes, enabling the organization to determine the appropriate actions to take and implement

necessary measures to address these risks and mitigate their impacts if they occur [11].

- **Risk Management Maturity:** The extent to which an organization adopts and implements risk management principles, guidelines, and procedures to identify, assess, and manage risks that impact its ability to achieve objectives [9].

Study Boundaries:

1. **Subject Boundaries:** The study addresses the practice of risk management across its five dimensions: management's approach to risk management, risk identification, risk assessment, risk response planning, and risk monitoring and control within both the public and private sectors in the Kingdom of Saudi Arabia.
2. **Spatial Boundaries:** The field study was conducted on organizations within the public and private sectors in Saudi Arabia.
3. **Temporal Boundaries:** Data for the study were collected between August 15, 2022, and May 18, 2023.
4. **Human Boundaries:** The study focused on trainees from Saudi employees at the Institute of Public Administration's branch in the Asir region.

Methodological Procedures of the Study: This section explains the research methodology used in the study, the target population, data collection instrument, the validity and reliability of the measurement tool, and the statistical methods for data analysis.

Study Methodology:

To achieve the study's objectives, a descriptive survey methodology was employed to collect comprehensive and accurate data on the current state of risk management in Saudi Arabia's public and private sector organizations. This methodology aims to describe the phenomenon under study as it exists in reality, determining its characteristics, relationships between its dimensions, and factors influencing it to draw interpretations, conclusions, and generalizations [13,14].

Study Population and Sample:

The target population comprises all Saudi employees in the public and private sectors, totaling approximately 2.9 million employees (General Authority for Statistics, 2022). Given the difficulty of studying the entire target population, the accessible population was defined as the trainees at the Institute of Public Administration. Therefore, the study population included all trainees at the Institute's Asir branch during the first and second training terms of the year 1444 AH (2023), totaling 10,050 trainees [14].

Due to the large size of the study population and the lack of a statistical framework with data on all members, non-probability sampling was used for data collection. Specifically, convenience sampling was employed by distributing the questionnaire to trainees who attended courses at the Institute's Asir branch. Based on guidelines for determining non-probability sample sizes for exploratory and survey research, the sample size was

set at 500 trainees [15]. Of the distributed questionnaires, 468 were valid for analysis, achieving a response rate of 94%.

Data Collection Tool:

A questionnaire was used as the data collection tool to capture information on the study variables. The questionnaire was developed based on prior studies and research on risk management, and it consisted of two parts, as shown in Appendix 1:

1. **Part One:** This section covers basic organizational information, including the nature of the organization's work, the sector it belongs to, the existence of a dedicated risk management unit, the number of employees, and sources and types of risks.
2. **Part Two:** This section includes five dimensions and 23 items that measure various levels of risk management. The dimensions cover management's approach to risk management, risk identification, risk assessment, risk response planning, and risk monitoring and control. These dimensions and items were developed based on the studies by Azeez et al. (2016) and Nale (2015), which employed these dimensions to explore risk management topics. A 5-point Likert scale was used to measure the responses of study participants for each risk management item. Scores ranged from 1 to 5, with 5 indicating "Strongly Agree," 4 "Agree," 3 "Neutral," 2 "Disagree," and 1 "Strongly Disagree."

Validity and Reliability of the Study Tool:

To ensure the content validity of the study tool and confirm its ability to measure the study variables accurately, as well as the clarity and precision of its items in achieving the study's objectives and answering its research questions, the questionnaire was reviewed by a group of professional and academic experts. The experts were asked to evaluate the tool and provide their feedback on all the questions and items, considering whether the tool's content was sufficient, comprehensive, and diverse enough to answer the study's questions and meet its objectives. Based on the experts' comments and suggestions, the necessary adjustments were made to the tool in accordance with their recommendations and insights.

Reliability of the Study Tool:

To assess the reliability of the study tool, the McDonald's Omega and Cronbach's Alpha coefficients were calculated. Table (1) presents the results of the reliability analysis for the five dimensions of risk management. The McDonald's Omega coefficient ranged from 0.86 for the "Risk Identification" dimension to 0.93 for the "Risk Monitoring and Control" dimension. The Cronbach's Alpha coefficient ranged from 0.85 for the "Risk Identification" dimension to 0.92 for the "Risk Assessment," "Risk Response Planning," and "Risk Monitoring and Control" dimensions.

These values indicate that the tool is reliable and consistent for use with the same target population under similar conditions to those in which the study was conducted [16,17].

Table 1: Reliability Coefficients for the Risk Management Dimensions.

Dimension	Number of Items	McDonald's Omega	McDonald's Omega 95% Confidence Interval	Cronbach's Alpha	Cronbach's Alpha 95% Confidence Interval
Administrative Orientation Toward Risk Management	8	0.91	0.90 - 0.92	0.91	0.90 - 0.92
Risk Identification	3	0.86	0.84 - 0.88	0.85	0.83 - 0.87
Risk Assessment	4	0.92	0.91 - 0.93	0.92	0.91 - 0.93
Risk Response Planning	4	0.92	0.90 - 0.93	0.92	0.90 - 0.93
Risk Monitoring and Control	4	0.93	0.91 - 0.94	0.92	0.91 - 0.94

These results show high reliability for all dimensions of the risk management tool, with both McDonald's Omega and Cronbach's Alpha coefficients exceeding the acceptable threshold (usually above 0.70), indicating strong internal consistency.

Statistical Methods for Data Processing:

Statistical methods were employed to achieve the study's objectives and answer its questions using the statistical software program (SPSS), based on the types and functions of the study variables. Statistical tests were also applied to process the data collected through the convenience sampling method, in line with the guidelines of many researchers [18]. The following statistical methods were used in data analysis:

Reliability of the Study Tool:

The reliability coefficients McDonald's Omega and Cronbach's Alpha were calculated for the dimensions of risk management practice.

- **Frequency Distribution:** Frequency distribution was used to describe the organizational variables of the study.
- **Central Tendency Measures:** The agreement rate, median, mean, and standard deviation for the items and dimensions of risk management were calculated. The agreement rate was calculated using the following formula [19]:
- **Agreement Rate Calculation:** The mean (average) of the agreement rate was calculated based on a 5-point Likert scale where the response options were as follows:
 1 = Strongly Disagree,
 2 = Disagree,
 3 = Neutral,
 4 = Agree,
 5 = Strongly Agree.

The mean score represents the average level of agreement with the statements related to risk management practices.

Wilcoxon Signed Rank Test:

The **Wilcoxon Signed Rank Test** was used to test the degree of agreement with the items and dimensions of risk management. This non-parametric test is applied when comparing two related samples or repeated measurements on a single sample to assess whether their population mean ranks differ.

For this test, the following hypotheses were formulated:

- Null Hypothesis (H₀): The median agreement score is 3.0 (indicating neutrality or no agreement).

- Alternative Hypothesis (H₁): The median agreement score is greater than 3.0 (indicating agreement with the statements).

That is to say

$$H_0 : \text{Median} = 3.0 \text{ vs } H_a : \text{Median} > 3.0$$

This test is known as a right-tailed test. If the p-value is less than or equal to 0.05, we reject the null hypothesis, indicating that the study participants tend to agree with the statement. However, if the p-value is greater than 0.05, it means there is insufficient evidence to reject the null hypothesis, indicating that the participants do not agree with the statement.

- The Chi-square test was used to measure the relationship between the sector type and each of the following variables: the presence of a risk management unit, training in risk management, types of risks, sources of risks, and maturity levels in risk management.
- The Mann-Whitney test was used to examine whether there were differences in the approval rates for risk management dimensions according to the sector type, the presence of risk management units within the organization, and training in risk management.
- The Kruskal-Wallis test was used to test for differences in approval rates for risk management dimensions based on the nature of the organization's work, risk sources, and the size of the organization's workforce.
- To determine the maturity levels of risk management in organizations, cluster analysis (using Ward's Method) was employed with the aim of obtaining five distinct levels (clusters) based on the variables of the risk management dimensions (attitude towards risks, risk identification, risk assessment, risk response planning, and risk monitoring and control). Each level (cluster) represents a homogeneous set of organizations where risk management practices are similar, while practices differ between the levels (clusters).

Theoretical Framework:

This section presents the theoretical background of the study, covering the concept of risk management, efforts in risk management, maturity in risk management, the challenges faced in managing risks, and the steps involved in risk management.

Concept of Risk Management:

A review of the literature reveals a significant similarity in defining the concept of risk management. According to Khaleel (2016), risk management is a set of purposeful activities carried out by management to understand the nature of potential risks, comprehend their processes and causes, and identify the

necessary actions to address them. It also involves taking the appropriate measures to confront these risks and mitigate their potential impacts if they occur. In a similar definition, Shaqiri et al. (2012) describe risk management as an integrated system that creates the appropriate environment, utilizes, and provides the correct tools to identify, study, anticipate, and measure the potential impacts of risks. It aims to ensure that the organization can face risks and minimize their potential effects.

In the same context, Slack et al. (2010) [20] define risk management as a process that helps organizations understand and assess the nature of risks associated with their operations. It enables them to make decisions and take actions that increase the chances of success while reducing the likelihood of failure. Al-Khalala (2013) defines risk management as the activity aimed at controlling and reducing risks to acceptable levels. Rashid, Rahman, and Ismail (2011) [21] describe risk management as the process through which risks are measured, assessed, and strategies are developed for managing and resolving them.

Risk management is also described as an integrated system for preparing the appropriate environment and necessary tools to predict, study, identify, and measure potential risks, and determine their potential impact on organizational operations and returns. This involves developing plans for avoiding or minimizing the effects of risks, or controlling and mitigating their consequences when elimination is not possible [21]. It is also regarded as a scientific approach for identifying, classifying, and measuring risks faced by individuals, investments, or operations, and then choosing the most suitable method to address them with minimal costs. Alternatively, it is seen as the identification, analysis, and control of risks that threaten an organization's assets and revenue-generating capabilities (Mark and Richard J., 2011).

Therefore, risk is an obligation characterized by uncertainty and doubt, accompanied by either undesirable harm or benefit, and thus a potential failure to achieve objectives. Risk is characterized by uncertainty and probability due to an unexpected future event with undesirable consequences that has financial implications. Risks can be divided into systematic risks and unsystematic risks, with varying levels of impact. These range from minor risks that naturally dissipate to more significant risks that require clear strategies for management and mitigation (Abdulkareem et al., 2005).

Efforts in Risk Management:

Risk management efforts are focused on three primary areas: identifying and assessing risks, measuring them, and determining how to handle them. The art of risk management revolves around identifying and defining the risks an organization faces, continuously measuring those risks through appropriate information systems, and then selecting the risks to be managed. This includes monitoring and managing those risks using suitable criteria and making the right decisions at the right time to maximize returns while controlling risks. It is an ongoing effort that never ends and represents the core of risk management [23].

The effectiveness of risk management in public sector organizations is achieved through several essential requirements. These include ensuring that all employees are informed and aware of the importance and steps of risk management, providing support from senior leadership levels within the organizations, and fostering an organizational culture that strengthens and develops approaches to risk handling. Additionally, it is crucial to integrate risk management efforts into all organizational processes and align them with organizational objectives. It is also necessary for the organization to engage with relevant external stakeholders, considering their perspectives and the nature of their influence on the organization's operations (Dobson & Hietala, 2011).

Maturity in Risk Management:

Maturity in risk management refers to the level of advancement in implementing risk management policies in accordance with internationally recognized standards. It is based on the efficiency and sustainability of each stage in the risk management process throughout a complete risk management framework. Risk management maturity levels range from *ad-hoc* (the lowest level) to *leadership in risk management* (the highest level) (Jacobson, 2022; Prosser, 2019).

- **Ad-hoc Maturity Level:** At this level, risk management is handled individually and in an unstructured manner, driven solely by personal preferences and individual tendencies.
- **Basic Maturity Level:** There is an understanding of the importance of risk management by senior management, and there are some procedures in place, though they are not comprehensive. However, there is no consistent enforcement or commitment to adhering to these procedures.
- **Systematic Maturity Level:** At this level, documented procedures are followed, and there is awareness and commitment to these procedures, which are integrated into all processes with both internal and external impacts.
- **Quality Maturity Level:** The procedures are well-documented, and responsibilities related to risk management are clearly defined for all. Communication mechanisms regarding risk handling are clear and well-established, and risk assessment mechanisms follow a scientific methodology to measure risks and their impact. There is also an effective mechanism to verify the application of risk management practices.
- **Leadership Maturity Level:** At this highest level, there is a shared understanding of procedures that align with the best international standards for risk management. These procedures are embedded within the organization's institutional framework and are incorporated into long-term strategic planning and operations.

Obstacles Facing Risk Management:

Risk management requires administrative activity and effort through a continuous process of planning, organizing, directing, and controlling. Therefore, risk management may face a number of obstacles that need to be addressed, including:

- **Top Management's Attitudes:** The attitudes of an organization's leadership play a crucial role. When senior management recognizes the importance of organizing and managing risks, it provides the necessary support to move

forward in strengthening and activating risk management efforts. However, if risk management initiatives come from lower management levels, senior leadership may accept them without enthusiasm, which means that the success of risk management and its proper execution could be at risk due to a lack of commitment from leadership.

- **Transforming into an Administrative Burden:** Risk management efforts are centered around providing support and advice based on predictions grounded in scientific principles to aid decision-making. However, managers may perceive this as limiting their authority and hindering their decision-making process, especially for simple decisions or those that require swift action. The emphasis on details and day-to-day formalities may make risk management seem, from the perspective of staff, like an additional routine administrative task that does not contribute to the organization's true goals.
- **Inappropriate Distribution of Responsibilities:** Risk awareness and efforts to mitigate risks should be a collective responsibility. However, the reality often highlights issues where the risk manager is held accountable for all the practices and efforts required in risk management. There needs to be a proper distribution of responsibilities among all the components of the organization to ensure that the primary risk management officer is not overwhelmed or absolved of their core duties.
- **Neglecting Training:** Given the critical importance of risk management, it is essential to equip staff with the knowledge and skills necessary for them to perform their tasks competently and professionally.

Risk Management Steps:

The steps for risk management may vary across organizations, but in general, the following steps can serve as a guide for managing risks [2] (Al-Karasneh, 2010):

1. **Define the Objective of Risk Management:** The first step is to define and formulate the purpose of risk management by answering the question: What is the goal of risk management? Is it a legal requirement? Is it aimed at maximizing gains and minimizing losses? Once the goal is identified, the subsequent steps can be addressed. A precise plan should be created, emphasizing the importance of risk management, considering it a part of the daily administrative work system to ensure the organization's sustainability, leadership, and its ability to deal with environmental changes.
2. **Identify and Assess Risks:** This step is the cornerstone of risk management. It identifies potential risks to assess, aiming to create a list of all risks and their levels of impact on the organization's outputs, based on their severity and probability. Risks that the organization faces should be identified and understood—some risks are apparent, while others are hidden. Some risks require immediate attention, while others can be ignored. Several tools exist for identifying risks, such as internal records, checklists, risk analysis surveys, etc. Professionalism lies in the integration of different methods and tools to identify risks, ensuring that a robust and updated information system is in place.
3. **Risk Evaluation:** Risk evaluation is a recurring aspect of risk management. It is the foundation for decisions that assist in managing risks. This involves both qualitative and quantitative analysis of risks. Qualitative analysis

prioritizes risks for further analysis and categorizes them as follows:

- **Critical risks:** Occur when all conditions for exposure to loss are met, leading to catastrophic losses and the potential collapse of the operational system.
 - **Significant risks:** Occur when risk conditions exist, but they will not halt operations, though the organization may have to sacrifice part of its returns or incur some losses.
 - **Less significant risks:** Occur when conditions for risk exposure are present but can be accepted with limited impact on the organization's operations and capacity.
1. **Risk Response Planning:** In this step, alternatives are explored, and the appropriate method for handling risks is chosen from the strategies based on the results of the evaluation and the prioritization of risks. This phase involves decision-making, determining which policies should be adopted to deal with the risks. The choice of policy depends on the specific circumstances of the organization. When deciding on the policy for managing a particular risk, the risk manager should consider the priority of the risk and then evaluate the returns and costs associated with each policy to be implemented.
 2. **Making the Right Decision:** The decision is made based on the best available information, guided by the risk management policies established in the initial step of risk management within the organization.
 3. **Monitoring and Controlling Risks:** The process of monitoring and controlling risks is continuous. It involves assessing the capacity and effectiveness of the applied strategies, evaluating their performance, and constantly improving policies and strategies to ensure an effective response to risks. This ensures that the organization can adapt to changes in the surrounding environment while managing risks effectively.

Risk Management Policies:

Efforts in risk management focus on finding appropriate methods to enable risk management to identify potential risks and their sources, while developing mechanisms to either avoid or minimize their impacts. The methods vary, including:

- **Prevention and Avoidance:** This policy aims to completely avoid the risk by steering clear of any causes that may lead to it. It is a passive approach that reduces risk management efforts to decisions that avoid risk sources. However, overusing this strategy may result in missed opportunities for decision-makers to achieve competitive advantages and organizational leadership [22].
- **Assuming the Risk and Bearing Its Consequences:** This policy assumes that the risk is inevitable, and the role of risk management is to prepare for bearing the consequences of the risk. It is the most effective approach when the risk cannot be mitigated and is useful when the likelihood of the risk occurring is minimal, and the potential losses are small and limited [24].
- **Risk Pooling:** This policy is applied when it is feasible to bear the risk in parallel. The nature of risks surrounding organizations is similar, and this method is used when the potential outcomes and losses from the risk are high. It transfers the risk from being a direct threat to a single entity or unit to being shared across multiple units.
- **Risk Transfer:** In this case, the risk is transferred to another party for a financial sum or predetermined payment by the organization to an external entity that assumes

responsibility for bearing the risk. This strategy is more suitable when the likelihood of the risk occurring is low but the potential losses are extremely large [25].

Previous Studies:

- **Study by Al-Sayed and Ahmed (2015):** This study explored the role of risk management in achieving excellence standards in business organizations in Sudan, specifically within the Giad Industrial Group. It aimed to answer questions about how scientific risk management methods can contribute to excellence. The hypothesis posited a statistically significant relationship between the application of risk management and the quality and excellence of operations, products, and services. The study found a positive correlation between selecting the best risk management tools and stakeholder satisfaction. It concluded that applying risk management methods leads to excellence and recommended creating a dedicated risk management department as part of the organizational structure, similar to other businesses.
- **Study by Al-Anzi, et al. (2015):** The study focused on the impact of risk management on organizational performance. It emphasized the importance of establishing a risk management department in organizations to enhance operational efficiency, manage the occurrence and severity of risks, and adopt various risk strategies such as avoidance, transfer, reduction, or acceptance. The study concluded with the recommendation to establish an independent risk management department within the organizational structure.
- **Study by Al-Ala (2015):** This study examined the effectiveness of risk management on stock price profitability to stimulate the stock market. Using both inductive and deductive methods, it analyzed data from 132 individuals, including financial managers, auditors, and risk managers from Egyptian listed companies, as well as university accounting faculty. The results revealed a significant positive correlation between managing interest rate risk, exchange rate fluctuations, and stock profitability. The study recommended developing an integrated and effective risk management framework for organizations and training staff to minimize exchange rate fluctuations.
- **Study by Gutiérrez et al. (2018):** This study proposed a risk management model based on ISO 31000 standards for higher education institutions at the Catholic University in Chelsea. It found that the use of ISO 31000 standards was low but concluded that adhering to these standards would improve performance and provided a model for dealing with risks.
- **Study "Risk Management in Public Sector Organisations" (2019):** This study emphasized that risk management should be integrated into public sector strategies to reduce uncertainty and facilitate adaptation. It highlighted the importance of accurately identifying risks, as a failure to do so would affect subsequent stages of risk management, including response evaluation and its impact on public sector performance.
- **Study by Al-Mukhallafi (2019) [26]:** This study investigated the extent to which school leaders in Qassim, Saudi Arabia, applied risk management. The findings showed a medium degree of application across various areas of risk management. The study recommended organizing training programs for school leaders to enhance

awareness of risk management skills in planning, implementation, and evaluation.

- **Study by Alam et al. (2021):** Conducted in six federal ministries in Malaysia, this study found that 94.7% of the ministries practiced risk management, particularly in financial aspects. The study highlighted the importance of raising awareness of risk management and pointed out that structural changes alone are insufficient for effective risk management implementation without clear accountability and improved communication systems.
- **Study by Taher et al. (2020):** This study examined the impact of effective risk management on project success in construction projects. It found that effective risk management positively influenced the success of projects and their various dimensions. It suggested that improving risk management practices could lead to better project outcomes and minimize delays caused by unanticipated risks.

Commentary on Previous Studies:

A notable observation is that many studies in Saudi Arabia focused on risk management in the educational sector. For instance, Al-Mukhallafi (2019) [26] examined the degree of risk management application by school leaders, and Al-Anzi et al. (2015) looked at the impact of establishing risk management departments in educational institutions. In contrast, Alam et al. (2021) evaluated the level of risk management application across public sector organizations. The current study contributes by investigating risk management practices across both public and private sectors in Saudi Arabia, addressing the gap in the literature and aligning with the country's shift toward integrating risk management into organizational frameworks.

Risk Management in Saudi Arabia:

In recognition of the importance of risk management and in line with the goals and objectives of Saudi Arabia's Vision 2030, the Saudi government established the National Risk Council on 26/10/2018. The council's responsibilities include conducting a comprehensive national risk assessment, promoting a culture of risk management across various sectors, training on risk and emergency management, and evaluating the readiness of government agencies to manage risks [27]. Additionally, the government established a central risk classification unit within the Ministry of Finance on 5/1/2021. This unit's key responsibilities include identifying government properties, buildings, and activities at high risk, classifying them, determining the types of risks that public assets may face, and building a database for each government entity that includes relevant information, incident dates, and causes. It also ensures government agencies' compliance with key risk management standards [28].

In an effort to enhance the ability to proactively identify risks and strengthen the reliability and continuity of activities, services, and products, many organizations in both the public and private sectors have established administrative units dedicated to risk management, crises, and business continuity within their organizational structures. Additionally, they have integrated risk management into their existing strategies or developed separate strategies for risk management. Major companies such as Aramco, SABIC, banks, and others, along

with some public sector organizations, particularly ministries and universities, have strategies and administrative units focused on risk management, crises, and business continuity. Some organizations have also obtained the ISO 31000 certification for implementing risk management systems, such as the Ministry of Human Resources and Social Development, the General Authority for Ports, the Zakat, Tax and Customs

Authority, and the Red Sea International Company, among others.

Presentation and Analysis of Study Results

This section of the study presents and analyzes the data obtained from the field study through the electronic questionnaire. This part of the study begins with an analysis of the organizational variables, followed by the analysis of the risk management variables and their relationship to the organizational variables.

Organizational Variables:

a) **Nature of Work:** Table (2) shows the distribution of study participants according to their sector and nature of work.

Table 2: Distribution of study participants by the nature of work in the sector they are employed in.

Nature of Work/Sector	Public Sector	Private Sector	Total
	Frequency	Percentage	Frequency
Service	216	62.2%	58
Productive and Service	92	26.5%	36
Productive	39	11.2%	27
Total	347	100%	121
	74.1%	25.9%	100%

The results indicate that about three-quarters of the study participants work in public sector organizations, while approximately a quarter work in private sector organizations (25.9%). Regarding the nature of work, the results show that most of the participants work in service-oriented organizations (58.5%), followed by those working in organizations with both productive and service-related activities (27.4%), and finally,

14.1% work in productive organizations. Additionally, the results show that the percentage of participants working in public service organizations is higher than those working in private service organizations (62.2% compared to 47.9%). Conversely, the percentage of participants working in private productive organizations is higher (22.3%) compared to those in public productive organizations (11.2%).

b) Organizational Level of Management:

Table (3) shows the distribution of study participants according to the organizational level of the management they work in and the sector.

Table 3: Distribution of study participants by the level of management they work in and the sector.

Management Level	Public Sector	Private Sector	Total
	Frequency	Percentage	Frequency
Top Management	95	27.4%	5
Middle Management	192	55.3%	81
Executive Management	60	17.3%	35
Total	347	100%	121

Most of the study participants work in middle management units (58.3%), followed by those working in top management (21.4%) and a similar percentage in executive management positions in their organizations.

Regarding the sector, the results show that the percentage of participants working in top management in public sector organizations is much higher than in private sector organizations (27.4% compared to 4.1%). Meanwhile, the results indicate that the percentage of participants working in executive management in the private sector is higher than in the public sector.

c) **Workforce Size in the Organization:** Table (4) shows the distribution of study participants based on the size of the workforce in the organizations they work for and the sector.

Table 4: Distribution of study participants by the size of the workforce in the organizations they work for and the sector.

Number of Employees in the Organization	Public Sector	Private Sector	Total
	Frequency	Percentage	Frequency
Less than 50	103	29.7%	33
From 50 to less than 250	77	22.2%	12
250 Employees or more	167	48.1%	76
Total	347	100%	121

More than half of the study participants work in organizations with a workforce of 250 employees or more (51.9%), followed by those working in organizations with fewer than 50 employees (29.1%). Finally, 19% of the participants work in organizations with a workforce ranging between 50 and less than 250 employees.

d) Availability of a Risk Management Unit in the Organization: Table (5) shows the distribution of study participants according to the presence of a dedicated risk management unit and the sector.

Table 5: Distribution of study participants by the presence of a dedicated risk management unit and the sector.

Is there a dedicated risk management unit in the organization?	Public Sector	Private Sector	Total
	Frequency	Percentage	Frequency
Yes	117	33.7%	41
No	127	36.6%	35
I don't know	103	29.7%	45
Total	347	100%	121

The results indicate that approximately one-third of the organizations in both the public and private sectors have dedicated risk management units. The percentage of organizations with risk management units is similar in both sectors. However, there is a difference in the percentage of organizations that do not have such units; 36.6% in the public sector compared to 28.9% in the private sector. Additionally, the results show that a large percentage of study participants are unaware of the existence of a dedicated risk management unit in their organizations, with an overall percentage of 31.6%.

e) Training in Risk Management: Table (6) shows the distribution of study participants according to whether they received training in risk management and the sector.

Table 6: Risk Management Training of Study Participants by Sector.

Have you been trained in risk management?	Public Sector	Private Sector	Total
	Frequency	Percentage	Frequency
Yes	129	37.2%	22
No	218	62.8%	99
Total	347	100%	121
Chi-square Test: Test statistic value = 14.8; Degrees of freedom = 1; Significance level = 0.001.			

The results show that more than two-thirds of the study participants working in both the public and private sectors have not received training in risk management. The Chi-square test results indicate a statistically significant relationship between the sector type and training in risk management at the 0.05 significance level. The findings reveal that less than one-third of the participants received training in risk management. However, the results show that the percentage of participants in the public sector who received risk management training is higher than those in the private sector (37.2% compared to 18.2%).

f) Types of Risks Facing Public and Private Sector Organizations: Table (7) and Figure (1) show the distribution of study participants according to the types of risks and sector.

Table 7: Types of Risks by Sector.

Type of Risk	Public Sector	Private Sector	Total
	Frequency*	Percentage	Frequency*
Operational Risks	125	23.4%	31
Other Risks	93	17.4%	44
Non-compliance with Laws and Regulations	102	19.1%	29
External Strategic Risks Affecting the Organization	92	17.2%	9
Financial Risks	65	12.2%	16
Reputation Risks	57	10.7%	15
Total	534	100%	144
Chi-Square Test: Test Statistic = 19.2; Degrees of Freedom = 5; Significance Level = 0.00			
* Total frequencies exceed the number of respondents due to some respondents selecting more than one risk.			



Figure 1: Risk Occurrence Rates Facing the Public and Private Sectors"

The results show that operational risks top the list of risks facing both the public and private sectors at 23%, followed by other risks at 20.2%, non-compliance risks with regulations and legislation at 19.3%, external strategic risks affecting the organization’s operations at 14.9%, financial risks at 11.9%, and finally, reputational risks at 10.6%. The findings indicate a

statistically significant relationship between the type of risk and the sector at a significance level of 0.05. It appears that operational risks are the leading risks in the public sector, while other risks are more prominent in the private sector. Additionally, external strategic risks are lower in the private sector compared to the public sector, at 6.3% versus 17.2%.

g) Risk Sources: Table (8) presents the distribution of study participants by risk sources and sector, along with the results of the Chi-square test for the relationship between the sector and risk sources.

Table 8: Risk Sources by Sector.

Risk Source	Public Sector	Private Sector	Total
	Frequency	Percentage	Frequency
Internal	130	37.5%	119
External	48	13.8%	0
Internal & External	169	48.7%	2
Total	347	100%	121
Chi-square test: Test statistic = 133.6; Degrees of freedom = 2; Significance level = 0.000			

The Chi-square test results show a statistically significant relationship between the sector type and risk sources at a significance level of 0.05. The findings indicate that most risk sources in private sector organizations are internal, at 98.3%. Meanwhile, most public sector organizations face both internal

and external risks, at 48.7%, followed by internal risks at 37.5% and, finally, external risks at 13.8%.

Risk Management Practices:

Table (9) shows the study participants' perspectives on various aspects of risk management practices in public and private sector organizations.

Table 9: Study Participants’ Perspectives on Risk Management Practice Dimensions.

No.	Statement	Agreement Percentage*	Median	Mean	Standard Deviation	Wilcoxon Test	p-value
Management Approach to Risk							
1	The term "risk" is commonly used in our work environment	46.1	3.0	2.8	1.4	23222.0	0.982
2	Employees’ knowledge of risk handling methods is based on scientific foundations	48.0	3.0	2.9	1.4	27170.5	0.897
3	Organization values support positive behaviors in risk management	55.2	3.0	3.2	1.4	33637.5	0.001
4	Senior management believes in the importance of having a risk management unit	55.9	3.0	3.2	1.5	42052.0	0.001

5	Management dedicates time and effort to conduct awareness sessions on effective risk-handling methods	49.6	3.0	3.0	1.4	30188.0	0.574
6	Management encourages employees to handle risks effectively	51.8	3.0	3.1	1.4	30561.0	0.143
7	Risk identification and control efforts are integrated into our daily work	50.4	3.0	3.0	1.4	27981.0	0.498
8	Risk-related responsibilities and authorities are clear and well-defined	47.9	3.0	2.9	1.4	28170.0	0.879
Average for Axis	50.6	3.0	3.0	1.4	48326.5	0.274	
Risk Identification							
9	There is a comprehensive (register, list) of risks relevant to our work	41.5	2.5	2.7	1.4	21626.5	1.000
10	Our organization has documented, clear, and written methods and procedures for identifying risks	46.0	3.0	2.8	1.4	24522.0	0.986
11	Communication systems help us report risks to the relevant authority	51.0	3.0	3.0	1.4	27892.0	0.298
Average for Axis	46.2	2.8	2.8	1.4	32528.0	0.994	
Risk Assessment							
12	Data in the risk register are translated into quantitative values	44.2	3.0	2.8	1.4	20946.0	1.000
13	Our organization classifies risks into high, medium, and low	49.7	3.0	3.0	1.5	32783.5	0.405
14	Our organization considers available resources when assessing risks	51.1	3.0	3.0	1.4	28259.5	0.362
15	Risk impact and likelihood are determined during risk assessment	53.6	3.0	3.1	1.4	31092.0	0.031
Average for Axis	49.7	3.0	3.0	1.4	40757.5	0.592	
Risk Response Planning							
16	Our organization considers options (risk acceptance, sharing, avoidance, transfer) when planning for risks	50.5	3.0	3.0	1.4	26580.0	0.478
17	Our organization evaluates available options when choosing a risk response approach	49.8	3.0	3.0	1.4	25646.0	0.547
18	Our organization considers internal and external conditions in risk response selection	50.4	3.0	3.0	1.4	27231.5	0.480
19	Our organization considers the costs and benefits of chosen risk response options	51.1	3.0	3.0	1.3	26024.5	0.273
Average for Axis	50.5	3.0	3.0	1.4	35889.0	0.381	
Risk Monitoring and Control							
20	Our organization continuously monitors risk levels	51.0	3.0	3.0	1.4	30336.5	0.324
21	Our organization assesses the effectiveness of implemented risk management strategies	49.4	3.0	3.0	1.3	25584.0	0.735
22	Risk policies undergo regular review for improvement to align with strategy	48.8	3.0	3.0	1.4	24826.5	0.813
23	Leadership monitors the implementation of decisions to enhance risk management performance	50.8	3.0	3.0	1.4	27832.0	0.310
Average for Axis	50.0	3.0	3.0	1.4	37316.5	0.540	
Overall Average for All Dimensions	49.7	3.0	3.0	1.4	50660.0	0.667	
*Note: Agreement Percentage = $100 \times ((\text{Mean} - 1)/(\text{Max category response} - 1))$							

Risk Management Practices:

The results of the study show variations in participants' responses regarding the dimensions of risk management. The main findings can be summarized as follows:

1. Management Orientation Toward Risk Management:

- The approval rate for the statements measuring this orientation ranged from **46.1%** to **55.9%**, with a median value of **3** and a mean score ranging from **2.8** to **3.2**.
- The results of the Wilcoxon test indicate approval for two statements only: "**The senior management is convinced of the importance of having a risk management unit**" and "**The organization's values support positive behaviors toward managing risks**" ($p < 0.05$), while there was no approval for the other statements related to encouraging effective risk handling and spreading the risk management culture.
- It can be concluded that while there is recognition of the importance of risk management, its culture is not widely promoted among employees.

2. Risk Identification:

- The approval rate for the statements in this dimension ranged from **41.5%** to **51%**, with median values between **2.5** and **3**, and a mean score between **2.7** and **3.0**.
- The results of the Wilcoxon test show no approval for the statements related to risk identification, indicating that most organizations in both the public and private sectors do not follow clear steps for identifying risks.

3. Risk Assessment:

- The approval rate ranged from **44.2%** to **53.6%**, with a median value of **3** and a mean score ranging from **2.8** to **3.1**.
- The Wilcoxon test results show that participants did not approve the statements measuring risk assessment, indicating that most organizations do not sufficiently carry out risk assessment procedures.

4. Risk Response Planning:

- The approval rate for the statements ranged from **49.8%** to **51.1%**, with both the median and mean scores being **3** for all statements.
- The Wilcoxon test results show no approval for the statements related to risk response planning, indicating that most organizations lack clear risk response plans.

5. Risk Monitoring and Control:

- The approval rate ranged from **48.8%** to **51.0%**, with both the median and mean values being **3**.
- The Wilcoxon test results indicate no approval for the statements measuring this dimension, showing that organizations do not adequately monitor and control risks.

6. General Conclusion:

- The results indicate that participants generally do not approve of any of the four risk management dimensions, suggesting a lack of focus on risk management practices in organizations.
- Furthermore, the correlation results show a statistically significant relationship between the five risk management dimensions ($p < 0.05$), implying that the level of maturity in one dimension of risk management is aligned with the others in any given organization; meaning, organizations with a high level of risk identification also tend to have high levels in the other dimensions, and vice versa.

Table 10: Spearman Correlation Coefficients Between Risk Management Dimensions.

Risk Management Dimension	Management Orientation Toward Risk Management	Risk Identification	Risk Assessment	Risk Response Planning
Risk Identification	0.825***	-	-	-
Risk Assessment	0.831***	0.823***	-	-
Risk Response Planning	0.803***	0.781***	0.807***	-
Risk Monitoring and Control	0.801***	0.794***	0.812***	0.853***

Note:*** statistically significant at the 0.001 level,** statistically significant at the 0.01 level,* statistically significant at the 0.05 level.

The table shows the Spearman correlation coefficients between the different dimensions of risk management, indicating how strongly related the various dimensions are:

- 1. Management Orientation Toward Risk Management** has a strong positive correlation with all other dimensions (**Risk Identification, Risk Assessment, Risk Response Planning, and Risk Monitoring and Control**) with significance at the **0.001** level.
- 2. Risk Identification and Risk Assessment** have high correlations with each other, as well as with **Risk Response Planning and Risk Monitoring and Control**, suggesting that higher maturity in one dimension is associated with higher maturity in others.

- 3. Risk Monitoring and Control** has the highest correlation with **Risk Response Planning and Risk Assessment**, further confirming the interdependence of these practices within risk management frameworks.

In general, the results indicate that the dimensions of risk management are highly interconnected, and improvements in one dimension can lead to improvements in others.

Are there differences in risk management practices according to the sector?

Table (11) presents the results of the Mann-Whitney test to examine whether there are differences in risk management practices between the public and private sectors.

Table 11: Results of the Mann-Whitney Test for Examining Differences in Risk Management Practices Based on Sector.

Dimension/Sector	Number	Approval Percentage	Average Ranks	Mann-Whitney Test Statistic	Significance
Management Approach to Risk Management				-4.0	0.000
Public Sector	347	53.7%	249.4		
Private Sector	121	41.7%	191.8		
Risk Identification				-3.3	0.001
Public Sector	347	48.8%	246.6		
Private Sector	121	38.5%	199.9		
Risk Assessment				-4.3	0.000
Public Sector	347	53.2%	250.2		
Private Sector	121	39.4%	189.6		
Risk Response Planning				-3.2	0.001
Public Sector	347	53.1%	246.3		
Private Sector	121	42.8%	200.7		
Risk Monitoring and Control				-3.6	0.000
Public Sector	347	53.1%	247.8		
Private Sector	121	41.1%	196.5		
All Risk Management Dimensions				-3.9	0.000
Public Sector	347	52.4%	248.9		
Private Sector	121	40.7%	193.1		

Results Interpretation: The results indicate that there are statistically significant differences in risk management practices across all dimensions between the public and private sectors, with a significance level of 0.05. The findings show that risk management practices are higher in the public sector compared to the private sector.

Do Differences Exist in Risk Management Practices Based on the Presence of a Risk Management Unit?

Table (12) presents the results of the Mann-Whitney test examining whether there are differences in risk management practices based on the presence of a unit dedicated to risk management.

Table 12: Mann-Whitney Test Results for Differences in Risk Management Practices Based on the Presence of an Administrative Unit Dedicated to Risk Management.

Dimension / Presence of an Administrative Unit for Risk Management	Count	Approval Percentage	Mean Ranks	Mann-Whitney Test Results	
				Test Statistic	Significance
Management Orientation towards Risk Management				-3.8	0,000
Yes	158	57.1	180.1		
No	162	46.4	141.4		
Risk Identification				-4.2	1,000
Yes	158	53.8	182.1		
No	162	40.3	139.4		
Risk Assessment				-4.1	0,000
Yes	158	57.4	182.0		
No	162	43.3	139.6		
Response Planning				-3.9	1,000
Yes	158	57.5	181.0		
No	162	45.1	140.5		
Risk Monitoring and Control				-4.3	0,000
Yes	158	56.4	183.0		
No	162	43.4	138.6		
All Risk Management Dimensions				-4.7	0,000
Yes	158	56.5	185.3		
No	162	43.7	136.3		

The results indicate statistically significant differences in all dimensions of risk management practices between organizations with an administrative unit dedicated to risk management and those without, at a significance level of 0.05. The results show that risk management practices are higher in organizations with such units compared to those without dedicated risk management units.

Are there Differences in Risk Management Practices Based on Training in Risk Management?

Table (13) shows the results of the Mann-Whitney test for differences in risk management practices based on training in risk management.

Table 13: Mann-Whitney Test Results for Differences in Risk Management Practices Based on Training in Risk Management.

Dimension / Risk Management Training Status	Count	Approval Percentage	Mean Ranks	Mann-Whitney Test Results	
				Test Statistic	Significance
Management Orientation towards Risk Management				-8.0	0,000
Yes	151	65.6	307.3		
No	317	43.5	199.8		
Risk Identification				-6.3	1,000
Yes	151	59.0	291.3		
No	317	40.0	207.5		
Risk Assessment				-6.2	0,000
Yes	151	62.5	290.7		
No	317	43.6	207.7		
Response Planning				-6.3	1,000
Yes	151	63.3	291.5		
No	317	44.3	207.4		
Risk Monitoring and Control				-6.6	0,000
Yes	151	63.7	294.0		
No	317	43.5	206.1		
All Risk Management Dimensions				-7.2	0,000
Yes	151	62.8	299.9		
No	317	43.0	203.4		

The results indicate statistically significant differences in all dimensions of risk management practices between organizations that train their employees in risk management and those that do not, at a significance level of 0.05. The findings show that risk management practices are higher in organizations that provide risk management training to their employees compared to those that do not.

Are there Differences in Risk Management Practices Based on the Nature of the Organization’s Work?

Table (14) presents the results of the Mann-Whitney test for differences in risk management practices based on the nature of the organization’s work.

Table 14: Mann-Whitney Test Results for Differences in Risk Management Practices Based on the Nature of the Organization’s Work.

Dimension / Nature of Organization's Work	Count	Approval Percentage	Mean Ranks	Kruskal-Wallis Test Results		
				Test Statistic	Significance	Pairwise Comparisons
Management Orientation towards Risk Management				13.3	0,001	(1-2)
1- Productive	66	61.6	290.1			
2- Service-Oriented	274	48.4	222.7			
3- Both Productive and Service-Oriented	128	49.7	231.1			
Risk Identification				4.7	0,089	-
1- Productive	66	54.2	267.6			
2- Service-Oriented	274	44.9	228.9			
3- Both Productive and Service-Oriented	128	44.7	229.4			
Risk Assessment				5.6	0,061	
1- Productive	66	58.3	269.6			
2- Service-Oriented	274	47.5	225.9			
3- Both Productive and Service-Oriented	128	49.8	234.8			
Response Planning				6.8	0,034	(1-2)
1- Productive	66	59.1	270.3			

2- Service-Oriented	274	47.7	223.3			
3- Both Productive and Service-Oriented	128	51.9	240.0			
Risk Monitoring and Control				5.2	0,067	
1- Productive	66	57.0	266.7			
2- Service-Oriented	274	47.9	225.2			
3- Both Productive and Service-Oriented	128	50.8	237.9			
All Risk Management Dimensions				8.5	0,014	(1-2)
1- Productive	66	58.0	277.5			
2- Service-Oriented	274	47.3	223.4			
3- Both Productive and Service-Oriented	128	49.3	236.0			

The results indicate statistically significant differences in the dimensions of management orientation towards risk management, response planning, and all risk management dimensions based on the nature of the organization’s work, at a significance level of 0.05. Post hoc comparisons show a statistically significant difference in these dimensions between productive and service-oriented organizations only, at a significance level of 0.05. However, there is no sufficient evidence of statistical differences in the dimensions of risk identification, risk assessment, and risk monitoring and control

based on the nature of the organization, at a significance level of 0.05.

These results suggest that risk management practices, in terms of management support and response planning, are more pronounced in productive organizations compared to other types. Meanwhile, the levels of risk management practices related to risk identification, risk assessment, and risk monitoring and control are similar between service-oriented and productive organizations.

Are there Differences in Risk Management Practices Based on Sources of Risk?

Table (15) shows the results of the Mann-Whitney test for differences in risk management practices based on sources of risk.

Table 15: Mann-Whitney Test Results for Differences in Risk Management Practices Based on Sources of Risk.

Dimension / Sources of Risk	Count	Approval Percentage	Mean Ranks	Kruskal-Wallis Test Results	
				Test Statistic	Significance
Management Orientation towards Risk Management				4.4	0,111
1- Internal	249	51.7	240.2		
2- External	48	43.6	196.0		
3- Both Internal and External	171	51.0	237.1		
Risk Identification				3.5	0,172
1- Internal	249	47.5	240.1		
2- External	48	38.5	200.5		
3- Both Internal and External	171	46.4	235.9		
Risk Assessment				3.7	0,161
1- Internal	249	50.1	235.8		
2- External	48	41.7	200.5		
3- Both Internal and External	171	51.3	242.2		
Response Planning				1.0	0,601
1- Internal	249	50.2	232.1		
2- External	48	47.5	221.3		
3- Both Internal and External	171	51.8	241.6		
Risk Monitoring and Control				3.8	0,147
1- Internal	249	50.8	237.1		
2- External	48	42.3	198.9		
3- Both Internal and External	171	51.1	240.8		
All Risk Management Dimensions				4.0	0,132
1- Internal	249	50.0	238.2		
2- External	48	42.7	197.4		
3- Both Internal and External	171	50.3	239.6		

The results indicate no statistically significant differences in the levels of risk management practices based on sources of risk, at a significance level of 0.05. This suggests that the levels of risk management practices in public and private sector organizations are similar regardless of the sources of risk.

"Are there differences in risk management practices according to the size of the organization's workforce?" Table (16) shows the results of the Mann-Whitney test to examine the presence of differences in risk management practices based on the size of the organization's workforce.

Table 16: Results of the Mann-Whitney test examining differences in risk management practices according to workforce size in the organization."

Aspect/Workforce Size of the Organization	Count	Approval Rate	Mean Rank	Kruskal-Wallis Test Results	
				Test Statistic	Significance
Management Orientation towards Risk Management:				0.7	0.694
1- Less than 50 employees	136	49.4%	231.4		
2- 50 to 250 employees	89	49.2%	226.0		
3- More than 250 employees	243	51.8%	239.3		
Risk Identification:				0.5	0.778
1- Less than 50 employees	136	44.7%	228.0		
2- 50 to 250 employees	89	45.7%	234.2		
3- More than 250 employees	243	47.1%	238.2		
Risk Assessment:				2.4	0.299
1- Less than 50 employees	136	47.2%	225.0		
2- 50 to 250 employees	89	47.3%	223.6		
3- More than 250 employees	243	51.9%	243.8		
Response Planning:				1.2	0.561
1- Less than 50 employees	136	50.0%	233.1		
2- 50 to 250 employees	89	48.0%	222.1		
3- More than 250 employees	243	51.6%	239.9		
Risk Monitoring and Control:				1.3	0.528
1- Less than 50 employees	136	47.9%	224.6		
2- 50 to 250 employees	89	49.8%	232.6		
3- More than 250 employees	243	51.3%	240.7		
All Aspects of Risk Management:				1.2	0.551
1- Less than 50 employees	136	47.8%	228.4		
2- 50 to 250 employees	89	48.0%	226.1		
3- More than 250 employees	243	50.7%	241.0		

The results indicate that there are no statistically significant differences in the levels of risk management practices based on the size of the organization's workforce at a significance level of 0.05. These findings suggest that the levels of risk management practices are similar across public and private sector organizations, regardless of their workforce size.

Risk Management Maturity Levels:

Cluster analysis was used to determine risk management maturity levels by grouping study participants into five clusters. Each cluster consists of cases that are homogeneous in terms of the five dimensions of risk management practices (management orientation toward risk management, risk identification, risk assessment, response planning, and risk monitoring and control).

Based on previous studies [29,30], risk management maturity levels were classified into five grades, ranging from one (low level) to five (high level). The cluster analysis was conducted using Ward's hierarchical method. Table (14) shows the results of the cluster analysis for the study observations.

The results indicate that the majority of organizations have a moderate level of risk management at 37.8%, followed by organizations with a very low level of risk management at 19.2%. Organizations with high, very high, and low levels of risk management account for 15.2%, 14.5%, and 13.2%, respectively. Table (14) and Figure (2) reveal significant differences in risk management levels among the five clusters, with agreement rates on all risk management dimensions ranging from 7.6% for the first cluster to 93% for the fifth cluster, which represents a very high maturity level (Figure 3).

Table 17: Cluster Analysis Results for Study Observations.

Cluster	Maturity Level	Number of Observations	Mean Approval Score for Risk Management Dimensions	Standard Deviation	Coefficient of Variation (%)
1	Very Low	90	7.6	7.5	98.2
2	Low	62	30.9	5.6	18.0
3	Moderate	177	50.8	7.5	14.8
5	High	71	73.1	5.6	7.7
4	Very High	68	93.0	6.0	6.5

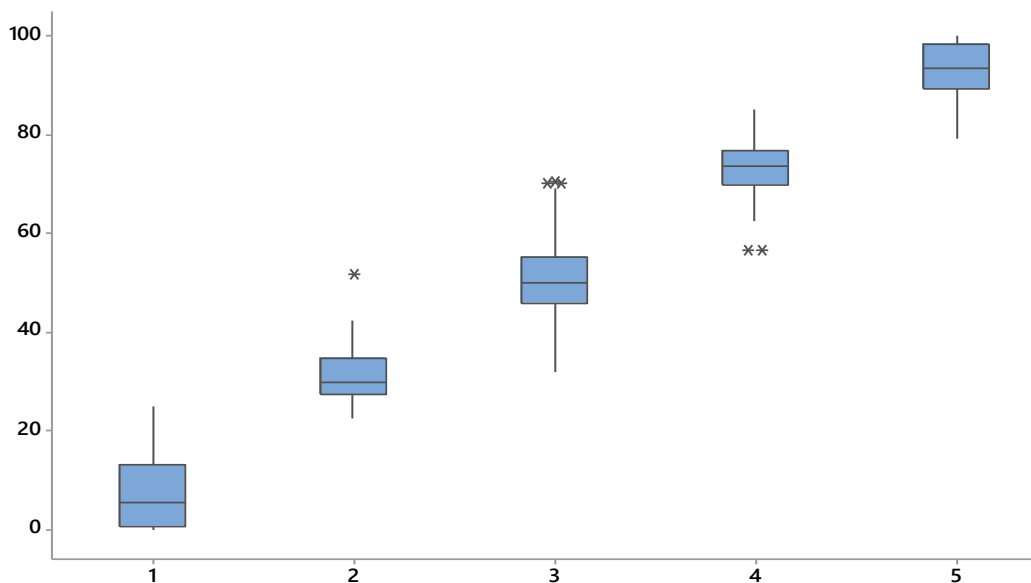


Figure 2: Box Plot of Approval Rates for All Risk Management Dimensions by Cluster

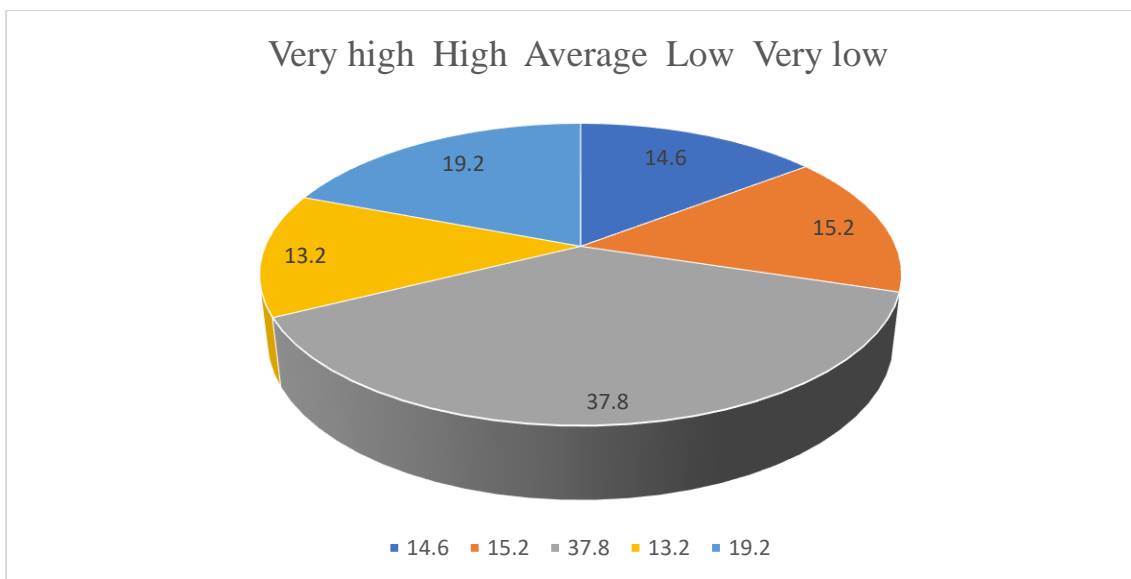


Figure 3: Relative Distribution of Risk Management Maturity Levels in Public and Private Organizations.

Risk Management Maturity Levels in the Public and Private Sectors:

Table 18: Distribution of Observations by Risk Management Maturity Levels and Sector.

Clusters (Maturity Level)	Public Sector	Private Sector	Total
	Frequency	Percentage	Frequency
1	58	16.7%	32
2	43	12.4%	19
3	124	35.7%	53
4	64	18.4%	7
5	58	16.7%	10
Total	347	100%	121

Chi-Square Test: Test Statistic = 20.6; Degrees of Freedom = 4; Significance Level = 0.000

The results of the Chi-square test indicate that there is a statistically significant relationship between risk management maturity level and sector type at a significance level of 0.05. The results show that the maturity level of risk management in public sector organizations is higher than that in the private sector. Specifically, the percentage of public sector organizations with

maturity levels ranging from high to very high is 35.1%, compared to 14.1% in private sector organizations.

Study Results and Recommendations:

The study reached several conclusions by analyzing and interpreting the data collected from the study sample. This section presents the key findings, along with recommendations

aimed at enhancing risk management maturity in public and private sector organizations in Saudi Arabia.

Study Results:

1. Nature of the Organization's Work:

- The majority of the study participants work in service-oriented organizations, with a larger proportion working in public service organizations compared to private ones.
- Most participants work in middle management roles, and a higher percentage of those in public sector organizations are in top management roles compared to those in the private sector. However, more participants in the private sector work in executive departments than in the public sector.
- Over half of the study participants work in organizations with 250 or more employees.

2. Existence of a Dedicated Risk Management Unit:

- About two-thirds of both public and private sector organizations do not have dedicated risk management units.
- More than two-thirds of study participants in both sectors have not been trained in risk management, with the public sector having a higher percentage of trained employees than the private sector.

3. Risk Types:

- Both sectors face various types of risks, with operational risks being the most prevalent, followed by other types of risks and non-compliance with regulations.
- Operational risks are the most significant in the public sector, while other types of risks are more prominent in the private sector. External strategic risks occur less frequently in the private sector than in the public sector.
- The majority of risks in private sector organizations are internal, while public sector organizations face both internal and external risks, possibly due to the complex systems and policies they are linked with.

4. Risk Management Practices:

- Most organizations do not focus significantly on promoting a risk management culture, despite recognizing the importance of having a dedicated unit for risk management.
- Most organizations in both sectors do not follow risk identification methods, do not conduct risk assessments, lack response plans, and do not monitor or control risks.
- Risk management practices are generally higher in the public sector compared to the private sector, and organizations with dedicated risk management units or those that train employees in risk management show better practices.
- Risk management practices are higher in production organizations in terms of management support and response planning, while there is a similarity in practices related to risk identification, evaluation, and monitoring across organizations, regardless of their type.

5. Risk Management Maturity:

- Five levels of maturity were identified, ranging from very low to very high.
- The results indicated variation in maturity levels, with most organizations being at an average maturity level. Public sector organizations showed higher maturity levels than their private sector counterparts, possibly due to the greater risks faced by public organizations, which led them to enhance their practices more than private organizations.

6. Recommendations:

Based on the results, the study recommends improving risk management maturity in public and private organizations through the following actions:

1. Promoting Risk Management Culture:

- Enhance the culture of risk management through training, meetings, seminars, conferences, and other innovative means.

2. Developing a Comprehensive Risk Management Guide:

- Create a guide that clarifies the concept of risk management, including definitions, types, methodologies, tools, and measurement of impacts.

3. Establishing Dedicated Risk Management Units:

- Establish risk management units in all organizations.

4. Focusing on Employee Training:

- Organizations should place greater emphasis on training employees in risk management.

5. Developing Risk Response Plans:

- Organizations should develop medium-term strategic and short-term operational plans for potential risks and ways to address them.

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