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College of management

Specialization of risk management



**The impact of applying risk management on sustainability in food supply
chains, an applied study on commercial companies in Riyadh**

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Dedication

After my tireless efforts with my thoughts and feelings to complete this thesis, I can only attribute this credit first to God Almighty, and then to everyone who stood by me on my way to what I accomplished, especially to mention:

My family did everything they could to see me so advanced in front of them today

To my professors at the university, I would like to mention in particular my project supervisor, who accompanied me from the first letter I wrote in this project to the last point.

...

Thanks and appreciation

I extend my sincere thanks to my teachers, and I especially thank my honorable professor for his guidance and advice that helped me to complete this humble project.

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The general framework of the study

1.1 Introduction

In our contemporary time, industrial business organizations seek to find new and creative ways to enhance their competitive capabilities, in light of the fierce competition that these organizations face. Competitiveness represents a major means of developing the capabilities of these organizations to achieve stability and growth in an international environment characterized by globalization, openness of economies, and liberalization of markets. Its motto is Survival of the fittest (Arab Competitiveness Report, Arab Planning Institute, 2013).

Considering the environmental dimension of the supply chain, we find that environmental supply chain management is one of the forms of environmental improvement as an initiative related to operations, which is adopted by many organizations facing issues related to the environment. Adopting such initiatives leads to reducing the loss or spoilage of the organizations' production, as well as reducing environmental pollution and reducing Costs. This highlights the environmental dimension of supply chain sustainability. (Rao and Holt 2005).

From this standpoint, we find that organizations around the world are constantly trying to develop new and creative methods in order to improve their competitiveness. "Some of these organizations are working to improve their competitiveness by introducing improvements to their environmental performance in response to the increasing environmental regulations and laws, and to meet the environmental concerns of their customers, and also to reduce the environmental impact of their production and service activities", and contemporary global changes have imposed on

Organizations compete fiercely, not only through the organizations' production of products and services, but also through world-class quality, superior service, speed, innovation, and attention to detail demanded by the champion consumer, without history, taking into account environmental factors. (Bacallan 2000.11).

Since environmental supply chain management as a model for environmental improvement is an initiative related to operations adopted by many organizations in order to confront such environmental issues, it is important to study environmental supply chain management practices, clarify and analyze their components, as well as study the relationship between these components on the one hand. And the competitiveness of the organization, on the other hand, so that we can know the extent of the relationship between these variables and elements and the extent of their influence on the other. (Bacallan, 2000)

Sustainability in food supply chains is one of the major challenges faced by businesses in Saudi Arabia and around the world. Efficient and sustainable food supply chains require a balance between meeting current and future consumer needs, conserving natural resources, and reducing negative environmental impacts. Risk management is a strategic tool that can help businesses achieve sustainability in food supply chains. Risk management aims to identify, evaluate, monitor and address potential risks affecting food supply chains, whether related to availability, quality and food security, or to climate change, natural disasters and economic events. (Carter, 2008)

Risk management is the process of analysing, evaluating, and addressing potential risks that could affect the achievement of an organization's goals. The application of risk management in food supply chains aims to identify and reduce risks that affect the continuity of food supply, product quality

and food safety. Sustainability in food supply chains aims to achieve a balance between economic, environmental and social dimensions in food production and distribution processes. Sustainability in food supply chains includes improving the efficiency of using natural resources, reducing waste and pollution, improving working conditions and social justice, and ensuring the sustainable availability of food for current and future generations. Implementing risk management in food supply chains is one of the factors influencing sustainability. By analyzing and evaluating potential risks and adopting strategies to deal with them, businesses can reduce the environmental, economic and social risks associated with food supply chains. Risk management can also contribute to enhancing the sustainability of food supply chains by ensuring continuity of supply, quality and safety of products, and controlling potential risks. (Abu seman, 2012).

1.2 Research problem

The research analyzes potential environmental risks that affect the sustainability of food supply chains, such as water and soil pollution, carbon emissions, and biodiversity loss. In addition to studying how to estimate the impact of these risks on ecosystems, agricultural activities, and food industries. Research on analyzing health and safety risks associated with food supply chains, such as bacterial, chemical, or viral contamination in food products. It can also be studied how to improve the quality of food products and control potential risks by implementing appropriate risk management practices.

1.3 Research aims

- Studying the potential impacts of implementing risk management on sustainability in food supply chains in the Kingdom of Saudi Arabia. This includes analyzing potential risks facing food chains and how they impact environmental, economic and social sustainability.
- Evaluate the effectiveness of current risk management practices in food supply chains in the Kingdom of Saudi Arabia. This includes analyzing the tools and procedures used to deal with risks and assessing their impact on sustainability.
- Providing practical recommendations to improve risk management practices and enhance sustainability in food supply chains in the Kingdom of Saudi Arabia.
- Enrich scientific knowledge about risk management and sustainability in food supply chains.

1.4 Research importance

- Researching how risk management could affect the sustainability of food supply chains in the Kingdom of Saudi Arabia. Analysing possible threats to food chains and their effects on social, economic, and environmental sustainability is part of this.
- Assess how well the Kingdom of Saudi Arabia's food supply chains are currently managing risks. This entails evaluating the methods and instruments employed to manage risks and determining how they affect sustainability.
- Offering doable suggestions to raise the sustainability of food supply chains in the Kingdom of Saudi Arabia and improve risk management procedures.
- Advance scientific understanding of food supply chains' sustainability and risk management.

1.5 Research questions

Main question: what is the impact of applying risk management on sustainability in food supply chains?

- Is there a statistically significant correlation between risk management and sustainability in commercial companies?
- Is there a statistically significant correlation between risk management and commercial companies?

1.6 Research hypotheses

- There is a statistically significant correlation between risk management and sustainability in food supply chains.
- There is a statistically significant correlation between risk management and sustainability in commercial companies.
- There is a statistically significant correlation between risk management and commercial companies.

1.7 Research Methodology:

The research is based on a descriptive and analytical approach, as it focuses on examining the theoretical foundations related to the subject by reviewing the relevant Arab and foreign references. The research also includes the implementation of a field study consisting in distributing questionnaires to different categories of the selected sample.

1.8 Study population and sample:

The population of the current study consists of all workers in food processing companies in the Kingdom of Saudi Arabia and the difficulty of conducting a comprehensive inventory of all members of the study, the study has used the method of simple random samples in order to obtain the study data and the number of members of the study sample reached 192 individuals who answered the questions of the electronic questionnaire form.

1.9 Study Tool

The study used the questionnaire form as a tool for the study, which consisted of two sections, the first section includes the personal data of the members of the study sample (gender, age, academic qualification, job title, number of years of experience) and the second section includes phrases related to the axis of strategic diversification and includes 3 dimensions and includes 15 phrases and the axis of corporate performance and includes 7 phrases and the five-degree Likert scale was used, which consists of strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1) in answering the questions of the study axes.

1.10 Previous studies

1. **Hamadneh, Omar Saad Arsan and Al Rababah, Fatima Ali Muhammad (2020).** This study aimed to know the dimensions of sustainable leadership (the economic dimension, the social dimension, and the environmental dimension), and its impact on risk management through the moderate variable of strategic monitoring, and the study adopted the factor analytical descriptive approach. The Amman Stock Exchange, the study population consisted of senior

management managers in the Jordanian banks listed on the Amman Stock Exchange, the sampling of banks is (16) banks were taken and the population of study total is (416). The study sample was selected randomly, and its number was (216) questionnaires. The response was made by (159) respondents.

The results of the study shown there are significant statistics, of sustainable leadership (the economic dimension, the social dimension, and the environmental dimension), and its impact on risk management (strategic risk, credit risk, operational risk, compliance, and legal risk) through the moderate variable of strategic monitoring (environmental monitoring, technology monitoring, Competitive monitoring). The results also indicated that the level of practicing the dimensions of sustainable leadership and the dimensions of strategic monitoring is medium, while the level of risk management practice is high. The study recommended the need to raise the level of practicing the dimensions of sustainable leadership and strategic monitoring and focus on promoting the adoption of the concepts of sustainable leadership, risk management, and strategic monitoring in an adequate manner. Complementary, because there is a positive correlation between them.

2. **Al Rawashda, Yanal Atef Salam and Al Shoura, Abdullah Ahmed Suleiman (2022).** The Study aims at identifying the impact of risk management's dimensions (risk identification, risk assessment, risk response, and risk control) on the flexibility of supply chain and its dimensions (product flexibility, supply flexibility, operations flexibility, delivery flexibility, and information flexibility) through the moderating variable of empowerment at Arab Potash Company. The study population included all administrators (high and middle levels) at the

company who amounted to (135) staff. The study adopted the descriptive analytical approach, and a questionnaire was developed as a tool for collecting the main primary data by conducting a comprehensive survey. Subsequently, a (135) questionnaires were distributed, while (122) valid, for analysis, responses were retrieved, with a rate of (90.3%) of the distributed questionnaires. The analysis was done using (SPSS) analytical tool. The study has revealed several results, most notably that there is a statistically significant rat at a level of ($\alpha < 0.05$) for risk management's dimensions (risk identification, risk assessment, risk response and risk control) on the flexibility of the supply chain at the company. Further, the study results have clearly shown an increase in the level of the relative importance of the moderating variable of empowerment at the Company from the study sample point of view.

The study has also concluded several recommendations, most notably: increasing the interest of the Arab Potash Company in identifying risks by reviewing its scientific standards; paying more attention to defining the risk matrix; reviewing it periodically by a specialized team; linking it to the strategies applied in the company; the need to improve the involvement and participation of administrators in decision-making processes; and solving problems through various channels; in addition to the importance of implementing fair incentive and promotion system to support the creative ideas and efforts of administrators, as well as the need for the company management to identify better alternatives to face potential risks without disrupting its activities; and to improve cooperation at all administrative levels.

3. **Baqir, Wafa Jassim Ali Abbas Artima Hani Jazaa Abdul Karim, and Al-Hawari Samer Fawaz (2020).** The Study aims at identifying the impact of risk management's dimensions

(risk identification, risk assessment, risk response, and risk control) on the flexibility of supply chain and its dimensions (product flexibility, supply flexibility, operations flexibility, delivery flexibility, and information flexibility) through the moderating variable of empowerment at Arab Potash Company. The study population included all administrators (high and middle levels) at the company who amounted to (135) staff. The study adopted the descriptive analytical approach, and a questionnaire was developed as a tool for collecting the main primary data by conducting a comprehensive survey. Subsequently, a (135) questionnaires were distributed, while (122) valid, for analysis, responses were retrieved, with a rate of (90.3%) of the distributed questionnaires. The analysis was done using (SPSS) analytical tool.

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company management to identify better alternatives to face potential risks without disrupting its activities; and to improve cooperation at all administrative levels.

4. **Nizar Iman and Omani Lamia (2019).** The aim of this study was to test the relationship between the adoption of ESG criteria in the granting of credit and risk management in banks based on the questionnaire, The number of questionnaires was 35, distributed among the main employees of commercial banks operating in Hassi Messaoud, Ouargla governorate during 2018-2019. The results and findings of this research pointed that is a tendency to adopt the ESG criteria in the administration and when granting credit through the following criteria of governance, And that banks sample the study concerned with risk management through quantitative and conventional indicators, While non-quantitative indicators are still in the early stages of attention, and We found a statistically significant relationship between the ESG and risk management model through the effect of social criteria on the variable "risk management in the banks under study. The results of the analysis of the unilateral variance showed that there are no statistically significant differences In the application of risk management, While there are differences in adopting the ESG model among commercial banks under study.
5. **Ittihad Muhammad Qasim Ahmed, and Al-Baadani Fouad Muhammad Qayed (2022).** The research aimed to plan scenarios for risk management in Yemeni universities, and the researcher used the mixed approach. The research sample in the qualitative part consisted of a mixture of the intentional sample and the snowball sample of academic and administrative leaders in Yemeni universities. They numbered (15) participants for a semi-structured interview with them. Analyzing the interview data, in light of which the questionnaire was

designed, and it consisted in its final form of (98) items, which included thirteen domains distributed on two axes and represented the quantitative part, which was applied to a non-random sample of experts, and they numbered. (22) experts, and the MAXQDA 20 program was used as a program An assistant in the analysis of qualitative data, and the statistical package for social sciences SPSS 24 program for the analysis of quantitative data.

The researcher reached a number of results and conclusions, the most important of which were: The reality of risk management in Yemeni universities was shrouded in a kind of randomness and ignorance of risks or neglect of them; There was no crisis and risk management in its organizational structures, and it lacks plans and scenarios to confront crises, which led to their exacerbation and transformation into risks that affect their position and cause material and human losses. Weakness in the technological infrastructure, the absence of the effectiveness of the university media department in warning of the risks it may face, and the absence of a culture of risk management among its members. It also concluded that there were (60) critical factors, in addition to the existence of a number of general trends, which amounted to (16) factors, and four scenarios for risk management in Yemeni universities were presented, represented in the scenario of mitigation, control and reduction, participation, and acceptance.

6. **Muhammad Khatam Suleiman Dalil and Pope, Essam El-Din Abdel-Wahab Muhammad (2019).** The research tackled the influence of Value Added Tax on Reinforcing the financial sustainability and diversifying revenues. which increases the capacity of the state to meet the growth of public expenditure and allocation and distribution of resources to support the

economic sectors of the national economy and the service of income distribution issues to address the retroactive impact of taxes. The research problem was the limited tax structure and its inability to compensate for the gap in tax revenues as a result of the policies of international trade liberalization. The research aims to identify the attempts made to develop the value-added experiment, focusing on the experience of its application in Sudan. Researchers follow the descriptive approach to demonstrate the impact of value-added tax on issues of financial sustainability and income diversification.

The researcher reached several results, the most important of which is that the value-added tax leads to increasing public revenues and improving export competitiveness, as well as a positive relationship between the volume of revenue generated from VAT and the level of productivity, aggregate demand and national output rates, as well as its role in supporting the national economy through mobilizing resources due to its substantial contribution to the public revenue structure. The researcher recommends reviewing the tax categories to match the level of tax energy for fear of negative impact on income levels and the size of economic activity in addition to increasing the use of VAT as a tool for the protection policy of national products and review and reduce tax exemptions and the dissemination of tax culture and linking them with national concepts and further deepen the principle of substitution that characterizes VAT.

7. **Study Abd El-Kader, E. H., and El-Sakty, K. (2022). Entitled The Effect of the COVID-19 Pandemic on Food Supply Chain Disruption in Developed Countries.**

This study is a pioneering attempt to uncover the ramifications and effects of COVID-19 on the food business in developed countries. The purpose of this study is to describe how the new Coronavirus affects the food supply chain process in developed countries. Research Methodology: A study of 15 industry papers was undertaken and classified into two key themes: the effect of each step and the overall effects on all stages, with each further segmented into additional themes. The systematic review is further backed by foreign case studies. The findings suggest that businesses are shifting to localization, focusing on tier-1 supplier risk, e-commerce, modifying inventory management, and exploring alternate sources of supply to mitigate disruptions to their business operations caused by the COVID-19 epidemic. Research recommendations: It is advised that more attention be paid to protecting the food supply against disruptions and improving the design of the food supply chain in the future. Furthermore, resilience in the food supply system should be enhanced in the future. Supply chain enterprises can apply the countermeasures outlined in this paper to reduce the impact of COVID-19 and make the most of this pandemic.

8. Abu Nasra's study (2020) entitled The Impact of Strategic Planning on Risk Management in Jordanian Commercial Banks.

The study aimed to identify the impact of strategic planning with its dimensions (mission, goals, strategy, and Policies) on managing risks with their dimensions (understanding the risks, identifying risks, assessing risks, and monitoring risks) in Jordanian commercial banks. The study population consisted of all the managers in the Jordanian commercial banks, as a simple random sample was drawn from the study population, which has reached its number (340) elements. The researcher used the descriptive analytical method, and developed a

questionnaire as a tool for data collection consisting of (52) paragraphs. Several statistical methods were used, including arithmetic averages, standard deviations, t-test for one sample, and multiple-regression analysis. The study reached the following most important results: The presence of a statistically significant effect of strategic planning (mission, goals, strategy, and policies) in risk management in Jordanian commercial banks, the presence of differences in respondents' perceptions towards risk management according to gender (male), and the presence of differences in respondents' perceptions towards risk management according to age, and the absence of statistically significant differences for risk management according to the variable of educational qualification, and the existence of differences in the respondents' perceptions towards risk management according to experience and job title.

9. Omar and Al-Farra's (2019) study entitled The Impact of Risk Management on Institutional Excellence at Al-Aqsa University in the Gaza Strip.

This study aimed to identify the impact of risk management on the Organizational excellence of Al-Aqsa University in the Gaza Strip. The population of the study consists of supervisory and administrative positions. The researcher used the Complete Consensus for the study population, where 198 questionnaires were distributed and 179 questionnaires were retrieved, with an average of 90.4%, the study used the descriptive analytical method, the results are as follows: The respondents had an average percentage of the risk management skill, which includes (risk identification risk analysis risk assessment risk treatment policies-follow-up and periodic monitoring). Al-Aqsa University applies an average level of standards of institutional excellence according to the European model of excellence, which includes: (Leadership - Human Resources Policies and Strategies Partnerships and Resources Processes

Staff Satisfaction Satisfaction of the target group Community Service Performance Results and Indicators).

There is a correlation of statistical significance at the level of significance ($\alpha \leq 0.05$) between the two dimensions, risk management and institutional excellence at Al Aqsa University in the Gaza Strip. As the findings showed that risk management has an impact with a correlation of statistical significance at the level of significance (50.05) on institutional excellence. There are no statistically significant differences at the level of significance ($\alpha \leq 0.05$) among the respondents' average responses on risk management and institutional excellence due to personal factors, (gender, age, supervisory level at university, educational qualification, years of experience).

The need to pay attention to the skill of risk management, due to the conditions in the Gaza Strip, which reflect many benefits on the educational institutions. With the need for an integrated system to control the risks of the university and conduct periodic studies to demonstrate the efficiency of the risk management system used in encountering emergencies. Establishing an independent department called "Risk Management", inside the Deanship of Quality Assurance, Reviewing the University's strategic plan and working on launching a quantitative and qualitative risk characterization system, while clarifying the procedures used to encounter risks. Working with other institutions with high rankings in order to transfer their experience of excellence to Al Aqsa University, which reflects positively on the level of excellence of the university among other universities, there is a need to adopt the European Excellence Model because of its role in ensuring the continuity of excellence through self-

evaluation and knowledge of their shortcomings Institutions, taking into account the balance between the needs and desires of stakeholders.

10. Al-Rbh's Study (2019), entitled Modern trends in internal auditing and their role in activating risk management, a field study on a sample of Sudanese banks.

The problem of the study was the role of modern trends in internal auditing through (governance role advisory role adding value) in risk management? The importance of the study is to explain the importance of modern trends of internal auditing in the banking environment because of the positive effects in Risk management, the establishment of an integrated framework for the tasks carried out by the internal audit function in light of its contemporary trends, thus contributing to the improvement of risk management. The study aimed to study and analyze the relationship between the role of internal audit and risk management, In order to achieve the objectives of the study and solve the problem, the study tested the following hypotheses: There is a statistically significant relationship between the internal role of the internal auditor in risk management. There is a statistically significant relationship between the advisory role of the internal auditor In risk management, there is a statistically significant relationship between adding value to the internal auditor in risk management.

The study has reached several conclusions, including: The role of the internal audit system helps the bank's management to cooperate and exchange information as quickly as possible, enabling it to address the risk losses it faces based on its available possibilities. The scientific methodology of the recent trends of internal auditing affects the assessment of risk management in banks. The Bank is guided by the opinions of financial experts and consultants

in selecting alternative accounting policies to assist in assessing the risk of size, risk, returns and costs. Léger followed in risk management, which contributes to the reduction of risk.

11. Abu Jahl's study (2019) entitled The Impact of Applying Project Evaluation Criteria on the Sustainability of Funding in Civil Society Organizations Operating in the Gaza Strip: An Applied Study.

This study aims to find out the impact of applying the criteria of projects' evaluation (Relevance criterion, Efficiency criterion, Effectiveness criterion, Impact criterion, Sustainability criterion) on the sustainability of funding in the Non-Governmental Organizations (NGOs) in the Gaza Strip. The researcher used the descriptive analytical approach. A questionnaire was designed as a main data tool. A Comprehensive listing was also used for exploring the opinions of the study's population that consists of (130) persons of the executive directors, project managers and project coordinators who working in the NGOs in the Gaza Strip. The received questionnaires were (95) representing a response rate of (73%). The research concludes that there is an impact of applying the criteria of projects evaluation on the sustainability of funding in the Non-Governmental Organizations (NGOs) in the Gaza Strip. Also, it shows that there is a significant positive impact of the criteria on the sustainability of funding in the NGOs in the Gaza Strip, where sustainability criterion is the first ranked, followed by impact criterion, effectiveness criterion, efficiency criterion and the suitability criterion respectively.

The research introduces a set of recommendations, among which: The research recommends adhering the criteria of projects' evaluation as a part of the association's culture. In addition, it recommends to reduce the reliance of external support (donation) by implementing support

income-generating projects that sustain the institution's work and to re-activate the government role through allocating part of its general budget to support the NGOs sector. The study also recommends donor organizations to grant balanced funding opportunities to all NGOs, each according to the field and specialization of work and to prevent the accumulation of work in some NGOs without other NGOs working in the same field.

12. Al-Jamasi's study (2022) entitled The Impact of Applying Governance Principles on Achieving Financial Sustainability: A Field Study on Banks Listed on the Palestine Stock Exchange.

This study aimed to identify the impact of applying the principles of governance (existence of an effective regulatory and legal framework for governance, protection of shareholder rights, protection of the rights of stakeholders, transparency and disclosure, responsibilities of the board of directors, equal treatment of shareholders) on achieving financial sustainability through a field study on the banks listed in Palestine Stock Exchange. The study population included the employees of the banks listed on the Palestine Stock Exchange in the southern Palestinian governorates, represented in (Bank of Palestine, Al- Quds Bank, Palestine Investment Bank, Palestinian Islamic Bank, Arab Islamic Bank, and Islamic National Bank), and their number is (990) employees. The researcher used the simple random sampling method, and the study sample included (277) individuals, according to the sample calculation equation. The researcher distributed (277) questionnaires to (managers, financial managers, auditors, accountants, and administrators), and the number of questionnaires retrieved was (260) questionnaires, with a retrieval rate of (93.9%). The researcher used the descriptive analytical method. The study found that the level of application of corporate governance

principles in the banks listed on the Palestine Stock Exchange came to a large degree, with a relative weight of (82.9%), and that the level of achieving financial sustainability in the banks listed on the Palestine Stock Exchange obtained a very large degree, with a relative weight of (85.3%). The study results showed that there is an impact of applying the principles of corporate governance (existence of an effective regulatory and legal framework for governance, protection of shareholders' rights, protection of the rights of stakeholders, transparency and disclosure, responsibilities of the board of directors, and equal treatment of shareholders) on achieving financial sustainability in the banks listed on the Palestine Stock Exchange. There were no statistically significant differences between the averages of the respondents responses about the principles of corporate governance and achieving financial sustainability in the banks listed on the Palestine Stock Exchange due to personal variables (gender, age, years of service, educational qualification, and job title). The study recommends the application of the principles of corporate governance in the Palestinian banks in the Gaza Strip because of their significant impact on the financial sustainability of the banks, and the need for the supervisory and regulatory authorities in the banks to enjoy integrity and objectivity, in addition to the need for the banks to issue supervisory and regulatory decisions in a timely and transparent manner by the banks.

13. Imran study (2022). Titled: The Role of Good Lending Programs in Achieving Financial Sustainability for Small Enterprises, An Applied Study on the Palestinian Investment Promotion Authority.

The present study aims to identify the role interest-free (Qard Hasan) lending plays in achieving financial sustainability of Small Enterprises (SMEs) (An Applied Study on the

Palestinian Investment Promotion Agency). The researcher adopted the quantitative approach to identify the study variables, analyze the data, and discuss the relationship between the variables and their effects. In addition, the researcher adopted the descriptive analytical approach and distributed a questionnaire to the study sample consisting of 200 small and medium-sized entrepreneurs. The Palestinian Investment Promotion Agency should provide suitable funding for the projects which can sustain their continuity in the Palestinian market particularly in the light of the strong competition. The Agency should ensure the availability of competent human professionals who can carry out the project activities. These professionals should contribute to achieving financial sustainability.

The Agency should test the efficiency of the financial management of the funded projects through continuous follow-up. The Agency should provide training for entrepreneurs, particularly in financial management before the implementation of the projects. This aims to support the entrepreneurs in successfully managing their projects and promoting the project. efficiency and ability to achieve financial sustainability. The Agency should encourage investment by conducting a project technical and economic feasibility study to ensure suitability to investment. The Agency should reconsider projects funding policies particularly in relation to the projects grace period before repayment period. The grace period should take into consideration the time the project needs to achieve returns to pay the installments.

The Agency should reconsider its policies on the amount of the monthly installments and the repayment period. The policies should take into consideration the projects. ability to achieve cash flows to pay monthly installments without affecting the projects financial sustainability.

Entrepreneurs should apply methods which help achieve suitable purchasing to ensure the continuity of project activities.

14. Jaradat's study (2022) entitled The impact of integrating supply chain management practices and total quality on competitive advantage in Jordanian food industry companies.

This study aimed to highlight the effect of integrating supply chain management practices (SCMP) and total quality management practices (TQMP) on achieving competitive advantage in Jordanian food industries companies. In addition to employing integration as a mediator between the supply chain, total quality and competitive advantage. This study came to address the poor competitiveness of the Jordanian food industry sector locally and internationally by integrating between supply chain management practices and total quality to reach a more competitive sector. The study population consisted of 13 companies that were randomly selected in each of the governorates of Irbid and Amman. The final study sample consisted of 347 employees included all job levels in the targeted companies. Based on the literature, the researcher developed a questionnaire to collect data, and it was delivered to the study sample both on the ground and electronically.

The Statistical Analysis Package for Social Sciences (SPSS) was utilized to analyze the data and answer the research questions and hypotheses. AMOS program was used to analyze the data and extract the critical route in this study. The main findings of this study indicated that there is a positive and statistically significant impact of supply chain management practices on achieving competitive advantage. As well as the existence of a positive and statistically significant impact of total quality management practices on achieving competitive advantage,

and also the presence of a positive and statistically significant effect of integrating supply chain management practices and total quality management practices on achieving competitive advantage. In addition, the results also revealed that the integration between SCM and TQM as a mediator between supply chain, total quality, and competitive advantage is partially significant.

The researcher recommends the necessity of applying the integration between supply chain management and total quality in the food industry companies in order to be able to achieve a sustainable competitive advantage. The researcher also recommends conducting more studies on the concept of integration in other industrial sectors in Jordan.

15. Al-Khatib's study (2023) entitled The Impact of Critical Success Factors on the Sustainability of Entrepreneurial Projects in Jordan.

The study aims to identify the Critical Success Factors (CSF) of the entrepreneurship on its projects sustainability in Jordan. The sampling technique is through selecting the study sample individuals from the original community, and selecting the convenient sample in the central region. The adopted facility in this study is the analytical unit, in which a simple random sampling was taken from the data. The study community consists of those who work in the sector of entrepreneurship projects in the central's region with a total number of (2050), in (70) companies according to the (Start up.jo) website. The total number of the valid questionnaires for analysis is (316). The study relied on the quantitative methodology through the study tool (questionnaire), as well as the qualitative methodology through the semi-structured interviews for data collection. The study concluded a number of results and findings; mainly the importance of the implementation level of Critical Success Factors (CSF)

for entrepreneurship in all its dimensions of (Higher management, strategic flexibility, strategic thinking, information technology and strategic direction) in Jordan is generally high, Where the results of statistical test for hypotheses shows that there is statistically significant effect for (CSF) all combined on the sustainability of the entrepreneurial projects. The study recommended mainly to working on developing the legislations and strategies required for regulating the work of the entrepreneurial projects sector, which are needed to provide a business environment.

16. Al-Qutaishat's study (2023) entitled The Impact of Support from Donors on the Sustainability of Projects: A Case Study in Non-Profit Organizations in Jordan.

The study aimed to find out the impact of support provided by donors with its dimensions (Financial Support and In-Kind Support) e sustainability of Non-Profit on the Organizations' projects in Jordan with dimensions (Economic, Social, and Environmental). This objective leads to a set of goals, including identifying the level of sustainability of Non- Profit Organizations' projects in Jordan, in addition to analysing the dimensions of project sustainability and the degree of impact of support provided by donors on these dimensions in Non-Profit Organizations in Jordan, and showing the impact between the support provided by donors and the dimensions of sustainability of Non-Profit Organizations' projects. The study relied on the quantitative methodology as well as on secondary and primary sources to gather information. A study tool (questionnaire) was developed as the primary tool for collecting primary data and distributing it to the study population, which consisted of all Non-Profit Organization managers, department heads, and administrative staff, with a total of 6,682 organizations and 39,410 community members. A sample size of 380 was distributed,

and 354 were retrieved, with a recovery rate of 92.4%. Data analysis was conducted using the Statistical Package for the social sciences (SPSS) and various statistical methods. The study reached several results, including the rejection of the null hypothesis and acceptance of the alternative hypothesis, which states that "There is a statistically significant effect of Financial Support and In-kind Support provided by donors on the sustainability of Non-Profit Organizations' projects in Jordan in their Economic, Social and Environmental dimensions." The study also found that there is a high level of satisfaction among participants regarding the Financial Support and In-kind Support received by Non-Profit Organizations in Jordan from donors.

Theoretical framework

The risk factor is the global category that characterizes the management system at the level of goal orientation, such as problems in production plans and delivery time. Risk sources are specific events that may be caused by risk factors. The dangerous situation characterizes the state of the system in the possibility of the emergence of risk sources and their direct impact on administrative systems. Risk is an individual assessment by a person of a negative outcome in an event that led to losses. Gostl & Schwaiger, 2020, adds a precise definition of risk to the definition of risk. It is ultimately a characteristic. For any business area, risk is an integral characteristic of any process or system that is managed for a major problem in economic performance. To maintain organizational stability and for risk analysis, the following main categories have been introduced: risk factor, risk source, risk condition, and dangerous situation.

2.1 The concept of risk management processes

A risk situation means a situation when the active influences of risk sources cause disturbances and deviations in the work system, and the problem of supply chain operation in terms of risk consists of following the main stages of identifying risk factors, sources of risk and danger, identifying situations and determining the interconnection between the apparent risk situation and changes in the system's operating parameters. How to make decisions about finding compromise solutions in the supply chain if the risk becomes far-reaching.

Creating reserves of time and money to reduce threats is one of the most important goals mentioned by (Pritchard, 2015) because it is part of risk management in organizations and projects in

which it cannot be confirmed that the organizational and organizational risk limits of projects or institutions are not breached as part of project planning and management. The importance of planning risks in a reasonable and frequent manner, on a regular basis and at certain intervals, and more clearly to assess risks and comprehensively manage the plan, prepare for decision points, major changes, and evaluations and follow them directly.

Significant unplanned change and its impact also occur. Most projects and organizations are guided by a series of plans that provide the rationale and processes by which actions will be implemented. A risk management plan is part of a set of guiding documents.

The components of enterprise risk management are considered emanations from enterprise risk management and methods, leading to integration in the management process (COSO, 2004). These methods and components are internal environment, goal setting, event identification, risk assessment, risk response, counter information and communication activities, and monitoring.

Such a plan will disseminate the results or latest status of the risk management planning process. Compared to some other plans, risk planning is not developed as far as content and form are concerned, which allows project managers in some latitudes, to create documentation that suits their situation in a single approach to the content of the risk management plan.

Ayşe Kucuk Yilmaz (2018) defines risk management in a comprehensive manner in organizations through identifying risks and identifying or prioritizing them, either through forecasting or after a disaster, or through management activities over a long period. Risk is addressed through insurance or other financial solutions Although practices have not progressed uniformly, across

different industries and different organisations, the general evolution towards ERM can be characterized by a number of driving forces.

The development of any organization's activity under the influence of market and technological change, which in turn is subject to economic, political and social environments, brings about unexpected changes in these "environments" and affects the performance of organizations, and is defined as deviations from the initial risk plans (Boghean, 2015). There are five types of risks. Strategic risk, compliance risk, operational risk, financial risk, and reputational risk (Blackman, 2014). Strategic risks in the business environment include state risks, financial markets, economic environment, investor sizes, and lenders.

(Fadun, 2013) considers that economic fluctuations give risk management a focus and something new for successful companies that are able and willing to integrate risk management effectively, at all levels of the management process, and what is important is to highlight the importance of effective risk management in preventing risks and management failure.

Its main goal is to increase the value of partners and shareholders (Sobel & Reding, 2004). Business partners and competitors in the regulated environment in the competition sector, regulation and licensing bodies for commercial relations, reputation, opinion trends, licensing bodies and elected representatives are a new product as the equation for assessing and managing risks appropriately (Aven, 2016). The concept of integrated risk management, often identified as enterprise risk management, is increasingly gaining ground (Drogan & Kot 2015). This is achieved by improving capital efficiency and by providing an objective basis in allocating corporate resources that rely on risk management. The company also develops a sophisticated risk management strategy. When

developing the strategy, the company must indicate the goal of risk management, identify risks, conduct measurements, propose risk mitigation tools, monitor and control risks, and establish a coherent risk management system. Risk management is not directed at the entire company, but it is effective in the way that it supports the implementation of the evolving strategy, and these signals indicate the need to adjust assumptions, financial flows, and programs (Drogan & Kot, 2015).

The theory of risk in economics, as an economic category, can be analyzed in a variety of fields across many dimensions. At the same time, it would be difficult to assign such analyzes to sciences, such as management, economics or finance. Therefore, risk is an interdisciplinary category. Tworek (2010) explains that risks are a widespread and dynamic phenomenon that occurs in commercial activities, is associated with potential losses, and indicates a high severity. Risks usually have a wide range of impacts and extend over time and the situation in the public sector is slightly different; This is because public institutions need to avoid potential losses (Rackowski, 2018).

Rackowski (2018) considers that technological progress has begun to estimate risks more and use numbers in an explicit and accurate way. The difficulty here lies in the nature of risks, that is, a complex and multidimensional phenomenon. After risk is an interdisciplinary category, risks are addressed by a wide range of sciences, for example technical, social, natural and medical. In general, there is no scientific discipline in which risk does not exist in one form or another.

With the spread of risks in places where institutions and commercial or public sectors operate, we cannot be completely certain that there are no new risk factors occurring in commercial activities, and it is not possible to find two completely identical sectors exposed to the same types of risks,

because in one institution or economic sector Some sections are more and some are less risky. Almost every industry has its own risks that must be addressed.

Risks as explained by Raczkowski (2018) have been the focus of research around the world for many years, leading to different explanations. One of the reasons why risks are so difficult to explain in science and in business, risks are managed using a wide range of applicable methods, techniques and tools depending on the size and type of operations applied by a particular organization or sector. Risk management in the commercial sector differs significantly from risk management in the public sector, and in recognition of the different goals pursued by entities operating in the private and public sectors, risks can be analyzed in the macroeconomic, mesoeconomic, and microeconomic dimensions.

Therefore, there is a connection between general and commercial risk categories, and higher global risks in the public sector lead to specific consequences for business entities, including negative financial impacts. Likewise, higher global risks in the economy result in higher individual risks to which these entities are exposed. Institutions or sectors. Thus, there is a need to adopt a comprehensive approach to dealing with risks and define some global risk management rules. With regard to entities operating in the public and private sectors, risk management is translated into information and is then sought in all commercial enterprises, as well as public organizations and institutions. These entities must be able to identify risks, analyze them, and then respond to them in the correct way in order to achieve their goals (Raczkowski, 2018).

2.2 The importance of risk management processes

Raczkowski (2018) focuses on the importance of risk management processes first through the problems of risk management methodology and often the unpredictability of risk, the difficulty of changing it, potential events and their effects. When determining risks, it is advisable to link the objective element, in determining any risk using the concept of accuracy, and transform it into a subjective element linked to uncertainty, as risk is an objective connection in the commercial sector that means maximizing value, while for consumers and clients it is one of the factors for increasing public value, including This includes customers' trust in the authorities.

Risk is defined first through risk as a negative phenomenon in the sense that the threats of the negative dimension resulting from distance from the goal, the possibility of making a wrong decision, and the threat of achieving a negative outcome while linking it with uncertainty, while risk is objective and this approach provides the basis for insurance theory, with the presence of concepts such as Random event, accidental accident, damage and danger, risks of a material and moral nature.

To know the characteristics of risk, which Raczkowski (2018) is an inherent characteristic of any business activity, and a potential source of losses or gains, risk as a negative term in the economic sense and its positive counterpart (opportunity). Risk is the connotation of uncertainty that is always accompanied by uncertainty in the statistical phenomenon, and when risk is defined as a dynamic risk, the risk is considered dynamic and a category closely linked to actions. When defining risks, subjective and objective elements can be distinguished, as loss means the direct impact of the risk on the risk mechanism, which is $\text{risk} = \text{uncertainty} + \text{loss}$. This equation results largely from the practical aspects

of risk management. Risk in business activities means an unexpected increase in the costs of operations. Entity.

Given the growth of the public sector alongside the private sector, as emphasized by Komorowski (2012), and as a result of the implementation of measures based on budgetary activities. Therefore, obtaining knowledge of the requirements of economic growth in the context of public funds, one can become to take advantage of all channels of information transfer between these two sectors (public and private). The prevailing principle that is adopted is applied to focus on learning from customers and what their needs and expectations are, and working collectively with communities to search for alternative methods, refining and enhancing the performance and effectiveness of the state in a manner appropriate to the capabilities resulting from the specifications, under conditions that guarantee fair competitive rules and strong institutional and social control. , regarding areas likely to be accomplished more effectively in the future continues (2008, Najnigier). Accordingly, the decision-making process in conditions of uncertainty and risk depends on theories. Unlike probability theory, there is the possibility of choosing one of many possible courses of action. Risks are considered accompanying or simultaneous with decision-making problems. Risks are a sign of uncertainty and uncertainty is associated with work. Always in risk, as it can be assumed that risks result from uncertainty, so high risk is a narrower term than uncertainty. Hence, risk can even be considered an effect of uncertainty and as such, risk changes go hand in hand with uncertainty.

Risk can also be treated as a sum of the uncertainties and losses to which a particular entity is exposed (Jannadi and Almishari, 2003), but risks in which there is no certainty. Regarding the consequences of the decision, the risks in such decisions may appear independently (in probabilistic

situations or in relation to uncertainty in the strategy), and the analysis of decision-making tasks must be coupled with an analysis of the environment in which these decisions will be made, which is uncertainty, and dynamic (changing).) and complexity, especially the neoclassical framework for defining risk. Risks related to business activities require a reference point, such as a profit category and its value in changing uncertainties. Risk is not the same as uncertainty, it is uncertain and measurable, and the tendency to risk is determined by the value of expected profits. . (Raczkowski, 2018).

The theory of economics in which the division of decisions made in conditions of uncertainty and situations in which decisions may be made is made according to (Williams et al. 2002), which basically means that there are no uncertainties, and there are mutual interactions and dependencies between them, the three most important conditions. This division is related to the amount of information about the future that the decision maker possesses, which means the complete lack of information, the complete information given by an event that must happen, and the incomplete information about the probability of risks occurring, because the future means uncertainty.

The importance of continuing to develop enterprise risk management practices in finding compatibility between contingent factors and enterprise risk management practices in companies is that the approaches (Mikes & Kaplan (2014) and (Göstl & Schwaiger, 2020) for risk management are largely unproven and still emerging. Appropriate proposals should be established that will lead to results, while aiming to build a theory of continuity that suggests that risk management will be most effective when it is consistent with the inherent nature and ability to control the different types of risks of the organization. Mikes & Kaplan (2015) explain that these risks are, in addition, closely linked to the company's strategic choices. Therefore, they are linked to the risks of implementing the strategy.

The organization's culture, risks, and adherence to integrated instructions serve as a control model for these risks. Therefore, it is stated that the guidelines, mission statements and values, as well as the rules and code of conduct, and any beliefs and systems that serve as the first line of defense to prevent risks and events, are accepted by companies and that the risks of implementing the strategy are necessary to obtain the potential gains and achieve the high returns expected through managing these risks.

The risks that companies bear through their research and development activities are typical and the risks of implementing the strategy are typical and aim to achieve high returns. It is important to reduce the likelihood of these risks, and to improve the organization's ability to contain and control risks. Therefore, strategy implementation risk management control models are supposed to include reactive controls to focus on enabling organizations to undertake higher risk strategies more efficiently in order to achieve superior returns rather than preventing organizations from undertaking risky projects *ex ante* (Mikes & Kaplan 2012; Mikes & Kaplan, 2014; Mikes & Kaplan, 2015) (Gostl & Schwaiger, 2020) adds that monitoring operational processes, internal controls, and internal auditing complement the critical rules-based control model in seeking to reduce the probability of preventable risks to zero. The risks of implementing a strategy to achieve significant strategic returns. Sources of external risks are also competitive risks that include the emergence of disruptive technologies and radical strategic moves by industry players such as customers, suppliers and competitors.

Because external risks are beyond an organization's control, external risk management control models should focus on identifying risk events, assessing the potential impact, and formulating risk reduction strategies that determine the organization's resilience in the event that risk events occur. This can be done, through the use of experience, intuition and imagination. The process of risk perception

is crucial in order to envision potential future disaster scenarios. Otley (2016) suggests that the effectiveness of a regulatory control system as a regulatory control system is not related to the correspondence between its design and use and the inherent nature and control of types. The risks faced by the organization. Effective control systems balance unlimited opportunity and limited interest, intentional and emergent strategy, self-interest and the desire to contribute.”

2.3 Characteristics of risk management processes

(2020, Olson & Desheng Dash Wu) defined the process as a (process) in risk management and a means of implementing the risk management plan. Risk management is the identification of the nature of the underlying risks that give rise to risks. Risks should be quantified through disciplined risk assessment to include establishing the linkages that lead to risks. To manage risks effectively, approaches must fit the needs of the decision environment, and appropriate management policies and procedures should be integrated with What is the ongoing assessment and coordination of risks, which is the opinion that is consistent with (Kleindorfer and Saad, 2005).

(2006, Cucchiella and Gastaldi) explained that the process of supply chain risk management explains in the analysis, that is, the process of examining the structure of the supply chain, its appropriate performance measures, responsibilities and identifying sources of uncertainty, meaning that the focus is on the most important points in the chain, and the importance of studying risks is In identifying risks in sources of uncertainty, controllable risk management in developing strategies, allocating the most appropriate real option, defining strategies for each risk, and implementing these integration processes with general risk management processes compatible in the working mechanisms presented by (Hallikas et al., 2004). al) as foundations for defining risks, including recognizing risks,

identifying failures, identifying negative consequences, safe preparation and planning, (estimating) and evaluating risks, describing and estimating risks, estimating probabilities, assessing the importance of risks, and acceptability of risks and costs.

Reaching the importance and benefit, through analysis in choosing an appropriate risk management strategy. and implementation in partnerships related to security and regulatory adaptation. The importance of achieving risk reduction in the application of communications and information technology. The risk identification mechanism in this process is determined by risk managers, and they must decide which methods should be used to correctly identify risks through checklists, procedures and instructions to reduce risks and reach nothingness on an ongoing basis, and risks can be predicted and prevented (Raczkowski, 2018).

In risk identification processes, FERMA (2002) adds the need to refer to checklists of procedures and instructions, and risk managers in public institutions may also make use of other techniques, for example brainstorming, desk research, internal audit and controls, and risk and operational study (HAZOP). Or business analytics, which addresses specific areas of an organization's operations by describing internal processes as well as external factors that may affect these processes. After identifying risks, stages and procedures are analyzed and evaluated.

Raczkowski (2018) supports that due to difficulties occurring during risk assessment in the public sector, it is therefore highly desirable to follow the complementary approach to risk analysis and combine qualitative and quantitative methods. From these rules, probabilistic calculus is used to determine the probability of a certain risk occurring, based on historical data. Risk matrices are created and specific scales are assigned to the potential risks that may occur, divided into low, very low,

moderate, high and very high. In practice, there are a range of quantitative methods that can be used, for example decision tree analysis or sensitivity analysis.

Bennet et al., 2010 and supported by Edwards and Bowen (2005) consider that the best way to insure risks in public institutions is to obtain insurance (risk transfer), which may involve a combination of two or more risks at the same time enabling risk responses. Also it is completely avoided or, on the contrary, it may be equally accepted Risk reduction) Risk can also be reduced, in the theory (Tworek, 2015), to consider all these activities and measures for monitoring and control, and this process in a public organization is risk management in various organizations Risk management can be implemented in different ways.

However, it is important to ensure that methods are applied in identifying risks and risk responses and are used complementary. This will make risk management very effective. However, we should not forget the reactions of individuals and the drawing of their conclusions and experiences, because this is linked to their perception of risk and it is also important to consider the political aspect of public institutions (Smallman and Fischbacher-Smith, 2003), which involves identifying political risks. Thus, risk management may be According to the concept of FERMA (2002), it sometimes protects the public entity and achieves added value, because it contributes to achieving the goals of institutions through: (a) Providing the regulatory framework, to conduct more monitoring operations in organizations. (b) Enhance decision-making, planning and prioritization by using broad knowledge about enterprise operations, identifying the degree of uncertainty, distribution of risk areas, probability of occurrence, opportunities and threats. (c) Allowing a more efficient allocation of capital and resources available to the entity (d) and reducing uncertainty from non-core operations. (e) Protecting

and building the institutions' assets and reputation. (f) Supporting the development of human potential and building a knowledge base. (g) Improving the efficiency of public institutions.

The basic categories of financial risks, in relation to the public sector and its entities, are considered by Raczkowski (2018) to include operational risks, legal and market risks as well as risks of unusual events. Administrative control is concerned with systems, and risk management proves to be an essential element, in parallel with activities related to planning, implementation, budgeting, reporting, and part of financial plans. Actions are taken into risk management approaches, including financial risk, for use across the public finance sector as a whole as well as with individual entities. Therefore, promoting the achievement of budget and financial plans along with projects and programmes, through recognition of responsibility. Therefore, identify and activate preventive measures against risks.

2.4 Dimensions of risk management processes:

1. hazard identification

(Toshihiro Ihori, McGuire, & Shintaro Nakagawa, 2019) describes that the standard formula for risk is the definition and distribution of its probability, which displays the relationship between states and probabilities. A simple example of this is that a good state embodies a state of peace and a bad state indicates a state of war. We assume that all states The alliance knows the true probability and each has a case. This is because security is considered by any country to be one of the most important reasons for the possibility of reducing the bad situation of risks.

Risks are identified using the risk identification process, as Sanghera (2019) considers that an unknown risk is a danger that lies beyond your sight and is waiting to attack institutions and projects, and the importance of the risk identification process cannot be overstated. However, the risk identification process is used to accomplish the following tasks for individual risks that may affect institutions and projects on the other hand, as well as identifying the overall sources of risks for institutions and projects and works to document the characteristics and other information about the identified risks in a document called risk registration to conduct risk identification.

The goal of this process is to identify individual project risks and the overall sources of institutional and project risks. A basic risk management plan gives guidance on how to implement this process, and Sanghera (2019) points out that risks are hidden in almost all areas of organizations and projects. The key to finding it is in the uncertainty coming from various sources in assumptions, probabilities, ambiguity, and estimates of the ambiguity of procedures. This uncertainty raises risks. Therefore, as a starting point in identifying risks, we must look for areas of assumptions, ambiguity and estimates in agreements, procedures and documents, documents and plans of institutions and projects, knowledge of cost and duration estimates for activities, procedures and instructions, and a record of clear assumptions and starting places. The documents can be used as a tool for analysis, and as such, the knowledge base related to risk management from previous institutions and problems can also be reviewed.

2. Risk identification outcomes:

Risks are documented through a risk register and a quality report, with the results of the risk identification process added, and complemented by other risk management processes. The risk register is a document that contains the outputs of risk identification and treatment; Any information about the risks of institutions and projects as if it were their identity. Therefore, these risks must be described in reasonable detail, which may include the risks in definition, the nature of each risk and the reasons that will lead to this risk. This is a full list of events or conditions that may give rise to risks, with updates to the risk categories. Originally, risk categories are identified and identified in risk management in the planning process according to (Sanghera, 2019) and also contain information or results from other risk management processes. Information from the risk identification process can be stored in a risk register and placed in a list of identified risks. These risks, which you identified in the risk identification process, each have a distinct and unique risk definition and coding.

Risk response planning is a separate process and is undertaken after a risk analysis. However, in the course of risk identification, you may identify potential responses to the risks, which should be documented in a risk register. Risk feedback can be further examined and planned in the risk response planning process. The risk report from this process contains information about the sources of overall risks and answers the questions: What are the main risk factors? A summary of individual risks distributed across risk categories, threats and opportunities present, impact and some findings from other risk management processes are added to this report (Sanghera, 2019).

3. Risk monitoring

The risk control process is an integral part of risk identification and focuses on the concept of risk control at the time of helping to implement risk control measures and in a short time in the customs supply chain and on determining compliance and compliance for traders. It is linked with customs and with data from the supply chain, and also with risk analysis. Customs must conduct a risk analysis (Hu, Tan, & Heijmann, 2016). Trade control should not be the sole responsibility of customs and trading companies must also be involved. The WCO Framework of Standards for Securing and Facilitating Global Trade is the WTO Security Framework and stipulates that cooperation between customs and economic operators is one of its main pillars, which means that companies must be able and willing to share responsibility and manage risks with customs. Since more inspection leads to congestion and low efficiency, risk monitoring and linking it with risk analysis seek to develop incentives and encourage companies to improve security in the supply chain (2010, Bakshi & Gans) and at the same time, public-private cooperation and partnership are recommended in order to achieve customs security in the security of transport, containers and goods, security of customs revenues, and protect the data and transactions of merchants from competitors.

2.5 Sustainability of food supply chains

It is clear that the social and environmental perspectives of a sustainable supply chain must depend on realizing the economic goals of organizations in particular, and the term excellence in the framework of SSCM means the intersection of social and environmental, but it ignores the economic perspective of the triple bottom line, and it does not necessarily force organizations to achieve social and environmental goals. related to the supply chain. Noting that SSC should be implemented within the broader context of the organization's strategic and financial goal in order to achieve the socially

responsible goal (Lowahir, 2008, 37). Based on what has been proposed, it is believed that sustainable supply chain management is the management responsible for the flow of materials and information from suppliers to the company and then to the consumer, thus achieving the environmental, economic and social aspects for the purpose of achieving the desired goals by meeting the requirements of its customers and taking into account the rights of shareholders and allowing it to reduce risks encountered in the surrounding internal and external environment.

Benefits and advantages of a sustainable supply chain: Implementing a sustainable supply chain leads to potential economic benefits for organizations, as follows (Ricardo A. Videtta 201219):

1. Reduced packaging waste costs and the ability to design for reuse.
2. Lower health and safety costs and lower staffing and turnover costs due to safer storage, more efficient transportation and better working conditions.
4. Reduced labor costs as a result of improved working conditions which can increase motivation and productivity and increase the commitment of supply chain employees.
5. High competitive advantage for organizations and their suppliers, and shaping future regulation for organizations that proactively address environmental and social concerns in their current production and operations that can impact government regulation.
6. Shorter lead times, better product quality and lower costs result from the application of the ISO 14000 standards which provide a framework for managing environmental issues.
7. Improving the reputation of the organization - implementing sustainable activities can make organizations more attractive to suppliers, customers, workers and shareholders.

While Yingli Li & Heshan Ye (2014, 22) see that the benefits of a sustainable supply chain are as follows:

- Reduce and avoid risks.
- Design actual business processes and enhance innovation capacity.
- Promote transparency and adherence to higher standards in the business environment.
- Creating societal values.
- Sustainable supply chain management contributes to achieving social responsibility while adopting the Sustainable Development Goals.

2.6 Dimensions of sustainable supply chain management:

Many researchers agree, such as (Sloan et al. 2009, 9), (Abdul-Mohammadi & Al-Mohammadi 2012, 217-218), (Wohigemuth & Widok, 2014, 5), (Abdul-Hassan (2016, 122), and (Assaf and Shihab (2016, 122). 2016 (20) stated that the dimensions of sustainable supply chain management include the following:

First, the environmental dimension: This dimension is characterized by the necessity of preserving the environment and its natural resources and preserving them from pollution and the importance of the rational and optimal use of resources by preserving water uses - protecting the climate from global warming caused by the waste of some industries - creating a green environment free of pollution - ecosystems - Biodiversity - biological productivity.

Secondly, the economic dimension: This dimension is centered on the repercussions and results of the economy on the environment and how to improve industrial technologies through

economic returns on the environment. It includes the following elements: sustainable economic growth - raising living standards - capital efficiency - investing available resources in a sustainable way - fair distribution among groups Society in obtaining services - Equality between individuals in meeting basic needs and in distributing resources and incomes - Per capita consumption of natural resources - Stopping the waste of natural resources - Reducing the dependency of developing countries - Eliminating poverty.

Third, the social dimension: This dimension calls for the necessity of paying attention to the individual within society and the necessity of fairness between generations through: justice in distribution - stabilizing demographic growth - the importance of maintaining population distribution - health and education - strengthening democracy and defending human rights, and the constant pursuit of the development of all institutions. - Social mobility - not prejudice to the individual's private rights. From the above, the researcher sees the necessity of applying these three main environmental, economic and social dimensions within the supply chain in order to achieve its sustainability by preserving the environment by equipping organizations with raw materials that help preserve the environment and reduce the waste of production processes on the one hand, and on the other hand achieve a good economic return for the organizations. In addition to avoiding excessive use of these materials in order to avoid compromising the rights of future generations, with the need to achieve fairness among members of society.

Fifth: Sustainable supply chain management activities: Sustainable supply chain management is a set of activities as seen by:

(Arora, 2014) (Belz & Peattie, 2012)) (Sikhar, et.al, 2011) (Ninlawan, et.al, 2010) (Popovska, et.al, 2010):

First, sustainable purchasing activity: Sustainable purchasing is defined as the method in which purchasing considerations are equal to the price, availability, and performance criteria that organizations use in making purchasing decisions, so that purchasing reduces negative environmental and social impacts by using environmentally friendly products, as it attempts to identify and reduce the environmental impact. (2014, SPLC Worksheet Series). Therefore, sustainable purchasing is the most important pillar of SSCM, as it is the basic and first step for the organization in trying to move towards sustainability and environmental and social responsibility. In order to provide and supply a sustainable product from factories, organizations require large quantities of materials and supplies necessary for the production process and other components, and it is clear that they must purchase environmentally friendly materials in order to manufacture environmentally friendly products, and for this reason they must include environmental, economic and social issues in negotiations with suppliers. 2011,543,Sikhar, et al). Studies have shown that average emissions of gases emitted from the supply chain of products purchased for industry are three times greater than emissions directly attributable to industry (Popovska, et.al, 292, 2010). Sustainable purchasing is also defined as purchasing that cares about the environment with activities involved in reducing, reusing and recycling materials in the purchasing process, which is the ideal solution for business and preserving the environment, in addition to economic and social interest, as it is considered as a concept to obtain a group of selected products that have the least impact on the environment without neglecting The right of future generations to these resources (Ninlawan, et.al, 2010, 2).

Secondly, sustainable transport: The Organization for Economic Cooperation and Development (OCDE) defined in its conference in 1996 sustainable transport as: transport that does not endanger the health of society and environmental systems, as well as meeting the needs that lead to the use of renewable resources at less than their renewal rates. The use of non-renewable resources at less than Development rates of its renewable alternatives (Ryan, 11, 2010) as defined by the European Union Council of Ministers for Transport as a means that allows the delivery and convergence of the needs of individuals, companies and society in a safe manner and in a manner consistent with human health and the environment and the promotion of equality within and between successive generations (Abdel Hassan, 2016, 236).

As for the Council of Transport Ministers of the European Union in 2001, it developed a clearer concept of sustainable transport, as it believes that the sustainable transport system can be summarized in the following points: (Rida El-Din, 2017, 17):

It allows the basics of traffic safety to be achieved in a manner consistent with the health of environmental systems and achieving justice between generations.

Prices are available to everyone, with a system that provides integrity and efficiency, provides choices of means of transportation, and supports a competitive economy and balanced development of regions.

The limits of gas emissions resulting from it shall be within the limits of the ability of environmental systems to absorb them, and the use of renewable resources at less than their renewal rates, and the use of non-renewable resources at less than the rates of development of their renewable alternatives.

It is the physical protests of life and ensures justice between individuals.

While the Sustainable Development Report issued by the Transport Corporation in the Canadian city of Montreal in 2009 (STM- Société de Transport de) stated words similar to what was previously mentioned, as it believes that sustainable transport is a system characterized by the following (Enso) (2017, 11).

- It allows individuals and communities to meet their basic needs for movement in a safe manner that is compatible with the health of individuals and ecosystems and does not cause harm to present and future generations.
- Its costs are reasonable, it also provides tests and alternatives to transportation and encourages a competitive economy.
- It reduces greenhouse gas emissions to a level that does not exceed the Earth's capacity to absorb them, and reduces the consumption of non-renewable resources to the lowest levels. The consumption of renewable resources is determined within the limits of respecting the principles of sustainable development.
- It reuses recycled materials, reduces noise to the maximum extent, and reduces land use.

Third, sustainable design: Sustainable design activity is viewed as the approach that seeks to reduce the environmental impact of the product throughout its entire life cycle through the design process that contains an internal, social, and economic dimension at the same time (Ryan, 2010) and thinking about sustainability when designing helps in making a difference. has a significant impact on the environmental image of the product and the organization (Rasch & Sorgard, 2011, 42). It relates to the design of the good or service that encourages environmental awareness. Organizations must also

have clear capabilities to become environmentally friendly by remanufacturing the product using the technology of designing it to be reusable (Fortes, 2009, 54). Sustainable design activity includes many aspects and aspects. It is initially concerned with By designing the product in a way that reduces consumption of resources and energy, and also designing the product with the ability to reuse, recycle, and recover resources, parts, and components, as well as designing the product with the property of reducing the use of or avoiding the use of toxic substances included in the product or the process that manufactured it (Rha, 2010). Ninlawan, et.al (2010) added the following to these aspects:

1. Design the product to support environmental regulations.
2. Designing the product with the least weight and capacity in order to reduce the time spent on storage space, and the energy expended in transportation operations as little as possible.
3. Design the product in a way that makes it easy for users to use in the most efficient way and saves energy.
4. Design, usability of parts, and the characteristic of distributed use of the product, easier maintenance, and increased efficiency.
5. Make maintenance schedules and capacity certain for the product so that it is not left to deteriorate, causing harmful gas emissions.

Fourth, sustainable manufacturing:

Sustainable manufacturing rooms mean providing goods and services to satisfy customer needs in society while accelerating economic growth and curbing environmental damage through technologies applied by individuals with a high level of generalization and in accordance with strict ethical laws (Mola & Mola, 2013). Sustainable manufacturing is defined as the design and

manufacture of high-quality and performance products while improving and enhancing their functions using efficient manufacturing technologies and methods in using energy free of toxic and non-hazardous materials in an optimal manner by producing the least possible amount of materials and emissions and providing the greatest possible recovery, recycling, reuse and remanufacturing. All of them aim to enhance social benefits and economic impact (Lowahir 2008, 37). While Raouf and Hawass 2017 (89) define it as developing and improving life by finding the optimal combination of production and consumption activities, applying efficiency standards to the consumption of materials and energy, and focusing on reducing poverty and sustaining resources, it amounts to the ability to sustain performance at the optimal level of production in the long term. long term using available resources. Sustainable manufacturing also seeks to achieve a set of goals, the most important of which are the following: Raouf and Hawass (2017 (89).

1. Reducing waste and reusing or recycling industrial waste.
2. Use resources efficiently.
3. Enhancing environmental performance by focusing on health and safety and reducing the spread of harmful substances.
4. Apply lean manufacturing and other sustainable engineering techniques.
5. Improve working conditions and continuously improve manufacturing quality.
6. Using best practices in mechanization.
7. Training all employees on sustainable practices.

Fifth - Sustainable marketing activity: Traditional marketing activity refers to planning, organizing, implementing and controlling marketing resources and programs to meet the desires and

needs of consumers to achieve organizational goals. As for sustainable marketing activity, it also refers to all of these steps. In addition, it includes consideration of social and environmental standards. In addition, the administrative approach to sustainable marketing consists of six main elements: social-environmental problems and consumer behavior. Values and goals for sustainable marketing. Sustainable marketing strategies. Sustainable marketing mix and transformations. Sustainable Marketing (22) 2017, Enso).

Sustainable marketing has been defined by different writers in different ways, but there seem to be three main ways in defining it (Liu, 582, 2012, et.al) The first point of view linked sustainable marketing (SM) to identifying, defining, and satisfying the customer and encouraging products that are environmentally friendly and have a positive social and economic impact, which is identifying the need to know what is new, which is called the sustainable customer. And work to adapt marketing decisions to focus on verifying expectations and meeting the needs of such a customer. As for the second point of view, it is based on the traditional mix of 4 products, price, distribution, and promotion, while integrating them with the concept and objectives of the three dimensions: environment, society, and economy. There is a third opinion that believes that SM goes much further than that, as it is the principle of linking the sustainable customer with the marketing mix. It must be extended to include all aspects called for by the concept of three dimensions, with the necessity of managing demand for environmentally friendly products, identifying and stimulating demand for such products, recycling, classifying and using them while building a competitive advantage that focuses on environmental priorities, while both define it (Belz & Peattie, 2012). It is the mark given to the broad scope in marketing that considers multiple issues such as social marketing, marketing ethics, environmental and social marketing, and responsible marketing. It focuses on creating, producing and delivering

sustainable solutions with the highest value for sustainability at the same time as they try to satisfy customers and stakeholders or is building and maintaining Sustainable relationships with customers, the social environment and the natural environment, as its characteristics lie in the orientation towards a long-term relationship. Through what was mentioned above regarding the activities of (SSCM), the researcher believes that it is very necessary to start with the idea of sustainability from the stage of purchasing raw materials, through the process of transporting, storing, and designing them, and ending with their manufacturing and marketing to... Community Customers This includes taking into account the focus on the environmental, economic and social aspects for the purpose of ensuring the sustainability of supply chain activities.

Third, the theoretical relationship between sustainable supply chain management and risk management. Over the past twenty years, supply chain management practices have evolved towards a more flexible practical approach in order to reduce waste within the overall chain activities. Several concepts, such as just-in-time production, virtual inventory, rationalizing the use of resources, and reducing the number of distribution locations, reduce total supply chain costs, but at the expense of increased risks. (Basu, et al. 2007, 10).

Widok & Wohlgemuth (5, 2014) stated that sustainable supply chains today face a number of risks due to many factors, including:

- Increased globalization through outsourcing that extends to the end of supply chains.
- Additional regulatory compliance imposed by government agencies further complicates international trade.

- Increased levels of economic uncertainty create additional fluctuations in demand and supply and make it more difficult to balance supply and demand.
- Short product life cycles and rapid rates of technological change increase inventory obsolescence. Demanding customers who require better on-time delivery, order fill rates and overall efficiencies at the service level cause additional stress from time to time.
- Constraints on the supply side, making it more difficult to meet demand requirements.
- Natural disasters and external environmental events that can wreak havoc on global supply chains.

Applied framework

3.1 Research Methodology:

The research is based on a descriptive and analytical approach, as it focuses on examining the theoretical foundations related to the subject by reviewing the relevant Arab and foreign references. The research also includes the implementation of a field study consisting in distributing questionnaires to different categories of the selected sample.

3.2 Study population and sample:

The population of the current study consists of all workers in food processing companies in the Kingdom of Saudi Arabia and the difficulty of conducting a comprehensive inventory of all members of the study, the study has used the method of simple random samples in order to obtain the study data and the number of members of the study sample reached 192 individuals who answered the questions of the electronic questionnaire form.

3.3 Statistical methods:

The research used the statistical program SPSS to analyze the study data through the following statistical methods:

- Vcronbach coefficient to calculate the level of stability of the study instrument
- Pearson's correlation coefficient to determine the level of internal consistency and the validity of the study tool and to identify the relationship between the study variables
- Ratios and frequencies to describe the characteristics of the study sample

- The arithmetic mean and standard deviation to describe the level of response of the study sample members to the statements of the study tool
- Simple linear regression equation to measure the effect between study variables

3.4 Study Tool

The study used the questionnaire form as a tool for the study, which consisted of two sections, the first section includes the personal data of the members of the study sample (gender, age, academic qualification, job title, number of years of experience) and the second section includes phrases related to the axis of strategic diversification and includes 3 dimensions and includes 15 phrases and the axis of corporate performance and includes 7 phrases and the five-degree Likert scale was used, which consists of strongly agree (5), Agree (4), Neutral (3), Disagree (2), Strongly disagree (1) in answering the questions of the study axes.

Table (1) Levels of approval of the study sample on the statements of the study tool

3.5	Grade	Level
	1 – 1.799	Very low
	1.800 – 2.599	Low
	2.600 – 3.339	Medium
	3.400 – 4.199	High
	4.200 – 5.000	Very high

Believe the study tool:

The validity of the questionnaire statements was calculated by determining the level of internal homogeneity of the study tool by calculating the Pearson correlation coefficients between

each statement and the total degree of the statement of the axis to which the statement belongs, where the results were as follows:

First Theme: risk management

Table (2) Correlation coefficients for the first axis statements

M	Ferry	Pearson's correlation coefficient	Statistical significance
risk determination			
1	The company has a specialized staff to identify risks that may face the company's work	0.671**	0.000
2	The Company seeks to identify sources of potential risks.	**0.702	0.000
3	The company has the ability to predict potential risks through appropriate means.	**0.667	0.000

4	The company determines risks based on similar experiences in other organizations and companies	**0.676	0.000
5	The company has a specialized staff to identify risks that may face the company's work	**0.659	0.000
risk assessment			
6	The company has a specialized staff to evaluate risks in terms of the degree of probability of their occurrence and the extent of their impact	**0.699	0.000

7	The risk assessment process helps to make the appropriate decision about the actions to be taken regarding these risks.	**0.469	0.000
8	The company evaluates risks using qualitative assessment (probability and impact matrix).	**0.610	0.000
9	The company evaluates risks using quantitative assessment (statistical approach).	**0.672	0.000
10	The company evaluates risks	**0.668	0.000

	using the analytical approach (decision analysis tree, sensitivity analysis).			
Risk response				Risk response
11	Categorizing risks into major categories helps determine appropriate response methods for each category.	**0.700	0.000	
12	Knowing the nature of risks helps determine appropriate response methods	**0.654	0.000	
13	The company gives priority to dealing with important	**0.587	0.000	

	risks that cause significant losses		
14	The company works to reduce risks by finding alternative solutions that reduce the risk	**0.611	0.000
15	The company has a specialized work team to study and understand risks and determine appropriate response methods	**0.474	0.000
Risk monitoring			
16	Roles and responsibilities are clearly distributed among members of the risk	**0.670	0.000

	management team to monitor risks.		
17	The company is working to determine the effectiveness and efficiency of risk control methods to deal with them.	**0.702	0.000
18	The company works to conduct continuous reviews of the risk management process and evaluate its performance periodically.	**0.667	0.000
19	The company undergoes reviews of required performance	**0.676	0.000

	standards and policies to ensure that potential risks are monitored.		
20	The company adjusts project objectives in terms of cost, duration and quality to fit the new risk .assessment	**0.659	0.000

It is clear from the previous table No. (2) that all the values of Pearson's correlation coefficients between the degree of each phrase of the first axis and the total degree of the axis were statistically significant at the level of (0.01), and this means that the high level of truthfulness of the statements of the first axis of the questionnaire, which indicates that it is valid for application to achieve the objectives of the study.

Second Theme: Sustainability of supply chains

Table (3) Correlation coefficients for second axis statements

M	Ferry	Pearson's	Statistical
		correlation	significance
		coefficient	
Supply component			
1	The company is interested in having relationships based on commitment and respect with .suppliers	**0.684	0.000
2	The company is keen to achieve joint and mutual benefits .between both parties	**0.660	0.000
3	The company provides formal and informal means of communication with .suppliers	**0.827	0.000
4	The company is interested in transparent and clear exchange of information and .data with suppliers	**0.815	0.000
5	The company ensures that suppliers commit to flexible	**0.642	0.000

	production and supply processes.		
Manufacturing element			
6	The company takes into account the specifications required by .the customer in the product	**0.670	0.000
7	The company uses the latest technological methods in .manufacturing	**0.702	0.000
8	The company takes care that production is in accordance with the quantities needed by .customers	**0.667	0.000
9	The company works to provide all the services that customers need with the highest possible .quality and efficiency	**0.676	0.000
10	The company is interested in providing all manufacturing .needs on an ongoing basis	**0.659	0.000
Delivery item			

11	The company is interested in finding quick and immediate solutions to customer .complaints	**0.670	0.000
12	The company is interested in providing the highest possible level of quality in dealing with .customers	**0.702	0.000
13	The company is keen to provide its services to customers at competitive and preferential .prices	**0.667	0.000
14	The company is interested in creating personal connections .with customers	**0.676	0.000
15	The company is keen to obtain customer loyalty for all the .services it provides	**0.659	0.000

It is clear from the previous table No. (3) that all the values of Pearson's correlation coefficients between the degree of each phrase of the second axis and the total degree of the axis were statistically significant at the level of (0.01), and this means that the high level of truthfulness of the statements of

the second axis of the questionnaire, which indicates that it is applicable to achieve the objectives of the study.

3.6 Stability of the study instrument:

The stability of the questionnaire was calculated using the Cronbach alpha coefficient, and the results were as follows:

Table (4) Results of the stability of the study tool in the Cronbach alpha method

Axis	Number of paragraphs	Cronbach alpha value
risk management	20	0.891
Sustainability of supply chains	15	0.869
Total Questionnaire Form	35	0.923

Table (4) shows the results of the stability of the study tool used, as the value of Cronbach alpha for all axes of the study tool is greater than 0.70 This result thus shows that the study instrument is highly stable and sufficient to achieve the purposes of the study.

3.7 Characteristics of the study sample

- 1- **Gender:** It was found that 164 of the study sample members were males (85.4%) and 28 females (14.6%)
- 2- **Age:** It was found that 48 of the study sample members were under 30 years old by 25%, 108 individuals aged from 30 years to less than 40 years by 56.3%, 24 individuals aged from 40 years to less than 50 years old 12.5% and 12 individuals aged 50 years and over by 6.3%
- 3- **Academic qualification:** It was found that 60 members of the study sample have an average qualification by 31.3%, 116 members of the study sample have a bachelor's degree by 60.4%, 12 individuals with a master's qualification by 6.3 %, and 4 individuals with a doctorate qualification by 2.1%
- 4- **Number of years of job experience:** It was found that 44 members of the study sample had less than 5 years of work experience by 22.9%, 72 individuals had job experience from 5 years to less than 10 years by 37.5%, 32 individuals had job experience from 10 years to less than 15 years by 16.7%, and 44 individuals had 15 years of job experience or more by 22.9%

Table (5) Distribution of Study Sample According to Personality Characteristics

characteristics	Categories	Number	Rate %
Gender	male	164	85.4
	Female	28	14.6
lifetime	Less than 30 years old	48	25.0

	From 30 years to less than 40 years	108	56.3
	From 40 years to less than 50 years	24	12.5
	years and over 50	12	6.3
Qualification	medium	60	31.3
	Bachelor	116	60.4
	Master	12	6.3
	Doctor	4	2.1
Number of years of job experience	Less than 5 years	44	22.9
	years to less 5 than 10 years	72	37.5
	From 10 years to less than 15 years	32	16.7
	years and 15 above	44	22.9

3.8 Analysis of the questionnaire form

First Theme: risk management

1- risk determination

Table (6) Arithmetic mean, standard deviation, ranking and level of approval of risk determination

Ferry	Arithmetic mean	Standard deviation	Order	Approval level
The company has a specialized staff to identify risks that may face the company's work	4.188	0.930	1	High
The Company seeks to identify sources of potential risks.	4.063	0.803	5	High
The company has the ability to predict potential risks through appropriate means.	4.125	0.859	3	High
The company determines risks based on similar	4.167	0.689	2	High

experiences in other organizations and companies				
The company has a specialized staff to identify risks that may face the company's work	4.063	0.721	4	High

The terms of risk management were arranged in terms of the degree of relative importance (the value of the largest arithmetic mean) from the point of view of the study sample. It was found that the phrase (The company has a specialized staff to identify risks that may face the company's work) is the most important phrase with a value of 4.188 and a standard deviation of 0.930 and a high degree of approval, while the phrase (The Company seeks to identify sources of potential risks.) is the least important phrase with a value 4.063 and standard deviation 0.803 with a high degree of approval and when studying the phrases of risk management, it was found that all statements are at a high level of approval, which shows a high level of application of risk management in the companies of the food industry sector in the Kingdom of Saudi Arabia from the point of view of the study sample members, where the value of the arithmetic mean was 4.121 with a standard deviation of 0.800.

2- Risk assessment

Table (7) Arithmetic Mean, Standard Deviation, Ranking and Level of Approval of risk assessment

Ferry	Arithmetic mean	Standard deviation	Order	Approval level
The company has a specialized staff to evaluate risks in terms of the degree of probability of their occurrence and the extent of their impact	4.021	0.779	4	High
The risk assessment process helps to make the appropriate decision about the actions to be taken regarding .these risks	4.104	0.772	3	High
The company evaluates risks using qualitative assessment	3.896	0.921	5	High

(probability and impact matrix).				
The company evaluates risks using quantitative assessment (statistical approach).	4.271	0.639	1	Very high
The company evaluates risks using the analytical approach (decision analysis tree, sensitivity analysis).	4.250	0.597	2	Very high

The risk assessment phrases were arranged in terms of the degree of relative importance (the value of the largest arithmetic mean) from the point of view of the study sample. It was found that the phrase (The company evaluates risks using quantitative assessment (statistical approach)) is the most important phrase with a value of 4.271 and a standard deviation of 0.639 and with a very high degree of approval while the phrase (The company evaluates risks using qualitative assessment (probability and impact matrix)) is the least important phrases with a value of 3.896 and a standard deviation of 0.921 and a high degree of approval and when studying the risk assessment phrases, it was found that

all phrases are in the high level of approval, which shows a high level of application of risk assessment in the food industry sector companies in the Kingdom of Saudi Arabia from the point of view of the study sample members, where the value of the arithmetic average was 4.108 with a standard deviation of 0.742

3- Risk response

Table (8) Arithmetic mean, standard deviation, ranking and level of approval of risk response

Ferry	Arithmetic mean	Standard deviation	Order	Approval level
Categorizing risks into major categories helps determine appropriate response methods for each category.	4.271	0.701	4	Very high
Knowing the nature of risks helps determine appropriate response methods.	4.313	0.714	3	Very high

The company gives priority to dealing with important risks that cause significant losses.	4.229	0.772	5	Very high
The company works to reduce risks by finding alternative solutions that reduce the risk.	4.375	0.565	1	Very high
The company has a specialized work team to study and understand risks and determine appropriate response methods.	4.333	0.719	2	Very high

Risk response statements were arranged in terms of the degree of relative importance (the value of the largest arithmetic mean) from the point of view of the study sample. It was found that the phrase (The company works to reduce risks by finding alternative solutions that reduce the risk) is the most important phrase with a value of 4.375 and a standard deviation of 0.565 and with a very high

degree of approval, while the phrase (The company gives priority to dealing with important risks that cause significant losses) is the least important phrase with the value of 4.229 and standard deviation 0.772 with a very high degree of approval and when studying the phrases of risk response, it was found that all statements are at a very high level of approval, which shows a very high level of application of risk response in the companies of the food industry sector in the Kingdom of Saudi Arabia from the point of view of the study sample members The arithmetic mean was 4.304 with a standard deviation of 0.694.

4- Risk monitoring

Table (9) Arithmetic mean, standard deviation, ranking and level of approval of Risk monitoring

Ferry	Arithmetic mean	Standard deviation	Order	Approval level
Roles and responsibilities are clearly distributed among members of the risk management team to monitor risks.	4.188	0.930	1	High

The company is working to determine the effectiveness and efficiency of risk control methods to deal with them.	4.063	0.803	5	High
The company works to conduct continuous reviews of the risk management process and evaluate its performance periodically.	4.125	0.859	3	High
The company undergoes reviews of required performance standards and policies to ensure that potential risks are monitored.	4.167	0.689	2	High

The company adjusts project objectives in terms of cost, duration and quality to fit the new risk assessment	4.063	0.721	4	High
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The terms of Risk monitoring were arranged in terms of the degree of relative importance (the value of the largest arithmetic mean) from the point of view of the study sample. It was found that the phrase (Roles and responsibilities are clearly distributed among members of the risk management team to monitor risks) is the most important phrase with a value of 4.188 and a standard deviation of 0.930 and a high degree of approval, while the phrase (The company is working to determine the effectiveness and efficiency of risk control methods to deal with them) is the least important phrase with a value 4.063 and standard deviation 0.803 with a high degree of approval and when studying the phrases of **Risk monitoring**, it was found that all statements are at a high level of approval, which shows a high level of application of **Risk monitoring** in the companies of the food industry sector in the Kingdom of Saudi Arabia from the point of view of the study sample members, where the value of the arithmetic mean was 4.121 with a standard deviation of 0.800.

The above shows that there is a high level of application of risk management in the companies of the food industries sector in the Kingdom of Saudi Arabia from the point of view of the study sample, where the arithmetic mean value was 4.178 with a standard deviation of 0.745.

Second Theme: Sustainability of supply chains

1. Supply component

Table (10) Arithmetic Mean, Standard Deviation, Ranking and Level of Approval of Supply component

Ferry	Arithmetic mean	Standard deviation	Order	Approval level
The company is interested in having relationships based on commitment and respect with .suppliers	4.417	0.642	3	Very high
The company is keen to achieve joint and mutual benefits between both .parties	4.188	0.756	5	High
The company provides formal and informal means of	4.292	0.646	4	Very high

communication with suppliers				
The company is interested in transparent and clear exchange of information and data with suppliers	4.417	0.608	2	Very high
The company ensures that suppliers commit to flexible production and supply processes.	4.313	0.619	1	Very high

The Supply component statements were arranged in terms of the degree of materiality (the value of the largest arithmetic mean) from the point of view of the study sample. It was found that the phrase (The company ensures that suppliers commit to flexible production and supply processes) is the most important phrase with a value of 4.479 and a standard deviation of 0.541 and with a very high degree of approval, while the phrase (The company is keen to achieve joint and mutual benefits between both parties) is the least important phrase with a value 4.188 and a Supply component of 0.756 with a high degree of approval and when studying the statements of the Supply component, it was found that 5 statements at the very high level of approval and one phrase at the high level of

approval, which shows the existence of a very high level of Supply component in the food industry sector in the Kingdom of Saudi Arabia in the global competition market from the point of view of the members of the study sample, where the value of the arithmetic average was 4.357 With a standard deviation of 0.626.

2. Manufacturing element

**Table (11) Arithmetic Mean, Standard Deviation, Ranking and Level of Approval of
Manufacturing element**

Ferry	Arithmetic mean	Standard deviation	Order	Approval level
The company takes into account the specifications required by the customer in the .product	4.271	0.701	4	Very high
The company uses the latest technological methods in .manufacturing	4.313	0.714	3	Very high

The company takes care that production is in accordance with the quantities needed by .customers	4.229	0.772	5	Very high
The company works to provide all the services that customers need with the highest possible quality and .efficiency	4.375	0.565	1	Very high
The company is interested in providing all manufacturing needs on an ongoing .basis	4.333	0.719	2	Very high

Manufacturing element statements were arranged in terms of the degree of relative importance (the value of the largest arithmetic mean) from the point of view of the study sample It was

found that the phrase (The company works to provide all the services that customers need with the highest possible quality and efficiency) is the most important phrase with a value of 4.375 and a standard deviation of 0.565 and with a very high degree of approval, while the phrase (The company takes care that production is in accordance with the quantities needed by customers) is the least important phrase with the value of 4.229 and standard deviation 0.772 with a very high degree of approval and when studying the phrases of Manufacturing element, it was found that all statements are at a very high level of approval, which shows a very high level of application of Manufacturing element in the companies of the food industry sector in the Kingdom of Saudi Arabia from the point of view of the study sample members The arithmetic mean was 4.304 with a standard deviation of 0.694.

3- Delivery item

Table (12) Arithmetic Mean, Standard Deviation, Ranking and Level of Approval of Delivery item

Ferry	Arithmetic mean	Standard deviation	Order	Approval level
The company is interested in finding quick and immediate solutions to	4.021	0.779	4	High

customer complaints				
The company is interested in providing the highest possible level of quality in dealing with customers	4.104	0.772	3	High
The company is keen to provide its services to customers at competitive and preferential prices	3.896	0.921	5	High
The company is interested in creating personal connections with customers	4.271	0.639	1	Very high

The company is keen to obtain customer loyalty for all the .services it provides	4.250	0.597	2	Very high
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The Delivery item phrases were arranged in terms of the degree of relative importance (the value of the largest arithmetic mean) from the point of view of the study sample. It was found that the phrase (The company is interested in creating personal connections with customers) is the most important phrase with a value of 4.271 and a standard deviation of 0.639 and with a very high degree of approval while the phrase (The company evaluates risks using qualitative assessment (The company is keen to provide its services to customers at competitive and preferential prices) is the least important phrases with a value of 3.896 and a standard deviation of 0.921 and a high degree of approval and when studying the Delivery item phrases, it was found that all phrases are in the high level of approval, which shows a high level of application of risk assessment in the food industry sector companies in the Kingdom of Saudi Arabia from the point of view of the study sample members, where the value of the arithmetic average was 4.108 with a standard deviation of 0.742.

3.9 Assignment test

Key hypothesis: There is a statistically significant impact of applying risk management on sustainability in food supply chains.

table (13) The impact of applying risk management on sustainability in food supply chains

Model Summary

R-2 ^{Adjusted}		Coefficient of determination R2		Correlation coefficient R		
0.512		0.514		0.717		
ANOVA Variance Analysis						
Sig F	F	Average squares	Df	Sum of squares		Prototype
0.000	201.131**	1065.483	1	1065.483		Regressi on
		5.297	190	1006.517		Residual
			191	2072.000		TotalTotal
Sig T	T	Beta	Stan da rd err or	B	prototyp e	Depen dent varia ble
.000	6.507		1.48	9.	Constant	Corpor ate Perfo
			1	6		
				3		
				4		

.000	14.1	.717	.023	.3	Strategic	rman
	82			3	Diversif	ce
				3	ication	

It was found that there is a strong positive correlation with statistical significance between the applying risk management and sustainability in food supply chains at a significant level of 0.01 and it is found that there is a statistically significant direct effect of applying risk management on sustainability in food supply chains companies in the food industry sector in the Kingdom of Saudi Arabia in the global competition market at a significant level of 0.01 and it turns out that the independent variable (risk management) explains 51.4% of the changes that occur in the dependent variable (sustainability in food supply chains) and shows that the higher the level risk management by 1%, the higher the level of sustainability in food supply chains of companies in the food industry sector in the Kingdom of Saudi Arabia in the global competitive market by 0.333%, which illustrates the validity of the main hypothesis of the study.

Sub-hypothesis I: There is a statistically significant correlation between risk management and sustainability in commercial companies.

table (14) Diversification Effect risk management and sustainability in commercial companies.

Model Summary

R-2 ^{Adjusted}		Coefficient of determination		Correlation coefficient R		
		R2				
0.507		0.509		0.714		
ANOVA Variance Analysis						
Sig F		Average squares	Df	Sum of squares	prototype	
0.000		1055.599	1	1055.599	Regression Regression	
		5.349	190	1016.401	Residual	
			191	2072.000	TotalTotal	
Sig T		Beta	Stand ard error	B	prototype	Depend ent variab le
.000			1.201	13.795	Constant	Corpora te

						Perfor mance
.000		.714	.058	.811	Interconn ected and unrelate d diversifi cation	

It was found that there is a strong positive correlation with statistical significance between the risk management and sustainability in commercial companies in the global competition market at a significant level of 0.01 and it is found that there is a statistically significant direct effect of risk management and sustainability in commercial companies in the food industry sector in the Kingdom of Saudi Arabia in the global competition market at a significant level of 0.01 and it turns out that the independent variable (risk management) explains 50.9% of the changes that occur in the dependent variable (sustainability in commercial companies) and it was found that the higher the level of application of risk management by 1%, the higher the level of sustainability in commercial companies in the food industry sector in the Kingdom of Saudi Arabia in the global competitive market by 0.811%, which shows the validity of the first sub-hypothesis of the study.

Second sub-hypothesis: There is a statistically significant correlation between risk management and commercial companies.

table (12) The impact of internal and external diversification on corporate performance

Model Summary						
R-2 ^{Adjusted}		Coefficient of determination R2		Correlation coefficient R		
0.309		0.313		0.559		
ANOVA Variance Analysis						
Sig	F	Average squares	Df	Sum of squares		prototype
F						
0.0	86.5 *25 *	648.333	1	648.333		Regression
0		7.493	190	1423.667		Residual
0			191	2072.000		TotalTotal
Sig	T	Beta	Standard error	B		Dependent variable
T						

.00	9.96		1.58	15.833		Corporate
0	3		9			Performance

It was found that there is a strong positive correlation with statistical significance between risk management and commercial companies in the global competition market at a significant level of 0.01 and it is found that there is a statistically significant direct effect of risk management and commercial companies of food industry companies in the Kingdom of Saudi Arabia in the global competition market at a significant level of 0.01 and it turns out that the independent variable (risk management) explains 31.3% of the changes that occur in the dependent variable (commercial companies) and shows that the higher the level of application of risk management by 1%, the higher the level of commercial companies of companies in the food industry sector in the Kingdom of Saudi Arabia in the global competitive market by 0.714% This explains the validity of the second sub-hypothesis of the study.

Results and recommendations

5.1 Conclusions of the study

- The existence of a high level of application of risk management in the companies of the food industry sector in the Kingdom of Saudi Arabia from the point of view of the members of the study sample and show a very high level of application of risk determination in the companies of the food industries sector in the Kingdom of Saudi Arabia from the point of view of the study sample members.
- The existence of a high level of application of risk assessment in the companies of the food industries sector in the Kingdom of Saudi Arabia from the point of view of the study sample members, where the arithmetic mean value was 4.178 with a standard deviation of 0.745.
- The presence of a very high level of risk response of the companies of the food industry sector in the Kingdom of Saudi Arabia in the global competition market from the point of view of the study sample members, where the value of the arithmetic mean was 4.357 with a standard deviation of 0.626.
- The existence of a high level of application of risk monitoring in the companies of the food industries sector in the Kingdom of Saudi Arabia from the point of view of the study sample members, where the arithmetic mean value was 4.178 with a standard deviation of 0.745.
- The existence of a strong positive correlation with statistical significance between risk management in the sustainability in food supply chains of companies in the global competition market and shows a statistically significant direct impact of risk management in the sustainability in food supply chains of companies in the food industry sector in the

Kingdom of Saudi Arabia in the global competition market and it was found that the greater the level of application of risk management by 1%, the greater the level of sustainability in food supply chains Companies in the food industry sector in the Kingdom of Saudi Arabia in the global competitive market by 0.333%, which shows the validity of the main hypothesis of the study.

- The existence of a strong positive correlation with statistical significance between risk management in the sustainability in commercial companies in the global competition market It is found that there is a statistically significant direct effect of risk management on the sustainability in commercial companies in the food industry sector in the Kingdom of Saudi Arabia in the global competition market and it was found that the higher the level of application of risk management by 1%, the greater the level of The sustainability in commercial companies of the food industry sector in the Kingdom of Saudi Arabia in the global competition market by 0.811%, which illustrates the validity of the first sub-hypothesis of the study.
- The existence of a strong positive correlation with statistical significance between risk management and commercial companies in the global competition market It is found that there is a statistically significant direct impact of risk management and commercial companies in the food industry sector in the Kingdom of Saudi Arabia in the global competition market and it was found that the greater the level of application of risk management by 1%, the greater the level of commercial companies in the food industry sector in the Kingdom of Saudi Arabia in the global competition market by 0.714%, which shows the validity of the second sub-hypothesis of the study.

5.2 Recommendations

- Work to encourage all companies operating in the Kingdom of Saudi Arabia to apply risk management elements by providing all the capabilities, trainings and needs that contribute to achieving this.
- Work to encourage researchers to expand studies on how to apply risk management in commercial companies operating in the Kingdom of Saudi Arabia and its effects on sustainability in food supply chains, as well as studies on the factors affecting the sustainability in food supply chains of companies operating in the Kingdom of Saudi Arabia.

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Appendixes

Appendix 1

The impact of applying risk management on sustainability in food supply chains, an applied study on commercial companies in Riyadh

Dear:

After Greetings ,

The questionnaire aims to identify the impact of applying risk management on sustainability in food supply chains, an applied study on commercial companies in the city of Riyadh in the Kingdom of Saudi Arabia. Given your great experience in this field, I ask you to answer the questionnaire questions accurately and objectively.

Note that the data that will be obtained through your answers will be used for scientific research purposes only and will be kept completely confidential.

Many thanks and gratitude for your cooperation

Personal data

■ Gender:

- Male
- Female

■ Age

- Less than 30 years old
- From 30 to less than 40 years old
- From 40 to less than 50 years old
- From 50 or more

■ Academic qualification

- High school
- Bachelor
- Master
- PhD

■ job

- Director
- Deputy Director
- Head of the Department
- Employee

■ **Duration of work experience**

- Less than 5 years
- From 5 years to less than 10 years
- From 10 years to less than 15 years
- 15 years and over

Risk management

N.	Phrase	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
risk determination						
1	The company has a specialized staff to identify risks that may face the company's work					
2	The Company seeks to identify sources of potential risks.					
3	The company has the ability to predict potential risks through appropriate means.					
4	The company determines risks based on similar experiences in other organizations and companies					
5	The company has a specialized staff to identify					

	risks that may face the company's work					
risk assessment						
6	The company has a specialized staff to evaluate risks in terms of the degree of probability of their occurrence and the extent of their impact					
7	The risk assessment process helps to make the appropriate decision about the actions to be taken regarding these risks					
8	The company evaluates risks using qualitative assessment (probability and impact matrix).					
9	The company evaluates risks using quantitative assessment (statistical approach).					
10	The company evaluates risks using the analytical approach (decision analysis tree, sensitivity analysis).					
Risk response						
11	Categorizing risks into major categories helps determine appropriate response methods for each category.					

12	Knowing the nature of risks helps determine appropriate response methods					
13	The company gives priority to dealing with important risks that cause significant losses					
14	The company works to reduce risks by finding alternative solutions that reduce the risk					
15	The company has a specialized work team to study and understand risks and determine appropriate response methods					
Risk monitoring						
16	Roles and responsibilities are clearly distributed among members of the risk management team to monitor risks.					
17	The company is working to determine the effectiveness and efficiency of risk control methods to deal with them.					
18	The company works to conduct continuous reviews of the risk management process and evaluate its performance periodically.					

19	The company undergoes reviews of required performance standards and policies to ensure that potential risks are monitored.					
20	The company adjusts project objectives in terms of cost, duration and quality to fit the new risk assessment					

sustainability in food supply chains

N.	Phrase	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Supply component						
1	The company is interested in having relationships based on commitment and respect with suppliers					
2	The company is keen to achieve joint and mutual benefits between both parties					
3	The company provides formal and informal means					

	of communication with suppliers					
4	The company is interested in transparent and clear exchange of information and data with suppliers					
5	The company ensures that suppliers commit to flexible production and supply processes.					
Manufacturing element						
6	The company takes into account the specifications required by the customer in the product					
7	The company uses the latest technological methods in manufacturing					
8	The company takes care that production is in accordance with the quantities needed by customers					
9	The company works to provide all the services that customers need with the highest possible quality and efficiency					
10	The company is interested in providing all manufacturing needs on an ongoing basis					
Delivery item						

11	The company is interested in finding quick and immediate solutions to customer complaints					
12	The company is interested in providing the highest possible level of quality in dealing with customers					
13	The company is keen to provide its services to customers at competitive and preferential prices					
14	The company is interested in creating personal connections with customers					
15	The company is keen to obtain customer loyalty for all the services it provides					