HUNGARIAN UNIVERSITY OF AGRICULTURE AND LIFE SCIENCES

ECO-INNOVATION AND BUSINESS PERFORMANCE IN JORDANIAN SMALL AND MEDIUM ENTERPRISES OPERATING IN THE FOOD PROCESSING SECTOR

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Reham Al-Hanakta

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Name of Doctoral School:
Doctoral School of Economic and Regional Sciences

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Management and Business Administration

Head of Doctoral School:	Prof. Dr. Zoltán Bujdosó PhD, Full Professor Hungarian University of Agriculture and Life Sciences
Supervisor:	Prof. Dr. Anna Dunay PhD, Full Professor John von Neumann University

……	……..…
Approval of Head of Doctoral School	Approval of Supervisor

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1. INTRODUCTION

1.1 Importance of the topic

Countries' competitiveness depends on the ability of their enterprises to innovate, Upgrade, and introduce new products and services. Therefore, innovation is the dynamic component that drives economies forward.

The lack of cooperation between knowledge producers (scientific community players, higher education institutions) and knowledge users (industry) is tangible and unsatisfying. It also hurts the innovation competitiveness of small and medium enterprises SMEs.

Small and medium-sized enterprises (SMEs) foster and maintain the organization of economic growth and social development in all countries globally and in the developing countries. They support the increase of production capability and to reduce the problems of poverty and job loss. SMEs became strategic goods in many countries (Djebarni and Al-Hyari, 2009).

SMEs are a very diverse group of businesses, running in different industries such as service, trade, agri-business, and manufacturing sectors. They involve a varied mixture of firms, such as village craft makers, small machinery shops, and computer software firms with a broad collection of superiority and skills. Some of them are active, advanced, and progress-driven, while others are satisfied to stay small and perhaps to be a family-business. SMEs usually are managed in the economy's formal sector and primarily hire blue-collar workers (Al-Mahrouq, 2010).

The increasingly globalized nature of the international economy has resulted in greater competition facing SMEs, with greater access to markets and data/research centers. This increased competition has emphasized the necessity for continuous improvement, innovation, and Research and Development (R&D). Many of the innovations reshaping the world today originate from SMEs. While SMEs offer new goods and services, they also offer new productive processes, and technologies (SEYA_Sawtouna_Small_and_Medium_Business_Agenda, 2018).

It should be noted that SMEs have potential innovative advantages over larger firms because of the less rigid, more flexible, and widely varied organizational structures of SMEs. In addition, SMEs have less bureaucracy to inhibit productivity and innovation. In fact, within the OECD nations, many SMEs have made use of researchers disillusioned with the bureaucracy of large enterprises. Moreover, in larger enterprises, successful innovators are frequently promoted to management jobs, whereas in SMEs, they remain in an innovative capacity (OECD, 2019).

Innovation founds a facilitating environment that enables taking the benefit of the capacities of people, procedures, and hi-tech. It is a methodical attempt to aid the process pattern, assessment, reasoning, and assimilation. Innovation can also be described as operating, assigning, and scheduling the organizational technology tools, personnel and work practices in order to accomplish a given output effectively and practically (Badiru, 2020).

Also, Schumpeter (1980) explained it as the capability to build economic value from newfound ideas. At the present time, innovation is counted as a key contributing factor of competitiveness and enterprise achievement, which demonstrates the direction and progress of regional and world economic development (Gao et al., 2017).

Alternatively, Contador et al. (2019) considers innovation as brand new ideas correlated with actions that lead to results with creativity and uniqueness, amplitude about the beneficiary audience, and significance, measured by their aptitude to resolve more multifaceted issues (Contador et al., 2019).

An actor's or a population of actors' ability to innovate depends on various actors, activities, artifacts, institutions, and relationships, including complementary and replacement relationships (Granstrand and Holgersson, 2020).

A company with no innovation strategy is not able to make trade-off decisions and select all factors of the innovation system. Accordingly, distinct divisions of organizations can simply conclude pursuing inconsistent priorities.

Any effective innovation plan must begin with precise knowledge and articulation of the goals connected to assisting the business in achieving a long-term competitive advantage. Beyond generalizations like "we must innovate to expand," "we innovate to generate value," or "we must innovate to remain ahead of the competition" is what is necessary.

Regarding the status of the innovation process, innovativeness can be seen as the acceptance or development of new and novel, appropriate, and unique products, or services by a firm. It means openness towards embracing new concepts, products, and procedures, consisting of the firm's readiness to transform and adopt the latest technology and market trends (Rakthin et al., 2016).

The innovation process is taking place in the Jordanian market, yet not in a very noticeable path. Jordan demands increasing innovations and entrepreneurships instantly because of the increasing emergency bills and the promptly developing refugee community. Conversely, not

many companies in Jordan value and acknowledge ideas and research proposals beyond their community.

The Global Innovation Index 2022 ranks 132 economies, with Jordan at 78. Jordan is ranked 24th out of the 36 economies in the upper-middle income category. It ranks 12th out of 19 economies in Northern Africa and Western Asia. Jordan does better than the norm for the upper-middle income group in two areas, specifically Institutions. Market sophistication is true.

This year, Jordan ranks 71st in innovation inputs, higher than in 2021 and 2020. Jordan will perform better in innovation inputs than innovation outputs in 2022.

Jordan is 78th in the world for innovation outputs. This ranking surpasses both 2021 and 2020 (Dutta et al., 2022).

96% of the entire business economy in Jordan is that of Small and Medium-sized Enterprises (SMEs); the successive Jordanian governments have also been keen to enhance Jordan's Economic competitiveness, as they have taken serious steps to enhance leadership, through their institutions. In 2019, the Ministry for Digital Economy and Entrepreneurship was established to "support entrepreneurship and innovation in Jordan." Based on its belief in the importance of entrepreneurship and creativity and the necessity to provide supporting components and encourage creative ideas and talents as they have a significant role in achieving sustainable development.

1.2 Sustainable Innovation Development concept

Since 1972 – the date of United Nations Conference on the Human Environment – when the Sustainable Development term was launched, the original meaning was broadened by new attributes such as environmental issues and bio/green innovation related to ecological factors (Burlea-Schiopoiu and Mihai, 2019).

Strategic transformation of innovation research on environmental challenges was acknowledged, and eco-innovation methods, including cleaner production, life cycle analyses, and eco-design, made their way into businesses (Klewitz and Hansen, 2014).

Based on the sustainable development concept, economic growth gradually enables emerging economies to close the gap with more developed economies. Activities that develop an economy in transition may include increasing the living standards, developing a competitive industrial and commercial basis and improving infrastructure.

1.2.1 Innovation in SMEs

Small and medium-sized enterprises (SMEs) and the business environment can be either a challenge or an opportunity. The challenges for SMEs include access to fewer resources (human, financial, physical, and informational), and it can be challenging for SMEs to implement sustainable-driven innovation practices (Hossain et al 2022). On the other hand, the challenge of sustainable innovation may create business opportunities and competitive advantages for their businesses (Hansen and Klewitz, 2012).

It is important to note that eco-innovations must not necessarily be technical but may include process innovations such as introducing new product lifecycles. Firms today need systemic approaches to sustainability to be competitive in the long term. Without a diligent effort to create an organizational infrastructure that supports the development of a sustainability strategy, the firm's efforts to successfully implement a sustainability strategy will be severely hindered.

When the organization's commitment to sustainability cascades through the organization, several benefits can accrue. First, in-role and extra-role performance can be enhanced at the individual employee level. Second, the level of employee engagement and commitment also can increase. Third, the firm's reputation may also be enhanced, making the organization attractive to potential employees, customers, and investors. Finally, a commitment to sustainability creates a culture of sustainability that can be rewarded by increases in brand equity, market share, and customer loyalty (Galpin et al., 2015).

Researchers show a range of advantageous and disadvantageous characteristics for eco-innovation and broader sustainability issues in (SMEs) (Al-Hanakta et al., 2021). For instance, resource constraints (Lack of time, personnel, financial capital, or knowledge) may result in a reluctance to invest in and implement eco-innovations. On the other hand, lean and flexible organizational structures may allow for fast responses to customer and market demands for eco-innovations. Identifying an (SME's) specific eco-innovation strategy helps to understand why it chooses to engage in eco-innovation. For example, increasing the eco-efficiency of their production processes influences organizational, product, and process innovations (Hansen and Klewitz, 2012).

SME peculiarities imply that they will innovate in a different way for sustainability. On the one hand, the literature points out some of the SME's drawbacks, e.g., supply limitations, shortage of enacted planning, and difficulty drawing finance, which may block them from proactively getting involved in the innovation process. Based on this perspective emphasized by most researchers,

SMEs are examined to display 'reactive' behavior towards environmental and social issues. On the other hand, the literature suggests that SMEs have advantages as flexible and lean organization structures characterize them. It might result in less bureaucratic management of environmental and community concerns. The governing and entrepreneurial role of the owner-manager may disrupt the reaction to changing markets and can ease the behavior related to product innovation.

Although recent, the argument on eco-innovation is becoming ever more significant in the reasonable context of business and the academic world. The debate on eco-innovation in the context of SMEs is worthy of attention.

Innovations serving the principles of sustainable development can be divided into three categories. At the level of system optimization, the structure of existing production and consumption systems remains unchanged, and its gradual development is achieved. This category includes the application of innovations and end-of-pipe solutions to improve the eco-efficiency of various products, services, and production and consumption systems. The second category: At the level of system redesign, reorganization of supply and consumption systems, modification of specific subsystems, and interactions are usually carried out using functional, sustaining innovation within the frameworks of the existing context. The third category is system innovation. It is the level where not only continuous optimization of products and services, and processes take place under the terms of the existing infrastructure and institutional framework, but also the whole system, i.e., constituents, their relationships, and interactions, is changed. It requires the emergence and spread of innovations that break with prevailing solutions and principles and help to make the whole system more sustainable (Toth et al., 2018).

Prior research has often dealt with giant firms' sustainability-oriented innovations (SOIs). Small and medium-sized businesses (SMEs), increasingly acknowledged as essential contributors to sustainable development, have acquired a vast knowledge of the specifics of SOIs in recent years. However, this information is dispersed throughout several academic fields.

Strategic sustainability behavior might be resistive, reactive, anticipatory, innovation-based, or sustainability-rooted innovation approaches at the level of products, processes, and organizations. Results indicate that research focuses primarily on eco-innovation rather than innovation from an economic, social, and environmental standpoint, or SOIs of innovation of SMEs. One theoretical contribution is creating an integrated framework on SOIs of SMEs, where we outline how various strategic sustainability behaviors might account for variations in different innovation approaches.

Additionally, the more proactive SME behaviors support the claim that given the evolving nature of the innovation process, they have a greater capacity for more radical SOIs. Therefore, engagement with outside parties (such as clients, government, and research institutions) can eventually boost small and medium-sized enterprises' (SMEs') potential for innovation (SOIs). There are knowledge gaps regarding radical SOIs, simplified innovation techniques, the function of SMEs in industrial transformation, and sustainable supply chains. Additionally, a more thorough theoretical discussion of SOIs is required (Klewitz and Hansen, 2014).

Along with its description, eco-innovation is the creation, integration or investment of a product, production procedure, service, or administration or business approaches that are novel to the organization (developing or assuming them) and which leads, throughout its life cycle, to a decrease of environmental hazard, pollution, and other adverse effects of resources used, including due to pressure from the government and the market, developing an effective eco-innovation program and making it a critical component of manufacturing sustainability is becoming more and more vital (Lee and Min, 2015; Al-Hanakta, Illés and Dunay, 2021).

The Organization for Economic Co-operation and Development (OECD) emphasized the two attributes that set eco-innovation separately from innovation to clarify its meaning. The first advantage is that it is an innovation that reveals the concept's obvious emphasis on a decrease of environmental impact, whether such an impact is intendant or not. Furthermore, it involves innovation in social and institutional structures amongst innovation in products, practices, and organizational methods, according to the second tenet.

Environmental performance measures how well businesses interact with their surroundings, including how they use and manage natural resources and how they manage pollution. The International Organization for Standardization's Technical Committee, also known as SO 14000, has created international standards for environmental management and environmental performance measurement. These policies also had a global component. Multiple Environmental Agreements (MEAS) are a collection of 200 international agreements that deal with environmental issues; on the other hand, the World Bank policy established a number of guiding principles that must be followed when funding development projects by the World Bank, which collectively reflects the absence of financing for environmentally harmful projects (Dangelico, 2017).

Environmental performance, as beforehand, is the efficacy of environmental administration in decreasing pollution and protecting the environment by concentrating on sectorial environmental policies that focus on the production side using tools to measure and evaluate environmental

performance through environmentally sustainable performance assessment, product life cycle assessment, and environmental auditing to determine the level of compliance. The facility for environmental laws, as well as the performance measurement model to choose the most efficient mode of production (ISO - International Organization for Standardization, 2023).

It might be unsuccessful to develop eco-innovation without following a comprehensive approach. For example, a number of researchers focused exclusively on technology when addressing eco-innovation issues; Along with the socio-technical system theory, implementing innovations should take place in conjunction with proper social and managerial systems to increase business performance, as well, a company must be able to tweak and refine its internal operations and structure to support technological aspects of eco-innovation (Roscoe et al., 2016).

Additionally, pointing out that the R&D unit should not be solely responsible for an effective eco-innovation program. An organization must instead develop and support its eco-innovation programs in a comprehensive manner.

Eco-organization implementation refers to organizational members' competences and commitment to implement new forms of eco-innovation management. Eco-organizations cannot decrease environmental impact directly, but they can assist the implementation of eco processes (e.g., in manufacturing) and eco-product innovations.

The employment of eco-innovation in eco-organizations incorporates eco-training programs, eco-product design programs, the introduction of eco-learning methods, the formation of management teams to work on eco-issues, and eco-management systems (Cheng and Shiu, 2012).

The primary theoretical framework for investing in eco-innovation presupposes that stakeholders and regulatory bodies are under pressure, and that eco-innovation does not, therefore, result from the company's mission in terms of its business practices (Rennings and Rammer, 2011). This strategy can be contrasted with innovation theory, which views innovation as pressure the company applies to the market rather than the other way around (Teece, 2010).

1.2.2 Importance of sustainability in the food processing sector

The food processing sector directly influences human health in relation to nutrition and food hazards. Medium and small companies can only progress well and become sustainable if their human resources receive adequate training and education on food safety processes and laboratory tests. Although this sector is highly structured and regularly supervised by the Jordan Food and Drug Administration (JFDA), it is composed of many informal small businesses, such as home

businesses, farm businesses, small shops selling dairy products, Arabic sweets, jams, or pickles, etc. These are mostly spread around Amman and in the governorates (Hundaileh and Fayad, 2019). There is an obvious trend to hire more women in specific activities involving tolerance and thorough manual work, as well in quality control activities (Al-Hanakta et al., 2023).

At present, the food manufacturing, agricultural, and animal husbandry sectors hire 52,143 people and generate 4.10 billion Jordanian dinars in income (output). According to statistics from 2021, these sectors account for 6.2% of the GDP. 541.1 million dinars worth of exports from this industry made up 10.1% of all industrial exports from Jordan (Bulletin issued by the General Department of Statistics for the year 2021).

The present significance of the sector is ascribed to the fact that it is greatly varied, including all sizes of businesses (Al-Hanakta and Horuz, 2020). More than 95% are considered MSMEs, 80% of which are micro and small enterprises. Furthermore, this importance is derived from the forward and backward connections of the sector in the economy, its degree of integration and the added value produced by means of these connections. The sector represents 25.9% of the net added value within Jordan's industrial economy. Consequently, the sector has become a strategic one both in industry and agriculture (Hundaileh and Fayad, 2019; Al-Hanakta et al., 2020).

1.3 Problem Statement

Over the past few decades, corporate environmental responsibility has grown significantly. However, the research was primarily concerned with high-tech businesses and industries. With very few exceptions, the academic literature on this subject tends to ignore small and medium-sized firms (Díaz-García et al., 2015).

Small businesses are typically unenthusiastic about incorporating environmental issues into their management processes because they find it challenging to transform ecological practices into competitive advantages (Cuerva et al., 2014).

Additionally, traditional industries like the food sector, normally low-tech with significant exceptions, lack research on this subject. Because of this, it is still uncertain if adopting ecological practices can improve the performance of businesses engaged in low-tech industries like the food sector (Stucki, 2019).

Measures used to assess enterprise performance have generally focused on profitability and sales. Moreover, in today's globally competitive environment, performance is being evaluated from a broader perspective. Because performance measurement influences strategic decision-

making at the enterprise, only financial performance measurements are inadequate in contemporary organizations (Atnafu and Balda, 2018).

Consequently, businesses must be able to measure their performance holistically and analyze themselves by the established criteria. As a result, evaluating some parameters in terms of customers and society - receiving service from the business- is essential to determine a business's performance level. In a nutshell, performance is measured as the sum of all business stakeholders' performance (Shad et al., 2019).

1.4 Research Objectives

This research will examine the effects of eco-innovation on Jordanian SMEs in the food sector, and enhance SMEs' performance, toward a theoretical framework and testing empirically the relationship between practices and capabilities and eco-innovation in SME performance.

Jordan is a small developing Arab country in the Middle East; Jordan's economy benefits from its well-educated population, strategic location, world-heritage touristic sites, and reputation for stability in a turbulent region. The innovation process is taking part in the Jordan market, but not in a very noticeable way, even though the government actively supports innovation by launching a strategy for innovation.

- The research will assess the contribution of eco-innovation to Jordanian SME performance in food sector.
- SMEs often encounter more difficulties developing technological capability because of the resource restraints on capital and talents and the considerable risk of R&D & itself. These barriers have become an opportunity for growth and development for SMEs since they are moving toward a stage of maturity and consolidating themselves in the new era of the knowledge economy. Therefore, the research will study the eco-innovation effect on SME performance (Halme et al., 2016).
- The research will explore the drivers for the adoption of eco-innovation to factors that affect companies directly or indirectly, internally, or externally.

1.5 Research Questions

The main research question is to analyze the relationship between eco-innovation and SME performance in Jordan's food sector. The research reveals the drivers of environmental innovation and highlights the impact created by working with SMEs and local governments. The following questions are considered:

1. Do technological capabilities (TC), environmental organizational capabilities (EOC), command-and-control instruments (CCI), market-based instruments (MBI), customer green demand (CGD), and competitive pressure (CP) work as driving forces that may trigger the implementation of eco-innovation?
2. What are their concrete effects?
3. Which are the most effective drivers for inducing eco-innovation in companies?
4. Can eco-innovation actions really achieve a company's economic performance?
5. Can eco-innovation actions really achieve a company's social performance?
6. Can eco-innovation actions really achieve a company's environmental performance?

The importance of resource-based perspectives and institutional theory in explaining corporate eco-innovation behavior. A resource-based view suggests that companies respond to external changes. Based on its own internal resources and functions. Institutional theory focuses on external pressures and social expectations to explain the innovative behavior of firms. Based on a combination of the two different but complementary theories mentioned above, a discussion of eco-innovation drivers examines the impact of drivers and eco-innovation behavior on economic, environmental, and social performance. Two aspects of internal resources (technological capabilities and environmental organizational capabilities) and three forms of institutional pressure: coercive pressure (environmental regulations, usually exercised by governments), normative pressure, it relates to a company's need to improve its ability to satisfy its stakeholders. It refers to the need to imitate other business leaders, including customers and suppliers and pressure to imitate. Mimetic pressure occurs when a company feels competitive pressure from the successful actions of its competitors. It is reflected in terms of unique effects on eco-innovation practice and performance.

1.6 Theoretical Model

The theoretical model of the research, the factors influencing eco-innovation and the impacts on economic, social, and environmental performance, as well as the study hypotheses are summarized by Fig. 1.

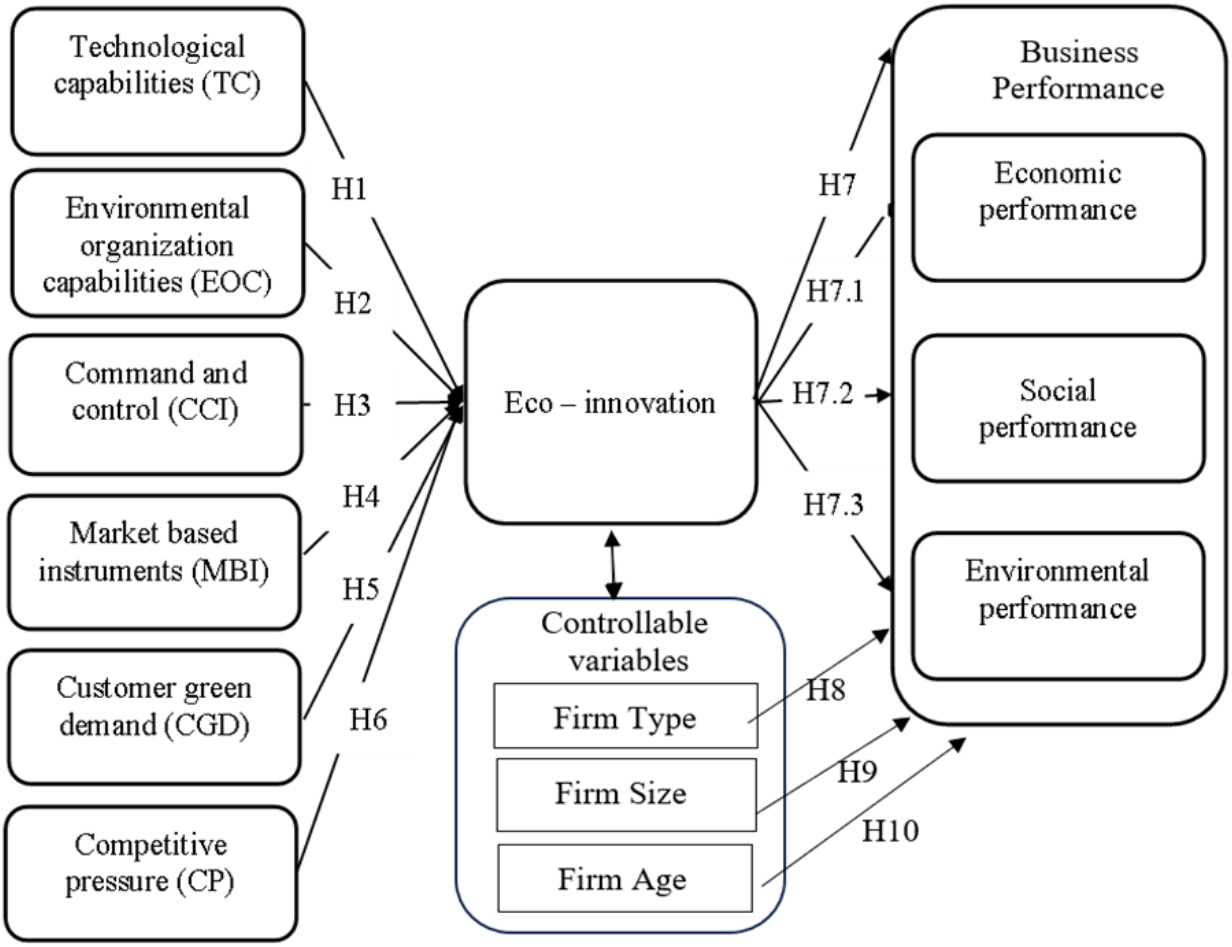

Figure 1. Theoretical Model

Source: own compilation

The different stages of the research and the related tasks and analyses are built on each other. The flow chart in Figure 2 depicts the overall research framework for this study with the different steps and the related research works and tasks.

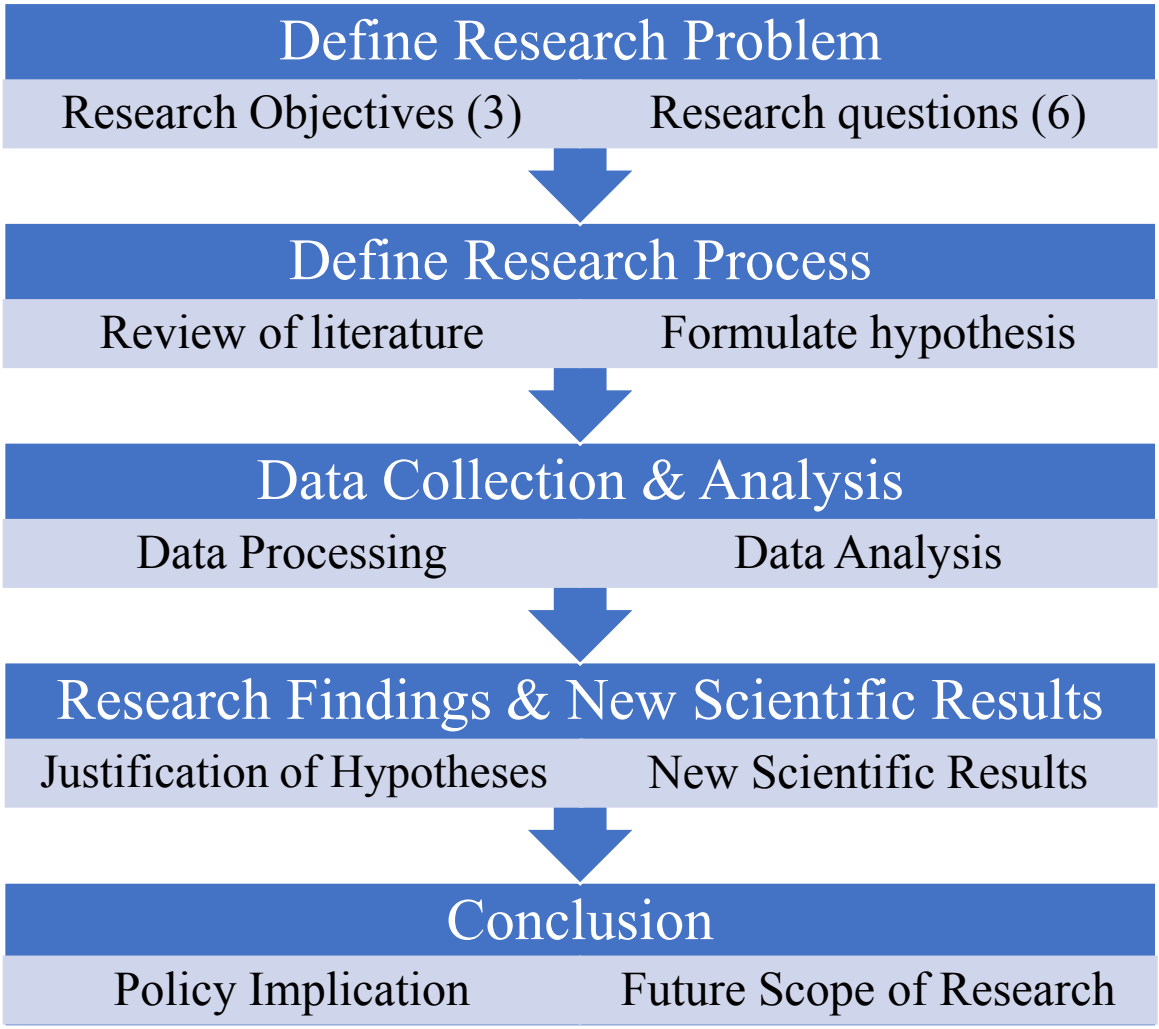

Figure 2. Research Framework

Source: own compilation

2. LITERATURE REVIEW

2.1 Eco-innovation in theory

The business and industry sectors worldwide have been interested in applying sustainable development to transform consumption and production patterns into alternative economic patterns. However, contemporary trends of gradual improvement have proven insufficient to deal with ecological and social pressures arising from significant challenges such as dwindling resources and climate change. Hence, the prominence of ecological innovation as a structure for realizing sustainable development. The Ecological Innovation Program is one of the main tools approved by the European Union to shift towards economies that use their resources more efficiently.

A broad literature review was conducted to guarantee the involvement of all related views of the internal boundary of eco-innovation. For example, Arundel and Kemp (2007) explored that eco-innovations include technical, organizational, and marketing innovations. They categorized - eco-innovation types into process/product innovation, mature/immature innovation, and radical/incremental innovation. Also, they studied three types of eco-innovation: eco-process, eco-product, and eco-organizational innovations. The Oslo Manual, developed by the OECD (2005), identified four diverse types of eco-innovation: product innovation, process innovation, organizational innovation, and marketing innovation. Generally, for investigating internal innovation, the literature seems to propose a focus on eco-process, eco-product, and eco-organizational innovation activities (Klassen, 2000).

Schumpeter characterized innovation in his study "Theory of Economic Development," first published in 1911 in Austria. Different researchers view eco-innovation from different angles and ways, and the discussion on eco-innovation in SMEs is still emerging.

Eco-innovation is developing and applying a business model shaped by a new business strategy that incorporates sustainability throughout all business operations based on life cycle thinking and cooperation with partners across the value chain. It entails a coordinated set of modifications or novel solutions to products (goods/services), processes, market approach, and organizational structure, leading to a company's enhanced performance and competitiveness (Eco-innovating with Jordanian SMEs | SAICM Knowledge, 2019).

The creation of cutting-edge and competitive products, services, systems, and processes that meet human needs and enhance everyone's quality of life while utilizing the least amount of dangerous materials and available natural resources (Reid and Miedzinski, 2008).

According to Rennings (2000) and Arundel and Kemp (2007), eco-innovation can be defined as the production, application, or exploration of goods, services, production processes, organizational or managerial structure or method of business new to the enterprise or the customer. The desired outcomes are reduced environmental risks, less pollution, and fewer negative impacts of the utilization of resources when compared to the corresponding alternatives (Pacheco et al., 2017).

Buttol et al. (2012) outline a novel strategy for leveraging information and communication technologies (ICT) to integrate services and tools that will assist the process of product eco-innovation in SMEs and discusses the ideas underlying the concept and creation of the Eco-SMEs net platform.

Hansen and Klewitz (2012) identified the role of intermediaries in small and medium-sized enterprises (SMEs) quest for eco-innovation. According to an empirical qualitative interview with German SMEs in the metal and mechanical engineering sectors that took part in "Eco profit," a program based on intermediaries that try to introduce firms to the idea of sustainable growth through the adoption of eco-innovations.

Eco-organizational innovation has the most potent effect on business performance. These interrelationships have never been sufficiently investigated holistically. The study draws on the resource-based perspective theory to investigate the linkages among three forms of eco-innovation (process, product, and organizational) and their respective influence on company performance.

According to research from the Taiwan Environmental Management Association, the results of eco-organizational innovation and eco-product innovations are partially mediated by eco-process and eco-product innovations mediates the effects of eco-process innovations on organizational performance. This study deepens the organizational innovation literature by exploring that an instantaneous acceptance of technological (e.g., eco-produce and eco-process) and administrative (e.g., eco-organizational) innovation is crucial to firms. Additionally, an effective eco-innovation program involves a systemic approach (Cheng et al., 2014).

Regulation and customer view can clarify a firm's decision to involve eco-innovation. Eco-innovation is also more significant than non-eco-innovation in deciding the firm’s performance (Doran and Ryan, 2012).

Firms demonstrate proactive environmental behavior by enhancing internal capabilities in the context of eco-innovation.

Internal capabilities are the abilities to transform input into output and help businesses make greater use of external sources. Businesses should be able to identify the appropriate internal resources that could boost eco-innovation performance (Salim et al., 2019a).

2.1.1 Definitions of Eco-Innovation

The term eco-innovation is a relatively new term. The term was first used by (Fussler and James, 1996) in the Ecological paper Leadership for Innovation, concerning new products and processes that provide value to customers and businesses while significantly reducing ecological impact, demonstrating equal importance to ecological innovation.

In 2009, the Organization for Economic Co-operation and Development defined ecological innovation as implementing new or significantly improved products in processes, marketing methods, and organizational structures that lead to ecological improvements compared to related alternatives (OECD, 2010).

Ecological innovation can be defined as the development of a new product, work method, or production process. It is less harmful and suitable for the environment. It contributes to reducing ecological burdens regarding the depletion of non-renewable natural resources or related to how to raise and manage the remnants of production and consumption processes and recycle them (Bocken et al., 2014) .

Because the OECD idea is not limited to the intentionality of ecological sustainability, it is crucial to ascertain the factors that motivate businesses to embrace ecological principles. It is unclear what businesses are doing or how they incorporate these principles into their actions and strategies, even though topics like innovation and sustainability have recently become hot topics in both academic and practical discourse (Oncioiu, 2015).

Eco-innovation is the creation, exploitation, or absorption of a firm's new product, service, management system, or business practice. Through its lifespan, it reduces environmental risk, pollution, and other detrimental effects of resources compared to appropriate alternatives (Lee and Min, 2015).

Eco-innovation is based on a less comprehensive scope than innovation since it has restricting qualities, as the primary goal is to have a minor ecological impact. Eco-innovation can result in inevitable advantageous trade-offs between ecological qualities and crucial success aspects, such as appearance, functionality, and design. Eco-innovations should benefit organizational and

consumption patterns and include social, economic, and ecological factors in their acceptance and implementation (Bossle et al., 2016).

Companies that have made eco-innovation investments strive to be more eco-efficient than their rivals in terms of the company's overall ecological performance or the ecological effects of a specific product. Eco-innovation has also been developed for other goals aside from reducing harmful ecological effects, such as boosting economic resource productivity or deepening our understanding of global ecological change and its connection to economic and social systems (Oncioiu, 2015).

The following factors have been identified as crucial determinants of ecological innovation: (1) organization, (2) technology, (3) cross-functional cooperation, (4) supplier participation, and (5) market focus (Fernando et al., 2016).

Demirel and Kesidou (2019) divided environmental innovation in particular into four main indications:

The product: It is by introducing new products or replacing the current products to be environmentally friendly, designing products that consider the environmental requirements, friendly raw materials and avoiding chemicals, especially safe ones, and the possibility of recycling these products.

Production process: It is by developing new processes and technologies, as well as new production techniques that do not damage the environment, able to lower the consumption of raw materials and energy.

Marketing: It is through adopting new methods and applications for marketing activities and balancing the objectives of achieving customer satisfaction by satisfying his desires while considering the environment by avoiding its damage and maintaining environmental integrity.

Regulation: It means the introduction of new administrative and organizational concepts and their applications. To create an internal work environment that facilitates the application of environmental standards and makes it able to reduce negative environmental impacts before they occur through continuous evaluation, to improve environmental performance.

2.1.2 Objectives and mechanisms of ecological innovation

Eco-innovations refer to the preparation and application of a business model embodied by following a new business strategy. Its role is to apply sustainability in all business operations based on thinking according to the perspective of the life role. These innovations require a coherent set

of modifications or innovative solutions to products, processes, market approach and organizational structure, which raises the company's performance and ability to compete (Gaziulusoy, 2015).

The main focus of ecological innovation can be categorized (Nicolaï and Pillot, 2017):

- Products and processes that are closely related to technological progress.
- Marketing strategies and organizational structures whose mechanisms are frequently linked to non-technological changes.
- Institutions, which include societal areas outside the control of a single company.

It also identifies the following mechanisms for ecological innovation:

- Modification: Refers to the intensity of innovation (gradual/radical change).
- Redesign: concerning the scope of innovation (Integrated Ecological Technologies).
- Alternatives: Regarding supporting ecological innovation, such as the service economy or new production methods, we can also mention the replacement of raw materials with the use of renewable energies.
- Creation: includes the design of new products, processes, and institutional procedures.

The development of environmental innovation benefits all enterprises facing conflict regarding economic development and environmental protection. Therefore, the different processing sector wishes to embrace their products and adopt green innovation as the best way to respond to regulatory pressure and have a competitive edge. On this basis, it is stated that the importance of green innovation lies in (Hojnik and Ruzzier, 2016):

- To reduce pollution and degradation of environmental performance, degrading resource productivity, increasing energy efficiency, and reducing waste, and decreasing the cost of produced materials.
- Enables organizations to gain commercial rewards from creating environmentally sustainable products.
- It is achieving financial benefits that can increase the competitiveness of enterprises.
- It is the key to improving competitiveness in a world of increasing environmental concern.
- It provides an excellent opportunity to meet customers' demands without harming the environment.

- It improves the performance of the institution and improves efficiency in the use of resources and energy.
- Organizations can reduce costs and increase revenues.

2.2 Drivers of Eco innovation

2.2.1 Technological capabilities (TC)

Information technology is the focus of technological capabilities because it provides information that allows organizations to make appropriate decisions and develop strategies. (Tallon et al., 2019) Organizations value technological capabilities just as much as they do information technology. The technological capabilities benefit business managers in the following aspects:

1. Technological capability is essential for the organization's continuity through the business strategy (Niemimaa et al., 2019).

2. The technological ability works to maximize the excellent use of resources in the organization and its ability to interact and work with the various processes in the work environment (Khin and Ho, 2018).

The technological capabilities are:

1. *Research and development capabilities*: They are represented by the organization's technology and technical skills in technological research, which provide knowledge and information in the fields of its specialization (Dodgson, 2018). When the organization builds its technological capabilities, it invests significant resources in research and development, including discovering a new product, accumulating knowledge stocks, and technical training personnel (Demirel and Kesidou, 2019). Also, research is a primary means through which a solution to a problem can be reached by investigating the facts and phenomena entrusted to it (Dwivedi et al., 2021). On the other hand, development is defined as the application of knowledge with the aim of producing or developing products, or methods that include designing basic templates for products or making the required improvement (Sousa and Rocha, 2019).

2. *The ability of networks*: In many organizations that use technology in managing their business as well as in the process of communication between their units and divisions, they use their network, or what is called the intranet. Intranet is considered a computer network for the organization and in which the protocols used on the Internet are used, and this, in turn, works to

enable employees in the organization to communicate with each other and to access information at high speed. The intranet is a private network within the organization that may consist of many interconnected local networks in which wide-area network lines are used. (Cenamor et al., 2019)

3. *The ability to communicate technologically*: The concept of cellular networks arose within the framework of efforts aimed at developing the wireless/mobile communications system, where the basic principle of cellular networks is the use of fixed radio stations with low power in a way that allows the reuse of radio channels by other stations that are not far away, where its broadcast range and number are chosen according to the design needs so that each station is designed. (Khin and Ho, 2018)

2.2.2 Environmental organizational capabilities (EOC)

Companies that have already achieved a proven history in sustainability by gaining experience and essential capabilities in sustainability management are better positioned to engage in further sustainability initiatives". The authors of the same study identified critical focus themes on the agendas of firms that are encapsulated by sustainability efforts, such as new technologies to make manufacturing processes more sustainable and the development of green products, in the same study. According to Gabler et al. (2015), an environmental orientation is required to build eco-capability, as the most influential business strategy must be aligned with the commensurate orientation.

Ecologic orientation entails understanding the natural environment and its role in the business landscape and giving equal weight to stakeholders such as local communities. Protectionism is ingrained in the culture and climate of a company. Aside from environmental orientation, Gabler et al. (2015) considered a company's innovativeness an essential factor in developing eco-capability. Product and process improvement, as well as organizational innovativeness, can reflect something new to the industry, the customer, and the environment and can also be an essential dynamic capability in and of itself (Gabler et al., 2015).

These eco-capabilities have the potential to improve sustainable business performance. Sustainability is essential for businesses because it affects performance and can aid in survival in hostile environments. However, maintaining long-term sustainability is problematic because it necessitates the ability to evaluate and modify sustainable actions whenever perceived changes in social efficiencies, economics, and the environment occur. Organizations must therefore develop the ability to continuously adapt their green technology or develop their eco-capabilities (Souza et al., 2017).

2.2.3 Command and control instrument (CCI) & Market-based instrument (MBI)

Typically, academics categorize governmental acts into command-and-control and market-based ones (Stiglitz and Rosengard, 2015). In contrast to command-and-control strategies, which typically involve regulations to enforce explicit limits to enterprises' environmental impact, market-based tools try to create indirect financial incentives for sustainable innovation. Market signals and procedures, various management techniques that rely on market mechanisms, and financial transfers between polluters and society can all be used to execute MBI (Stiglitz and Rosengard, 2015).

The promotion of MBI has significantly increased during the last ten years. This change results from the perception that MBI offer businesses more excellent choices in determining how to meet public environmental goals best while also providing customers with the most cost-effective means of enabling them to make environmental preservation efforts. MBI promotes actions that provide private benefits for enterprises and achieve broad-scale policy objectives by using market dynamics. It encourages desired corporate behavioral change. MBI have been used in various situations including public housing (Khare, 2018), agriculture, maritime transport, chemical industries, urban water recycling, and the prevention of municipal solid waste (Magrini et al., 2020).

2.2.4 Competitive pressure (CP)

Competitive pressure is the level of pressure the organization perceives from its rivals. Economic studies and polls show that as the globe transitions to a knowledge-based, free-market economy, there is an increase in competitive pressure. Due to this pressure, organizations may feel compelled to implement new IT advances in an effort to become more competitive (Hmoud, 2021).

2.3 Eco-innovation in practice

In fact, there are several types of eco-innovation, including product innovations, process innovations, organizational innovations, and marketing innovations. As each type of innovation has its own characteristics, determining factors, and contribution to environmental performance, researchers have notified that it is not effective to implement innovation programs distinctly without a systemic view (Damanpour et al., 2009). On the other hand, previous studies have mostly focused on the development and performance of individual eco-innovation programs, such as product innovation, service innovation, technological innovation, and infrastructure and policy innovation (Tseng et al., 2013).

Researchers have addressed eco-innovation from the following perceptions: First, the studies that identify factors driving eco-innovation and the performance outcomes arising from eco-innovation. Second, studies identifying the dimensions of eco-innovation. The third research category focuses on developing an instrument to measure innovation.

The literature separates external and internal eco-innovation at the eco-innovation boundary. The organization's external activities for green and sustainable activities, such as suppliers (Hezri and Nordin Hasan, 2006) regulators, and market demand, are all included in the external boundary of eco-innovation. The practices for successfully and professionally managing eco-innovation procedures within organizations, such as organizational management.(Hines et al., 2004) production process and new product development, are related to the internal boundary of eco-innovation activities (Lin and Chen, 2007).

Researchers have also examined eco-innovation from a variety of angles, such as those related to government policy (Jayaram et al., 2008), stakeholders such as clients and suppliers (King and Lenox, 2001), organizational strategies (Jørgensen et al., 2004), organizational leadership (King and Lenox, 2001), organizational culture, and the characteristics of the eco-innovation itself (Lin and Chen, 2007).

An innovation in an organization's eco-process is a new element added to its eco-product production system. Eco-process innovation, generally, implies the enrichment of current production procedures or the addition of new practices to reduce the impact on the environment. Innovation can take the form of additive solutions (such as smokestack scrubbers), or it can be combined into the production practices through input substitution, production optimization, and output renovation. Eco-process innovation therefore alters an organization's operational procedures and systems, lowers production unit costs, generates new or significantly enhanced eco-products, and lessens environmental impacts (Li et al., 2005).

Given the growth that small and medium-sized businesses have seen, green innovation or eco-innovation is therefore seen as a foundation for fostering and growing them. As a result of the emergence of what is known as the "environmental responsibility," which falls on these institutions if they do not take the environmental performance into consideration, it became necessary for its commitment to achieving environmental performance after it aimed to achieve performance or economic effectiveness (Hair et al., 2010). The paradigm developed by calls for dynamic capacities from a resource-based perspective for organizational, process, and product eco-innovation, which may have an impact on corporate performance.

Environmental innovation and performance have a positive impact on costs, sales of distinctive products, profit margins, brand value, and the company's standing in the community in addition to lowering environmental risks. Designs that take into account economic, social, and environmental factors are among the advancements in environmental regulation (Shah and Ahmad, 2019). However, big businesses frequently spend a lot of money on R&D, which makes it simpler to adopt changes to environmental laws. On the other side, by recycling and reusing materials, micro and small firms can apply innovation in their operations and products. Recycling of materials is a process that demonstrates environmental innovation.

Therefore, eco-advancements in manufacturing that recycle and reuse raw resources reduce production costs. The creation of an environmental innovation process requires the inclusion of elements that consider human health, reduce environmental impacts, and abide by laws set forth by governmental bodies. The product's life cycle is the focus of environmental advances. By increasing productivity and enhancing the efficiency of production processes, they are able to lessen the environmental impact by using less material and energy (Hair et al., 2010).

Because of this, decision-makers need to understand that adopting environmental innovation is now the only way for businesses to develop and expand. Many local and foreign clients and buyers require that their suppliers make items that do not include harmful and poisonous substances as environmental innovation has become more crucial for businesses to enhance environmental awareness. Businesses are likewise looking for ways to produce goods with less energy and material input (Vaitoonkiat and Charoensukmongkol, 2020).

Technology makes it possible to offer cutting-edge tools to businesses, creative methods to prevent and manage food surpluses, climb the food waste hierarchy, and avoid raw material extraction. Information technology, including online platforms or applications, facilitates food sharing and distribution.

An eco-organizational innovation, according to Birkinshaw et al. (2008), is the enhancement of the organization's management procedures through new and eco approach in business practices. Thus, eco-organizational innovations can enhance business performance by facilitating necessary adjustments, lowering administrative and transaction costs, enhancing workplace satisfaction, or lowering supply-chain costs. Environmental impacts are typically not directly reduced by eco-organizational innovation, but it does make it easier to implement eco-process and eco-product innovations.

Eco-organizational innovations involve eco-training programs, eco-product design programs, eco-learning techniques, or the formation of management teams to tackle environmental problems. Consequently, administrative attempts to renew organizational practices, procedures, mechanisms, or systems to ultimately produce eco-innovations are correlated to eco-organizational innovations (Maxwell et al., 1998).

2.4 Business Performance

There is no thorough body of knowledge in the area of business performance measurement (BP). Scholars in the field of performance measurement come from a variation of management disciplines, including strategy management, operations management, human resources, organizational behavior, information systems, marketing, and management accounting and control. Varied and multidisciplinary research is noteworthy but can also lead to some concerns. There are numerous definitions of a BPM system as a result of the various approaches to performance measurement, and there is little agreement on its essential features (Marr and Schiuma, 2003).

Eco-organizational innovation has a direct and favorable impact on economic performance in the Malaysian technology industry, according to empirical research that covered 109 local and foreign-owned technology companies. Additionally, in spite of the moderating impact of market instability in the Malaysian technology sector , the effects of eco-product and eco-process innovations on environmental performance have been confirmed (Cheng et al., 2021).

Based on a study, each of the three eco innovation categories—eco process, eco product, and eco organization has a direct impact on the numerous traits of sustainable business performance. Absent the moderation of market turbulence (MKT) in Ghanaian manufacturing companies, the empirical research results support the positive impacts of eco-product, eco-process, and eco-organization on environmental performance and the positive impact of eco-organization on social performance (Larbi-Siaw et al., 2022).

Based on a study that employed data from 442 Chinese companies, eco-innovation behavior can substantially increase a company's environmental performance. The study's findings illustrated that certain factors, such as technological competences, environmental organizational proficiencies, a market-based instrument, competitive pressures, and customer green request, contribute to the development of eco-innovation (Cai and Li, 2018a).

Three hundred and sixty-six businesses in the manufacturing and service sectors were chosen as the research sample to examine the impact of four types of corporate culture (clan, adhocracy, hierarchy, and market) on the three dimensions of a firm's environmental innovation (eco-organizational, eco-process, and eco-product). The findings demonstrate that market and adhocracy cultures are positively related to a firm's eco-organizational, eco-process, and eco-product innovation; clan culture has a positive impact on eco-organizational innovation while hierarchy culture has a negative impact; and the three environmental innovation dimensions all enhance a firm's financial performance (Liao, 2018).

Cooperation in research and development can have a positive impact on technological eco-innovations of products and processes; cooperation enables eco-innovations to meet environmental requirements and promotes the spread of technical knowledge. 221 electrical and electronic manufacturers with operations in Brazil provided data for a study (Tumelero et al., 2019).

2.5 Factors affecting business performance

Whether they are focused on domestic or international markets, many organizations around the world are impacted by a variety of factors, which are reflected in their levels of performance and, consequently, their level of success. Here, a few of these elements that affect the majority of businesses are discussed**.**

2.5.1 External factors

1- The economic situation – and we are talking about the economic situation and the extent of its stability – whether at the national or global level, makes it challenging for many establishments to perform at their peak levels and to the fullest extent in the event that there are changes in the economy, whether local or international, in a negative way, as the existence of economic crises is typically reflected on the performance of the markets and causes in various ways.

2- Competitors are one of the external hazards that cannot be eliminated in any manner is the growth in the number of rival businesses for the institution. As a result, many businesses are forced to spend more money to keep skilled employees on staff and stop them from defecting with other companies. It is important to note that high-performance practices like flexible rewards and positive manager-employee relationships can help to lessen or even eliminate this kind of threat (Shah and Ahmad, 2019).

2.5.2 Internal factors

1- The first and most crucial factor, which is the administrative method used, as the old administrative method does not help to compete with other modern organizations, and here comes the modern horizontal management method as one of the best solutions to raise performance, where all levels share responsibilities within their functional and specific roles, while giving it the necessary powers in order to achieve those roles.

2- Performance on an individual and team level is another internal aspect that could have a detrimental impact on the establishment's ability to compete. Everyone has certain demands that the management must be aware of and considerate of, such as fair compensation for the nature and complexity of the job, training, rewards, and other perks that will motivate workers to perform their jobs well and more effectively. In terms of teamwork, the effectiveness of the team is always influenced by the number and caliber of its members. For example, selecting the incorrect number of team members to complete a task may increase conflict or cause discord, which has a negative impact on the outcomes. It is crucial that the team's members are diverse and that the right selection criteria are in the plan.

3- If work policies and procedures are not reviewed and updated, it may affect the organization's performance, as well as the efforts of the work teams and the achievement of the desired results. It is essential to assess the regulatory standards and update those policies and procedures permanently because they must be in line with the establishment's plan (Vaitoonkiat and Charoensukmongkol, 2020).

2.6 Types of Business performance

In general, performance is a quantitative and qualitative measure that assesses the outputs generated due to a planned event. The definition and measurement of performance in businesses are still being determined. According to another definition, it exposes statistically and qualitatively the results of planned activities that help firms accomplish their objectives. A measurement of performance is required. So, these measurements can be based on objective and subjective factors (Moslehi and Reddy, 2018).

The enterprises' current monetary position and size are provided by business performance. Furthermore, it hints at where they want to be in the future. As a result, the areas where the resources of the businesses will be directed are also determined. In other words, performance

indicators are related to whether organizations act according to their purpose of presence and their strategic plans and programs. Performance is a concept that varies between businesses and individuals (Charoensukmongkol and Sasatanun, 2017).

2.6.1 Economic performance (ECP)

Resources available to the economic unit can only be exploited through rational, developed, and effective management (Shi et al., 2021). For this administration to represent a focus centered on knowledge and measuring the extent of failure and success of the economic units in their decisions, the results they reached, and the opportunities they missed to determine their plans. It can only be done by evaluating its performance, especially its economic performance, as it is a way to predict where the unit will be in the future (Markana et al., 2018).

The economic shareholders' and customers' performance of the business is represented in the ability of the economic unit to gain trust, which is measured through the information in the consolidated financial statements (Ali et al., 2020). The economic performance also reflects the units' ability to make optimal use of their resources and sources in the long-term and short-term to create wealth (Dellink et al., 2017).

The importance of evaluating economic performance is focused on the following:

1. Follow-up and knowledge of the activity and nature of the economic unit.
2. Follow-up and knowledge of the economic and financial conditions that surround the economic unit (Aragona et al., 2020);
3. Assisting in analyzing, comparing, and evaluating financial and economic data.
4. Help in understanding the interaction that occurs between the financial statements.
5. It is essential to know the points of imbalance and weakness in performance and if the economic unit can achieve its previously planned goals by focusing on the internal and external environment and using financial and non-financial measures (Borio et al., 2017).

2.6.2 Environmental performance (EP)

The state of the environment is currently drastically declining. The annual Earth Overshoot Day marks when human-caused contamination exceeds the maximum amount the earth can bear in a given year (Qian et al., 2018). It implies that people are currently putting more pressure on the natural atmosphere. One of the primary causes of this overflow is carbon and other emanations that damage the ozone layer (Haruna and Mahmood, 2018). Industry has historically been the

primary manufacturer of compounds that disrupt the ozone layer. Environmental management has effectively reduced harmful ecological effects, such as carbon emissions (Kaplan Hallam and Bennett, 2018).

Consumers and users of products in economic environments with environmental concerns and orientations have become aware of the importance of environmental considerations in the products they choose. They are interested in how to destroy these products when they are no longer needed. This incentivized businesses to offer products compatible with consumer trends to maintain market share and sales volume and thus achieve satisfactory financial performance (Schill et al., 2019).

Thus, the process of measuring environmental performance requires considering many factors that affect, to one degree or another, the process of evaluating this performance. On the other hand, "design for the environment" as an administrative term requires addressing many factors that measure adherence in manufacturing processes, regardless of whether the organization has an excellent environmental performance (Latan et al., 2018).

2.6.3 Social Performance (SP)

The company's social performance, or in a more precise and more straightforward sense, its social responsibility, is often directed at specific people, organizations, and entities. The company's success in adhering to the conditions and limits of social responsibility satisfies the beneficiaries of its social performance in general (De Jong and van der Meer, 2017).

The growing significance of corporate social responsibility CSR has stimulated a lot of study that looks at the relationship between CSR or social performance (SP) and a company's attributes from various angles (Guerrero-Villegas et al., 2018). Regrettably, the numerous empirical investigations into the connections between SP and different profitability metrics, cost of capital, shareholder wealth, financial performance (including risk metrics), and stock price performance have produced contradictory and unclear findings. It might be caused by measurement issues with SP and omitted factors not considered in the used models. It might also result from conceptualizations of SP's impact on a company's attributes that vary (Bouslah et al., 2018).

2.7 Jordanian situation

2.7.1 Innovation in Jordan

In their paper, Al-Sa'di et al. (2017) inspect the impact of knowledge management (KM) on product and process innovation and operational performance (OP). Their research finds that

knowledge management has a noteworthy positive outcome on product and process innovation and operational performance. Only process innovation was found to mediate the KM-OP relationship pointedly (Al-Sa'di et al., 2017).

In their study, Alhyasat et al. (2018) examined how eco-innovation—with its three constructs of eco-processes, eco-products, and eco-organizations—mediated the link between organizational performance and motivation in Jordan Industrial Estate Company. The findings support the relationship-mediating role played by eco-innovation (Alhyasat et al., 2018).

It also significantly supports research-based theory by supporting the links between motivation, organization performance, and eco-innovation.

This research supports the application of eco-innovation in industrial organizations in Jordan, particularly in the Jordan Industrial Estate Company (Alhyasat et al., 2018).

Mat Sharif and Alhyasat (2018) studied the effect of eco-innovation on organizational performance in Jordan. A questionnaire was used as a quantitative instrument to collect the data; the random sample of 381 employees from Jordan Industrial Estate Corporation (JIEC) is the targeted sample of the study, and the result revealed a positive effect of eco-innovation on organization performance.

Furthermore, the study of Alzuod et al. (2017) sought to assess the innovative performance of SMEs in Jordan and explore the moderating role of entrepreneurial orientation in the link between intellectual capital, organizational learning, and inventive performance. Data was gathered using a questionnaire survey and distributed to 600 managers/owners of Jordanian SMEs. 325 usable questionnaires were returned.

The findings show that intellectual capital (human and customer capital dimensions) positively and significantly affect innovative performance. Results also showed that organizational learning (information acquisition, information distribution, and organizational memory) positively and significantly affects innovative performance.

The study also found that entrepreneurial orientation (EO) moderates the relationship between customer capital and innovative performance.

The study of Alhadid and abu Rumman (2014) examines the impact of green innovation (green product innovation, green process innovation) on organizational performance. The study was applied to Jordanian industrial companies, specifically Nuqul Group in Jordan. The questionnaire was developed and distributed by 143 questionnaires to the higher managerial and middle

managerial employees (General Manager, Assistant General, Manager, head of the department, assistant head of the department, and supervisors).

The study's most important finding is the impact of green moral innovation on organizational performance, and there is an impact of environmental management behavior as a moderator variable between green innovation and performance organizational (Alhadid and abu Rumman, 2014).

The second focus of the literature review lies on a specific type of organization, SMEs. They are a heterogeneous group in terms of size and sector diversity, and overall, it is not easy to clearly define an SME because countries adopt different criteria.

Based on the recommendation of the Economic Development Committee at the Prime Ministry, the Cabinet has approved a new classification for Micro, Small, and Medium Enterprises in Jordan on 28/10/2019 as follows (Table 1):

Table 1. SME classification in Jordan

Activity	Classification Criteria	Micro	Small	Medium
Industrial	Number of Employees	Less than 5	Less than 20	Less than 100
	Sales Value	Less than 100.000 JOD	Less than 1 million JOD	Less than 3 million JOD
Commercial	Number of Employees	Less than 5	Less than 10	Less than 50
	Sales Value	Less than 120.000 JOD	Less than 150.000 JOD	Less than 1 million JOD
Services	Number of Employees	Less than 5	Less than 25	Less than 50
	Sales Value	Less than 200.000 JOD	Less than 500.000 JOD	Less than 1 million JOD

Source: - the Economic Development Committee at Prime Ministry issued Oct 31, 2019[1]

2.7.2 Governmental Regulations and Eco Innovation in Jordan

Jordan is paying increasing attention to external cooperation in various environmental fields. Keen to include environmental considerations in the external agreements, it concludes with brotherly and friendly countries, as Jordan was the first to conduct an environmental review of a free trade agreement with the United States of America. One of the articles of the agreement signed in 2000 stipulated that encouraging trade should not be at the expense of compliance with

[1] 1JOD=1.4USD

environmental legislation and focused on preventing and reducing pollution and protecting wildlife and protected areas.

The Hashemite Kingdom of Jordan has ratified most of the international treaties and conventions related to the environment, and it is essential that these conventions or principles contained therein be converted into national legal texts and that legislative amendment be made to harmonize with those treaties and conventions, the most important of which are:

- Climate Change Agreement and the Kyoto Protocol,
- Convention on Biological Diversity CBD and its biosafety protocol,
- Ramsar Convention on Wetlands of International Importance, particularly Habitats for Waterfowl,
- The Convention on the Conservation of Migratory Species of Animals (Convention on Migratory Species or the Bonn Convention) and the Agreements for the Conservation of African-Eurasian Migratory Waterfowl (AEWA),
- Jeddah Agreement for the Protection of the Red Sea,
- United Nations Convention to Combat Desertification (UNCCD),
- Vienna Convention and Protocol of Montreal on Substances Depleting the Ozone Layer,
- Convention on International Trade in Endangered Wild Plants and Ginseng (CITES),
- Basel Convention for Combating Transport and Traffic in Dangerous Chemicals,
- Jordan's obligations under the Vienna Convention and the Ozone Layer Depleting Substances Montreal Protocol,
- Stockholm Convention on Persistent Organic Pollutants (POPS),
- Rotterdam Convention on the Prior Procedure for Obtaining Consent for the International Trade of Certain Hazardous Chemicals and Pesticides (PIC),
- Marpol Convention for the Protection of the Marine Environment 1973-1978.
- Jeddah Convention for the Protection of the Marine Environment,
- London Convention for the Protection of the Marine Environment from Waste 1972,
- Convention banning the production, development, and use of biological and chemical weapons, 1972,
- International Convention for the Reduction of Pollution from Shipping Protocol of 1978,
- The Treaty on the Prevention of Nuclear Tests in the Atmosphere, Outer Space and Underwater. (Emar and Abu Issa, 2021)

The Jordanian Environmental Protection Law, Law No. (6) issued in 2017, stipulates the following (Article 3):

A- The Ministry is considered the competent authority to protect the environment in the Kingdom.

B-1- The official public institutions and public institutions that have environmental information must do what is necessary to preserve it and provide it to the Ministry.

B-2- The official public institutions, public institutions, private institutions, and civil institutions shall implement the policies, plans, instructions, and decisions issued under the provisions of this law and the regulations issued.

The Ministry, in cooperation and coordination with the relevant authorities, assumes the following tasks and powers (Article 4):

A- Setting the general policy for protecting the environment, preparing the necessary plans and programs, developing them, and following up on their implementation.

B- Cooperating and coordinating with donors and agencies concerned with environmental affairs locally, regionally, and internationally.

C-Coordinating national efforts aimed at predicting the process of climate change, identifying the sectors covered by its effects, limiting greenhouse gas emissions, and mitigating them, such as providing financing, transferring technology, and reallocating available funding and distributing it to climate change activities.

D- Follow up the implementation of the provision's agreement related to the environment to which the Kingdom is a party, including any associated agreements or conventions that the Kingdom has accepted, such as the Framework Convention on Climate Change of the United Nations.

E- Protecting biodiversity, identifying sites and areas that require special environmental protection, such as environmentally particular areas and environmentally sensitive areas, monitoring and supervising them, and authorizing the competent authorities to manage these areas and monitor their performance.

F- Protection of water sources from pollution in the second and third water protection zones specified in the instructions for the protection of water resources issued by the Ministry of Water and Irrigation.

G- Issuing environmental licenses for activities that have a high environmental impact.

H- Supervising projects, following sector, on their work progress, and verifying the soundness of their implementation from an environmental point of view, including the approval of environmental studies for projects and projects submitted to donors from official public institutions, public institutions, NGOs, the private sector, and non-governmental associations. These organizations are required to provide the Ministry providing frequent updates on the development of their projects, both financially and technically.

I- Laying the foundations for classifying materials hazardous to the environment, collecting, storing, transporting, destroying, disposing of, handling, or dealing with them by any means by a system issued for this purpose.

J- Develop an environmental map for reference when engaging in any activity that impacts the environment. It is a binding reference for official public institutions and public institutions concerned with planning, including urban planning and planning, to determine land uses.

K- Assigning to the Council of Ministers the national network of the nature reserve and its boundaries and adopting the necessary technical and financial mechanisms and tools for its implementation and activation and limiting its negative impact on it.

L- Approval of the advisory body by the criteria specified in the instructions for this purpose.

M- Monitoring the elements of the environment and measuring its components through scientific centers and laboratories accredited for this purpose and by international evidence and specifications and establishing and operating environmental monitoring networks.

N- Collecting, classifying, and preserving environmental information; establishing and managing a national environmental information system and database; and determining the bases for its documentation, circulation, use, and provision to stakeholders.

O - Conducting environmental research and studies and issuing related publications, including preparing periodic reports on the state of the environment in the Kingdom and publishing a summary of environmental impact assessment reports and the results of any studies and decisions related to them on its website.

P- Preparing emergency management plans for environmental disasters resulting from an act of nature or human behavior that may or may not lead to serious environmental harm and following up on those plans with the concerned authorities.

Q- Propose draft laws and regulations and issue environmental instructions necessary to implement the provisions of this law.

R- Forming one or more environmental committees, provided that their tasks, the method of their meetings, and the decision of their formation shall take decisions. (Jordanian Environmental Protection Law, Law No. 6, 2017)

2.8 Eco innovation and its impact on business performance

Innovation is based on adjustments to procedures, products (goods and services), and management models, and it creates new forms of competition and cooperation. Companies with unique technological capabilities possess a collection of priceless organizational resources that are uncommon and challenging to duplicate. These resources could be stationary and diverse (i.e., more numerous and distinctive compared to the competition) (and cannot be purchased easily on the market). The organizational structure defines the decision-making process, hierarchy, and available resources (Atalay et al., 2013)

The subject of "green innovation," or "eco-innovation," has received unparalleled international and national legislative attention. Given the latter's role in promoting and supporting small and medium enterprises on the one hand and, On the other hand, it is associated with achieving the sustainable development process of protecting the environment (Sáez-Martínez et al., 2016).

Therefore, green innovation or eco-innovation is considered a foundation for strengthening and upgrading small and medium enterprises, given the development that the latter has witnessed. After it aimed to realize performance or economic effectiveness, it became essential for its commitment to accomplishing environmental performance as a consequence of the emergence of what is known as the "environmental responsibility" that these institutions shoulder if they do not take into account the environmental performance (Bag et al., 2022).

Companies should establish and implement eco-innovation programs using a complete strategy. According to the socio-technical systems theory, implementing innovations should take social issues and management systems into account to maximize business performance (Cai and Li, 2018b). Businesses should be able to modify and manage their internal structures and activities.

The Research and Development Department cannot be exclusively responsible for implementing an effective eco-innovation program (R&D) (Triguero et al., 2013).

For businesses to realize benefits in terms of productivity and competitiveness, it is also essential to understand the different eco-innovations that work best together. Along with the social and technological factors, eco-innovation should also address the culture and organizational management structures. The good management should prioritize fair pay, adherence to set working hours, and respect for all other human rights, such as gender equality and opposition to child labor (Jones et al., 2012).

Eco-innovative businesses must have the capacity to put off satisfying their priorities—which are typically financial—in favor of resource management to maximize their usefulness to more people. When industrial processes are motivated by innovation, it leads to proactive conduct addressing environmental and social challenges (Nitkiewicz, 2012).

Organizational, process and product eco-innovation call for dynamic capacities from a resource-based perspective (RB) and may impact business performance, according to the framework that was created by Cheng et al. (2014). An organizational framework that prioritizes environmental preservation and uses clean, eco-friendly technologies should be among these competencies. Beyond lowering environmental hazards, the connection between eco-innovation and performance can also save costs, boost sales with differentiated products, increase profit margins, boost brand value, and enhance a company's reputation in the community.

In order to cut administrative and transaction costs and boost productivity, management designs that consider the economic, social, and environmental aspects are included in environmental regulatory innovations (Díaz-García et al., 2015). On the other hand, large businesses frequently devote significant resources to research and development, making it more straightforward to incorporate environmental regulation changes. By recycling and reusing materials, small and micro enterprises, on the other hand, leverage innovation in their operations and products. The process of environmental innovation, which may be seen in the recycling of materials and the replacement of inputs and raw materials, is the adoption of new methods that have a reduced negative impact on the environment (Halme et al., 2016).

As a result, process eco advances that recycle and reuse raw materials save production costs. The development of an environmental innovation process necessitates incorporating components that consider human health, minimize environmental impacts, and adhere to rules established by governmental organizations. The product's environmental innovations are centered on the life

cycle of the product. They aim to lessen the environmental impact by consuming less material and energy, which is accomplished by boosting productivity and improving the effectiveness of production processes (Hu et al., 2021).

Eco-innovation development benefits all companies facing the conflict between economic development and environmental protection. Therefore, companies need to prepare their products and adopt environmental innovation; as the best way to improve environmental management performance and meet environmental regulations' requirements (Chen et al., 2012).

As a crucial means of achieving corporate environmental sustainability, ecological innovation is drawing increased attention. Additionally, one of the motivations for businesses to adopt green innovation is to gain a competitive edge through sustainable development within the business (Yang and Zhang, 2013). Eco-innovation is a fascinating field for business research for several reasons:

- Firstly, ecological patents represent a central aspect of regulatory knowledge in ecological technologies.
- Second, ecological patents can generate positive externalities from spillover effects.
- Third, ecological patents have distinctive features.
- Fourthly, firms are under increasing pressure from stakeholders and organizations for inter-responsible behavior that may have distinct impacts on ecological innovation activities. (Amore and Bennedsen, 2016)

Thus, eco-innovation in business creates or resets the relationships associated with forming and distributing environmental functions while benefiting from the relationship between them. Eco-innovation is also vital to overcoming customer, competitor, and regulatory pressures (Iranmanesh et al., 2017).

According to organizational theory, when a firm sees ecological innovation as an effective means of responding to regulatory pressure or achieving a competitive advantage, it tends to create the environmental capabilities necessary to implement these innovations by developing various organizational support factors (Huang et al., 2016).

For this reason, decision-makers should realize that implementing environmental innovation has become the only option for the development and growth of companies. As environmental innovation has become more critical for companies to increase environmental awareness, many local and international customers and buyers demand that their suppliers produce products that do

not contain hazardous and toxic substances. Companies are also looking for the minor use of materials and energy in the production of products (Tu and Wu, 2021).

There is no sufficient research in the developing countries focusing on eco-innovation related to sustainability performance of business practice.

The resource-based theory (RB) declares that the maintaining of firms' competitive advantage lies in having heterogeneous resources that are valued, uncommon, incomparable, and not substitutable. RB theory provides a valid theoretical basis for inspecting the relationship between resources, capabilities, and performance. This theory provides an inclusive view of eco-innovation.

Business performance is related to accomplishing certain outcomes by transforming the inputs into outputs. The organization's main goal is to increase their performance to meet the competitive market. There is a variance measurement developed by scholars to measure the organization's performance like return-on-investment ROI, market share, profitability, and sales.

As market share, sales volume, and profit growth signify high growth linked with a firm's entrepreneurial orientation, entrepreneurial orientation (EO) is a significant component of organizations' competitive advantage, growth, and performance. Corporate performance is therefore consistent with the characteristics of an entrepreneurial orientation—innovation, risk-taking, and reactiveness. In the body of research on learning orientation, academics have emphasized the significance of an entrepreneurial orientation because it is strategically compatible with company performance and because globalization has increased corporate competition, which has resulted in an expansion of entrepreneurship in many fields. Many learning direction studies have concentrated on the critical role of best management practices as well as the role of entrepreneurial practices resulting in improved corporate performance (Meekaewkunchorn et al, 2021).

Increased competition among businesses and organizations around the world is another manifestation of globalization's effects. Companies prioritize optimal management practices in their quest for increased performance and productivity. Former studies have explained the magnitude of an entrepreneurial orientation (EO) for the success of top companies. Furthermore, academics have stressed the crucial role that learning direction has in evolving high-level generative learning, which is a vital component of unparalleled corporate effectiveness and, consequently, elevated corporate performance (Cavusgil and Knight, 2015).

EO is the behavioral propensity for innovation, reactiveness, and risk-taking inside a company that improves organizational performance. EO refers to internal organizational management methods that are innovative and proactive to achieve improved performance and acquire a competitive advantage in the market, particularly in small and medium-sized businesses. The internal environment in which a corporation operates can affect corporate performance. These opinions suggest that because there are numerous EO characteristics that represent business performance, EO behavior cannot be generalized across industries (Dankiewicz et al., 2020).

The readiness of a company to innovate its business operational processes is referred to as innovation. It is an organizational strategy that describes the use of fresh concepts that result in innovative products and services. A corporation can benefit from new prospects through innovation, satisfy consumer requirements with novel products and services, and pioneer a market. Innovation also has to do with the fundamental business procedures that set businesses apart and prolong their survival. Companies improve their standing in the market, which promotes business growth and performance, because of innovation and value addition in products and services. Additionally, it's an organizational strategy that mentions the need to take initiative to advance.

Eco innovation is a managerial mainstream, which still needs more research and investigation. At the same time, it is increasingly becoming a concern of decision makers, academics, and practitioners.

Many recent studies support the notion that process innovation often arms existing production processes with advanced techniques, which, in turn, improves the capability of adding new product features to meet the market’s needs. In a nutshell, the improvement of eco-process innovations is a driving force for eco-product innovations.

According to the resource-based theory, a firm's resources must be valuable, hard to imitate, scarce, and non-fungible to retain a competitive advantage. We identify two categories of critical internal resources as determining factors of ecological innovation. Innovation is a product of technological power. These capabilities include the tangible technologies, specialized knowledge, and intangible expertise the business must create environmentally friendly goods and procedures. The gathering, combining, and application of environmental information constitutes the process of environmental innovation.

Companies with somewhat advanced eco-innovation skills may benefit from information exchange within their group network, learn from others to bolster their eco-innovation potential,

and have remarkable success with eco-innovation in the future. In other words, businesses that have embraced innovation in the past are more apt to do so today.

2.9 Eco Innovation in the Food Processing Sector

Land and water resources are essential for everyone's everyday lives: their quality and availability are critical to agriculture and rural development. They are inextricably related to food security and healthy diets. Over 95% of our food is grown on land, starting with soil and water resources. Ecological Growth guarantees that natural resources are used responsibly to preserve ecosystem functions essential for livelihoods, diets, and economic development. According to FAO, agriculture will need to generate over 50% more food, feed, and biofuel in 2050 than in 2012 (Pardey et al., 2014).

Environmental degradation, loss of soil and water, and other vital issues contribute to widespread food insecurity. Human activity has degraded 34% of agricultural land. To sustainably manage our land and water resources, we must build sustainable land and water governance and policy. Food and Agriculture Organization (FAO) works with various stakeholders to promote evidence-based policymaking, including governments, civil society, and the private sector. FAO's Green Growth policy work focuses on data analysis and synthesis, assisting national institutions in creating knowledge management systems for land and water resources and harmonizing international work on Green Growth policy assistance (Leippert et al., 2020).

The industrialized world's rising food production and consumption rates have increased the quantity of food waste and packaging (Hanssen et al., 2012). Governments, policymakers, and the media have all become more interested in this development, which has led to more regulation. European Community Policy and Waste Management Policy are two of Europe's significant waste management policies. Each strategy prioritizes waste minimization over trash recovery and disposal.

The chance for technological innovation to address sustainability issues, such as the need to reduce food and packaging waste, is crucial. However, preliminary findings imply that new technologies may face considerable obstacles to their adoption.

Eco-innovation is a phrase used in everyday language. That synthesizes sustainability and innovation. According to a widely accepted definition, eco-innovations are the creation, adoption, or usage by an organization of a new good, service, management technique, or business strategy

that leads in a decrease of environmental risk, pollution, or other adverse effects on the resources utilized (Stasi et al., 2016).

Additionally, it aids in developing fresh approaches that benefit businesses and consumers while considering economical, ecological, and social elements (Makara et al., 2016). Eco-innovation is defined as the ongoing development of technology to reduce its adverse environmental effects. It can be approached in three ways: hybrid, end-of-pipe, or add-on systems. It can be measured in terms of eco-efficiency (Franceschini and Pansera, 2015), which is viewed as a paradigm change brought on by the introduction of radical new organizational solutions; closed-loop and cradle-to-cradle systems are examples of production and consumption models.

The massive losses in the agri-food industry provide a fertile field for new ideas (Hamam et al., 2021). The pursuit of sustainable development goals necessitates significant adjustments to the current economic structure and the systems of production and consumption, with the role of the private sector in this process being unimportant. One of the most important innovations for sustainable businesses is eco-innovation, and EU regulations have been updated to support eco-solutions (Salim et al., 2019b). The most significant research and innovation initiative of the European Union, Horizon 2020, supports initiatives in waste management, food waste reduction, innovative manufacturing, sustainable business, industrial symbiosis, and the economy (Deselnicu et al., 2018).

It emphasizes the importance of eco-efficiency and links eco-innovation to the circular economy. Additionally, it coined the term "systemic," which put systemic eco-innovation and the circular economy at the forefront of conversations about eco-innovation in Europe. A systemic approach may contribute to a greater understanding of how a problem arises in a specific context and how it could ultimately be treated or controlled.

Food is perishable. Hence new technologies have emerged that allow for the storage and extension of their shelf life through inventive storage strategies (van Holsteijn and Kemna, 2018). New processing methods have also been created to create a new product from food waste. Products can maintain their value for as long as possible thanks to this circular economy-based strategy (Smol et al., 2015).

The adoption of new technology and environmentally friendly industrial processes, as well as enhanced logistics management and increasing investment in R&D by businesses, both individually and collectively, have been the primary forces fueling the growth of the circular food

economy. As a result, businesses are incorporating innovation into their operations more frequently (Bossink, 2015).

Environmental factors began to receive more attention since they must be incorporated into corporate culture and business strategy throughout the design, production, distribution, and disposal stages—scientific contributions aid numerous agricultural technological breakthroughs (Muscio and Nardone, 2012).

The technological environment in which agribusinesses work includes various innovations in drying, heat treatment, controlled and modified atmosphere packaging, information, and automation technologies, and freezing and refrigeration.

Providing cutting-edge tools to help businesses, innovative approaches to prevent and manage food surpluses, climbing the food waste hierarchy, and avoiding raw material extraction are all made possible by technology (Ghisellini and Ulgiati, 2020). .By way of online platforms or applications, for instance, information technologies facilitate food sharing and distribution (Harvey, 2019).

2.10 Resource based theory.

The 1960s of the last century witnessed a significant focus on strategic thinking about the external environment surrounding the institution (Davis and DeWitt, 2021). Whether the factors are from the public or private environment, the institution's success and superiority are linked to its ability to adapt to the pressures resulting from the external environment and fluctuations in the environment (Dubey et al., 2019).

Resource-Based theory provides an excellent theoretical basis to discuss the contribution of resources and competencies to performance in each of the three kinds of eco-innovation.

According to the concept of Resource-Based Theory (Hart, 1995; Hart and Dowell, 2011). developed Natural Recourse Theory by involving the restrictions and chances of the natural environment. Based on the Natural Resource Theory, environmental practices embrace collecting resources and managing capabilities within the firm. Hence, Hart (1995) built a concept of green capabilities, while Sharma and Vredenburg (1998); Hart (2005) and Barney et al. (2011) extended and analytically verified this concept to emphasize the linkages among environmental strategies and competencies development and competitive advantage.

The resource-based theory suggests businesses respond to external change based on their internal resources and abilities. An institutional theory emphasizes external pressures and social expectations to explain a business's innovation behaviors.

Eco-innovation lays not only on internal drivers but also on numerous external pressures. Based on institutional theory, the external pressures include three types:

1. Coercive pressure is related to environmental regulation and usually applied by the government.
2. Normative pressure related to the business's requirements to increase its capacities to fulfill its stakeholders, such as customers and suppliers.
3. Mimetic pressure related to imitating other business leaders. This type occurs when businesses feel competitive pressure from successful competitor action.

Resource theory gained tremendous popularity in the nineties of the twentieth century. This theory is based on the premise that the organization's internal resources are more important than the external factors in achieving and maintaining competitive advantage (Burvill et al., 2018). The proponents of this point of view emphasize the importance of internal analysis in strategic management compared to external analysis. Robert Grant emphasized that internal analysis is more critical, as customers' preferences, needs, and identities are changing. Also, customer service methods constantly evolve, and an approach focusing on the external environment needs to provide a secure basis for formulating a long-term strategy (Grant and Baden-Fuller, 2018).

The resource-based approach confirms that the organization's internal resources are more important than the external factors in achieving and sustaining competitive advantage. Proponents of the resource theory maintain that an organization's performance will be determined primarily by the organization's internal resources, which can be grouped into three overarching categories: physical resources, human resources, and organizational resources (Mishra and Yadav, 2021).

This examination of the firm's resources is based on the idea that these resources are the foundation for developing capabilities and competencies and, as a result, creating the competitive advantage of the commercial enterprise (Kruesi and Bazelmans, 2022). An analysis of resources must take significant priority, not only in the context of knowing these resources but also in light of the possibility of linking these resources to the approved strategies for competition. This strategy attempted to draw management's attention to the importance of scarce resources that cannot be replicated in shaping competition strategy and achieving better results (Collins, 2021).

2.10.1 Environmental regulations & Eco-innovation

The findings of Meng et al. (2020) demonstrate how green innovation and environmental regulations significantly improve industrial businesses' ability to upgrade intelligently. Additionally, it demonstrates how green innovation mediates the relationship between environmental legislation and the clever upgrading of manufacturing businesses. Green innovation and the intelligent upgrading of manufacturing companies are positively adjusted by environmental dynamism. According to You et al. (2019), the sustainable growth of the economy depends significantly on encouraging a company's environmental innovation through environmental regulation. Their research's findings revealed that:

(1) Environmental regulations are likely to significantly promote corporate environmental innovation as well as corporate environmental investment and environmental planning innovation even in the absence of the financial system's and political promotion system's influences.

(2) Due to the fiscal decentralization system, environmental regulation has significantly reduced the amount of innovation in business environmental planning, environmental investment, and related fields.

(3) Environmental regulation has significantly stifled corporate innovation in environmental planning, environmental spending, and other areas.

Demirel and Kesidou (2019) assert that firms must update and realign their capabilities to ultimately develop distinctive sustainability-oriented capabilities to meet the rapidly changing regulatory, technological, and market demands. This argument is based on the natural resource-based view of the firm and the EI literature. The analysis findings show that EIs are more likely to occur when firms.

(a) develop organizational capabilities for voluntary self-regulation (such as an executive-driven environmental management system and corporate social responsibility). These enable them to respond to rising regulatory pressure and expectations. Instead of investing in generic research and development, they should

(b) support eco-R&D (also known as eco-R&D) because it gives them the relevant and specific technological capabilities to address technological shifts toward sustainability,

(c) support eco-R&D, and

(d) build green market sensing capabilities because they can then meet consumer demand for green products.

The motivations behind eco-innovation and their effects on company performance are clarified by Cai and Li (2018). The findings show that several elements, including technological prowess,

environmental, organizational prowess, a market-based tool, competitive pressures, and green consumer demand, play a role in eco-innovation growth. The most significant incentive for businesses to embrace eco-innovation comes from competitive pressure, followed by a market-based tool, technological capabilities, customer green demand, and environmental organization capabilities. A command-and-control instrument does not effectively encourage eco-innovation, whereas a market-based instrument does. Regarding adopting eco-innovation, the findings demonstrate that such behavior can significantly improve a firm's environmental performance, which has a positive indirect effect on economic performance.

According to the overall evidence found by Pereira Sánchez and Vence Deza (2015), strictness is an essential component of policies for assessing the effects of environmental technology development. Using command and control tools is believed to foster eco-innovation, although investment continuity relies more on the anticipated severity of future regulation. Research has shown that market-based tools encourage the diffusion of current technology and incremental innovation more than radical innovation. In general, strict controls must be added to instruments based on economic incentives to maximize their effectiveness. They conclude that to promote eco-innovation, complementary actions aimed at developers and demanders are required.

The findings of Wang et al. (2023) demonstrate that strong political links promote industrial enterprises' carbon emissions (FCE). Second, the study of the moderating mechanisms shows that the command-and-control environmental regulation (CCI) has a better mitigation effect than market-based environmental regulation (MBI). Instead of investing in (a) public research and development, they should (b) invest in eco-R&D (also known as eco-R&D) because it gives them the relevant and specific technological capabilities to address technological shifts toward sustainability, (c) invest in eco-R&D, and (d) develop green market sensing capabilities because they can then meet consumers' demands for green products. Further investigation reveals an asymmetric correlation between solid political ties and FCE at various quantiles.

2.10.2 Technological capabilities, Environmental organizational capabilities & Eco-innovation

Currently, businesses dominate most of the economies in the globe. They aim for improved technical competitiveness and innovation-related activities as a result. Open innovation and eco-innovation are crucial components to achieving these objectives in this situation. According to Huang and Li (2017) findings, social reciprocity, dynamic capability, and coordination capability are all critical forces behind green innovation, including process and product innovation.

Innovation in green products and processes benefits organizations' performance and the environment. The main findings of Valdez-Juárez and Castillo-Vergara (2021) demonstrate how technological capability substantially impacts open innovation and eco-innovation practices, albeit indirectly through open innovation or eco-innovation rather than directly on corporate performance. These findings also support the beneficial impacts of eco-innovation and open innovation on the business performance of SMEs.

According to Wu et al. (2020) empirical results, state ownership strengthens the favorable relationship between firm-level technological capability and eco-innovation performance. Interestingly, a rise in government support tends to reduce the strength of this association. The findings also indicate that while companies with lower technological capabilities tend to favor internal research and development (R&D), those with higher technological capabilities prefer cooperative R&D.

The findings of Arranz et al. (2022) enable the verification of eco-innovations persistence, complementarity, and resource dependency aspects, allowing it to be conceptualized as an innovation capability. Additionally, we argue that collaboration and eco-innovation can reinforce one another once they are in motion, arguing that the two are related in a complementary and sequential manner. Service companies will integrate and adapt capacities to engage in more collaborative innovation to provide results consistent with their strategic objectives due to the strength of strategic orientations, including corporate environmentalism.

According to Lennan et al. (2021)), eco-innovations of technological trends are most prevalent in Brazil in the areas of the process (24.56%) and product (10.53%). The current situation of sustainable development will fuel demand from internal or external stakeholders, favoring the adoption of eco-innovation. Because across all the years that make up the analysis, technology and non-technological eco-innovations coexist. On the other hand, the adoption of green production capabilities (GPC) coordinated with the technology dimension and their high levels of implementation have a significant impact on environmental and financial performance, according to Serrano-García et al. (2023) results. Sustainable development goals push businesses to implement protective measures that benefit the environment. Considering the link between the use of technology dimension TECH and GPC, data points to its contribution to environmental performance but not financial performance. Additionally, there needs to be a discernible impact on both environmental and financial performance at high levels of association implementation.

2.10.3 Eco-innovation & Economic performance

Maldonado-Guzmán and Pinzón-Castro (2022) state that eco-innovation is one of the critical concepts that can significantly increase a company's environmental sustainability the literature. It has been demonstrated, however, that businesses alone cannot sufficiently develop eco-innovation activities to increase the level of eco-innovation activities and significantly raise the level of sustainable performance of manufacturing organizations. Financial resources significantly improve eco-innovation, and eco-innovation significantly improves the sustainability of business operations. According to Maldonado-Guzmán and Pinzón-Castro (2022), eco-innovation development influences not only economic growth but also has a positive effect on environmental performance. Eco-innovations development and economic growth can be interdepended, but this research investigates just one-way dependence. Yurdakul and Kazan (2020) discovered through structural equation modelling that eco-innovation has a direct impact on preventing pollution, conserving resources, and recycling; also, it has a favorable indirect impact on cost reduction and, therefore, on economic performance. The results imply that because eco-innovation has a cost advantage and the ability to reduce pollution, decision-makers should adopt it.

Hojnik et al. (2018) findings intensely imply that environmental sustainability and the adoption of eco-innovation must be tackled when operating in foreign markets. This study points out the role of eco-innovation and discusses whether eco-innovation should be adopted and combined into firm-level strategies to improve economic performance. The results of Tessitore et al. (2010) showed that there is only a connection between eco-innovation and economic performance in some cases.

2.10.4 Eco-innovation & Environmental performance

The strength of these impacts varies across the value chain depending on the technology used and the type of pollutant under consideration, according to the empirical findings of Costantini et al. (2017), which demonstrate both direct and indirect effects of eco-innovations help reduce environmental stress. The two main conclusions are that corporate and policy governance strategies should be coordinated to reduce costs associated with reducing environmental pressures. First, both strategies should specifically address the goal of maximizing environmental gains that can be achieved by developing and adopting clean technologies along the supply chain.

However, the critical finding of Beltrán-Esteve and Picazo-Tadeo (2017) is that environmental performance improved in both periods, primarily due to advancements in environmental technology. As a result, environmental policies encouraging catching up are strongly advised,

especially in the more recent EU members after 2004, as they tend to perform further from their respective environmental technology frontiers. To resume the rates of environmental technical advancement observed during the growth phase, it would also be very advisable to restore the pre-crisis eco-innovation investment levels.

According to the findings of Fernando and Wah (2017), the model's most significant predictor is adherence to environmental standards. Technology and market focus are highlighted as factors that positively influence environmental performance. The values of environmental innovation allow companies to face challenges from competitors in the market. Barriga Medina et al. (2022) concluded that organizational eco-innovation (OE) and process eco-innovation (PCE) are strongly and favorably correlated with a company's financial and environmental success. However, the two categories of performance outlined are not strongly correlated with product eco-innovation (PDE). The indirect effects of OE on PDE, environmental performance, and financial performance are also essential and favorable. These results imply that OE and PCE favorably impact the firm's performance.

Additionally, results of Valero-Gil et al. (2023) show that adopting EMS, rather than strengthening the positive impact of eco-innovation on environmental performance, generates organizational rigidities that weaken the eco-innovation–environmental performance link.

2.10.5 Eco-innovation & Social performance

According to Tumelero and Sbragia (2019) an eco-innovative strategy produces environmental sustainability, which positively impacts society. Moreover, eco-innovations fuel other eco-innovations by forging a route dependency on the environment since skills developed through a cleaner method will favorably affect the release of goods utilizing clean technologies. At R&D-intensive companies, the strength of knowledge flow generated by methods and environmental management systems closes information gaps, increases product innovation and disruption, and reduces the technological complexity of cleaner manufacturing processes. Eco-innovations provide value for consumers, society, and internal advantages at both the organizational and process levels.

According to Tumelero and Sbragia (2019), Eco-innovation leads to environmental sustainability and positive social benefits like community care, adopting anti-corruption measures, adherence to rules and regulations, and supplier evaluation. Moreover, eco-innovations fuel other eco-innovations by forging a route dependency on the environment since skills developed through a cleaner method will favorably influence the release of goods utilizing clean technologies.

According to Ch'ng et al. (2021), achieving each of the three aspects of sustainable company performance (economic, social, and environmental) is possible by choosing an eco-innovation approach, such as eco-process, eco-product, or eco-organizational innovation. A technological firm's economic performance can be considerably improved by establishing an eco-organizational management system, such as monitoring their eco-innovation trends and regularly communicating experiences and information with employees and various departments. Second, the company can modernize its operational procedures or create new, environmentally friendly products to improve its environmental performance. Third, the impact of eco-organizational innovation on a technology firm's social performance is strengthened by market turbulence like severe rivalry, unexpected customer tastes, and technological advances.

By adopting product, methods, and organizational eco-innovation, the qualities of sustainable business performance are reachable (Larbi-Siaw et al., 2022). The trinity of product, process and organizational eco-innovation can considerably increase a production firm's environmental performance. A company can then improve its social performance by funding R&D for eco-innovations, using cutting-edge green management techniques, and increasing employee understanding of eco-innovation. Product and organizational eco-innovations positive impact on sustainable performance's economic component is enlarged by market turbulence (technology and environmental turbulence) in the form of technical developments, fierce market competition, and shifting household demand and taste.

2.11 Controllable variables

Firm age and size were regarded as control variables because they can affect the development of environmental innovations (more significantly, more seasoned firms should have more resources and capabilities to implement this kind of innovation). The size and age of the company were calculated using the number of employees and the number of years since its founding, respectively.

Environmental management systems' potential synergies and complementarities Environmental innovation and EMS norms and procedures depend more on organizational capabilities and coordination mechanisms that businesses can implement than they do on the size or age of the organizations (Amores-Salvadó et al., 2015).

The theoretical foundations for examining eco-innovation drivers have a lot in common. When considered separately from theory, these drivers primarily revolve around rules, consumer

demand, rivals, anticipated benefits, and general company characteristics (firm size and firm age, which are also connected to human, financial, green, and physical resources)

The combined research confirms that various factors lead to various eco-innovation types. Market pull factors and regulations were the two factors that were found to most frequently cause product eco-innovation. At the same time, firm size, technology push research and development (R&D), environmental management systems EMS (more specifically ISO14001), and the company's green capabilities help either develop or implement product eco-innovation. The most frequently mentioned drivers of eco-design were regulations and market pull factors, followed by cost reduction, brand value, new market opportunities/increases in market share, anticipated increases in product quality, decreased environmental impact, fashion, and industrial sector initiatives (Hojnik and Ruzzier, 2016).

The precise conditions in which environmental actions, like innovation, influence business performance must be better understood. The study contends that the general beneficial effect of environmental innovation on financial performance varies significantly with firm size and the motivations underlying a firm's engagement in environmental innovation, building on the resource-based theory and stakeholder theory. The study discovered that larger firms benefit financially from environmental innovation prompted by regulation or industry codes of conduct. In comparison, smaller firms benefit from environmental innovation introduced in response to customer demand by integrating survey data and lagged annual account data on 1761 Flemish companies. Even though environmental innovation is widely acknowledged to have a positive connection with firm performance, the study emphasizes this relationship's crucial boundary conditions.

Future research on environmental innovation must, therefore, take into account firm size in addition to firm motivations (Andries and Stephan, 2019).

The age of a company has a positive impact on its efficiency, which suggests that less innovative and older companies may benefit from a shortened learning curve because of experience. However, at more innovative businesses, firm size has a positive impact on business performance, indicating that these businesses may profit from economies of scale.

More inventive businesses are more likely to engage in eco-innovation and to reap the financial rewards (efficiency) of various forms of eco-innovation. When firm age and type of industry were considered, firm age had a positive impact on firm efficiency at less innovative companies,

whereas firm size had a positive impact on firm efficiency at more innovative companies. It seems that older companies are more effective than younger ones among less innovative companies.

It is possible that older businesses are more trusted, have a stronger position in the market, have a better reputation, and know how to run their businesses more efficiently. However, in more inventive firms, firm size is positively correlated with firm efficiency; that is, the larger the firm, the higher the firm efficiency. In conclusion, less inventive businesses may benefit from learning curve economies. While more creative businesses might benefit from economies of scale (Hojnik et al., 2017).

2.12 Research Hypotheses

Studying how innovation drivers impact eco-innovation behavior and business performance has grown in significance for SMEs in recent years. Therefore, the following hypotheses were postulated:

- H1: There is a positive impact of Technological capabilities (TC) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.
- H2: There is a positive impact of Environmental organizational capabilities (EOC) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.
- H3: There is a positive impact of Command and control (CCI) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.
- H4: There is a positive impact of Market based instruments (MBI) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.
- H5: There is a positive impact of Customer green demand (CGD) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.
- H6: There is a positive impact of Competitive pressure (CP) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.
- H7: There is a positive impact of Eco-innovation on Business Performance (Economic performance, Environmental performance, social performance) in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.
    - H7.1: There is a statistically significant effect at level ($\alpha \leq 0.05$) of Eco-innovation on Economic performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.

    - H7.2: There is a positive impact of Eco-innovation on Environmental performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.
    - H7.3: There is a positive impact of Eco-innovation on social performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.
- H8: There are insignificant differences of the respondents' response toward the study's variables regarding different organization type.
- H9: There are insignificant differences of the respondents' response toward the study's variables regarding different organization size.
- H10: There are insignificant differences of the respondents' response toward the study's variables regarding different organization age.

3. MATERIAL AND METHODS

This chapter presents an identification of the methodology followed by this study. It describes the study's methodology, and method of data collection and analysis. Likewise, this chapter involves population, sample size, give explanation on how their determination and selection, and illustrates the main population characteristics. In short, it describes the questionnaire and the measurement of the validity and reliability.

3.1 Methodology

Descriptive and analytical methods were used in the study. It involves collecting data to test the hypotheses and answer the study questions related to the current status of the study situation. The analytical descriptive study is concerned with the evaluation of population study. It includes attitudes, opinions, demographic information, conditions, and procedures. The descriptive study tries to explain certain characteristics of the phenomenon; while for the hypotheses testing phase, the study investigates if the supposition impact has been proven or not. Generating further knowledge, method of problem solving, and understanding phenomena of interest(Bougie and Sekaran, 2019) .This study is dependent on testing hypotheses, which are derived from the objectives of this study. The study aims to investigate Eco-Innovation and Business Performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector. The researcher designed one questionnaire for employees of the Food Processing Sector. The questionnaire was designed to collect and analyze data to obtain the information required in this study for an experimental purpose. The statistical package for the social sciences (SPSS) version 26 was used to analyze the primary data and provide descriptive analysis about the data collection from the sample, such as means, standard deviations, and frequencies. Also, to investigate hypotheses Reliability was also verified using both internal consistency measures and Cronbach's alpha. Validity was also evaluated.

3.2 The Study Population

The population is the target individuals for the study and investigation. The community should share the same Personal. Sekaran identified the population size as the individuals or units with the same characteristics (Ab Talib et al., 2013). The targeted population in this study is in the Food Processing Sector. The total population in the Food Processing Sector is about (500) employees at all levels.

3.3 The Study Sample

The sample size is the primary material on which the research is based, so it must be appropriate and related to the size of the population. The results to meet the required reliability and validity (Hair et al., 2012). The sample is a part of the study population and it's taken to accurately represent the community as it is used to study the characteristics of the study population (Kotrlik and Higgins, 2001). For more accuracy and to avoid any mistake, the researcher chose to take appropriate distributed sample (500) questionnaires for the employees of junior, senior and Managerial in the Food Processing Sector, which represent the study population using Google forms. A total of 357 questionnaires were retrieved from the distributed questionnaires; all of them are valid for statistical analysis purposes, and their percentage was 71.4% of the sample size as a whole.

3.4 Data Collection Methods (Tools)

To achieve the goal of the study, two types of sources were used to obtain the necessary data to conduct the study, namely:

First: Secondary sources: They are the scientific sources (literary and theoretical) on which the researcher relied in obtaining the necessary data to prepare the theoretical aspect of the current study and to enhance its objectives by reviewing its noticeable results and preparing them. The study tool develops hypotheses for the study and enriches the discussion process. These sources will be books, university theses, scientific research, articles, refereed periodicals, and various publications dealing with academic topics in both Arabic and English.

Second: Primary Sources: These are the sources that the researcher used to obtain the primary data from the study community, which are necessary to prepare the practical side of the current study. These sources were represented in the questionnaire which was prepared and developed through literature review and previous studies, which covered all aspects covered by the theoretical framework and questions. The hypotheses on which the study was built and through which the researcher aims to identify study sample members opinions the opinions. attitudes about the study model dimensions and variables.

3.5 Questionnaire Design

The questionnaire consists of two main parts:

Part One: relates to the demographic information of the study sample member including: The primary industry of your company, the total number of employees, the age of the company.

Part Two: includes questions related to the study variables (technological capabilities, environmental regulation capabilities, command and control tool, Market based tool (MBI), Green customer demand, competitive pressure, Environmental innovation / environmental product, Environmental innovation process, Organizational environmental innovation, Business performance Economic performance, social performance) environmental performance (46) questions. The researcher relied on a five-point Likert scale to measure all variables to benefit from the respondents' perceptions, which consist of points ranging from 5 (strongly agree) to 1 (strongly disagree). Table 2 shows the Options regarding Likert Scale.

Table 2: Likert scale

1	2	3	4	5
Totally disagree	Disagree	Neutral	Agree	Totally agree

Source: own compilation

Five items were used to measure technological capabilities and were adapted from(Cai and Li, 2018a) According to Hojnik and Ruzzier (2016), the command and control instrument can be measured by three items, as can the market-based instrument. We measure customer green demand using four items selected from Agan et al. (2013) competitive pressure with three items adapted from Li (2014).

Items selected to measure economic , social and environmental performance were adopted from Larbi-Siaw et al. (2022).

3.6 Data Collection and Statistical Analysis

The following tests were conducted on the data to ensure that it is normal, legitimate, and reliable before going into additional analysis.

3.6.1 Normality

Kolmogorov-Smirnov Data distribution normality has been tested using a test. The normality assumption is made if the Kolmogorov-Smirnov significance is greater than 5%. Since all variables have more than 5% significant values, Table 3 demonstrates that the data are regularly distributed.

Table 3: One-Sample Kolmogorov-Smirnov Test

No.	Variable	Kolmogorov-Smirnov Z	Sig.
1	Technological capabilities (TC)	0.135	0.000
2	Environmental organization capabilities (EOC)	0.203	0.000
3	Command and control instrument (CCI)	0.225	0.000
4	Market-based instrument (MBI)	0.145	0.000
5	Customer green demand (CGD)	0.110	0.000
6	Competitive pressure (CP)	0.167	0.000
7	Product eco-innovation	0.150	0.000
8	Process eco-innovation	0.146	0.000
9	Organizational eco-innovation	0.135	0.000
10	Economic performance (ECP)	0.116	0.000
11	Social Performance	0.135	0.000
12	Environmental performance	0.130	0.000

Source: own research

3.6.2 Validity

Zikmund et al. (2003) has defined validity as "The ability of scale or measuring instrument to measure what it is intended to measure". Different procedures have been taken to guarantee the validity of this research.

The creation of variants was validated using Pearson's Principal Component Factor Analysis. The results were as shown in Table 4.

Table 4: Pearson Principal Component Factor Analysis for Variables

No.	Variable	Factor 1
1	Technological capabilities (TC)	0.791
2	Environmental organization capabilities (EOC)	0.805
3	Command and control instrument (CCI)	0.701
4	Market-based instrument (MBI	0.628
5	Customer green demand (CGD)	0.788
6	Competitive pressure (CP)	0.821
7	Product eco-innovation	0.651
8	Process eco-innovation	0.737
9	Organizational eco-innovation	0.797
10	Economic performance (ECP)	0.657
11	Social Performance	0.763
12	Environmental performance	0.760

Source: own research

3.6.3 Reliability

According to Zikmund et al. (2003) Reliability may be defined as "The degree to which measures are free from errors and therefore yield consistent results."

Cronbach's alpha is a coefficient used to assess items' internal consistency or reliability; it shows how closely the items are related to one another and how free from bias they are (Sekaran and Bougie, 2016). Reliability is presumed if Cronbach's alpha value is greater than 70% for all variables. Cronbach's Alpha coefficients for all variables are more significant than 70%, as shown in Table 5, indicating reliability (Tavakol and Dennick, 2011).

Table 5. Cronbach's Alpha coefficient

No.	Variable		Cronbach's Alpha
1	Technological capabilities (TC)	5	0.913
2	Environmental organization capabilities (EOC)	4	0.912
3	Command and control instrument (CCI)	3	0.916
4	Market-based instrument (MBI	3	0.922
5	Customer green demand (CGD)	4	0.912
6	Competitive pressure (CP)	3	0.911
7	Product eco-innovation	4	0.920
8	Process eco-innovation	3	0.915
9	Organizational eco-innovation	5	0.912
10	Economic performance (ECP)	4	0.918
11	Social Performance	4	0.916
12	Environmental performance	4	0.915

Source: own research

3.7 Statistical processors

The Statistical Package for Social Sciences (SPSS26) program will be used to conduct these analyses and statistical tests. In order to achieve the purposes of the study, the following statistical methods were used:

3.7.1 Descriptive statistics

To display the characteristics of the sample members and describe their answers, by using the following:

1. Percentage: The percentage will be used to measure the relative frequency distributions of the characteristics of the sample members and their answers to the questionnaire statements.

2. Arithmetic mean: The arithmetic mean will be used as the most prominent measure of central tendency to measure the average of the auditors' answers to the questionnaire questions.
3. Standard Deviation: The standard deviation will be used as one of the measures of dispersion to measure the deviation in the answers of the members of the community from their arithmetic means.

3.7.2 Analytical statistics

1. Multiple Regression Analysis, which will be used to show the effect of the independent variables on the dependent variable.
2. Line Simple Regression Analysis Test, which will be used to show the effect between the independent variable and the dependent variable.

Significance level (α): (0.05) will be adopted as the upper limit for the level of moral significance. Therefore, if the significance level is (0.05) or less, there are statistically significant differences. However, if the significance level is greater than (0.05), there are no significant differences—in statistical and significant effect tests.

4. RESULTS AND THEIR DISCUSSION

This chapter includes four main subdivisions: demographic analysis of the attributes of the study sample, descriptive analysis of data, linkages between independent and dependent variables, and hypothesis testing.

4.1 Respondents' Demographic Description

Table 6 displays that 151 respondents out of 357, work in other food product organization (Roasted and ground coffee, ground herbs and spices, ground oregano, table salt, tea and tea herbs, kids' food, soups, soya and milk juices, vinegar, condiments, sesame, yeast, baking powder, vanilla powder, fruit juice, powdered drinks, flavors, sesame husks, fruit concentrate, citrus fruit concentrate, bread additives, corn flakes, canned grains/cereals, starch, sesame paste (halawa), custard, sugars. (42%), and 101 are working in Processed and preserved meat organization (28%). 181 respondents are working in organization have 5 to 25 employees (51%) and 121 are working in organization have more than 100 employees (34%). Finally, 10 are working in organization have 50 to 100 employees (11.6%), and 34 are working in organization have more than 100 employees (39.5%). 272 respondents are working in an organization aged less than 3 years (76%).

Table 6. Demographic Profile

Variables	Frequency	Percentage
Your Company Main Industry		
Animal feed	5	1%
Bakery and Arabic sweets	15	4%
Cocoa, chocolate and sugar confectionery	40	11%
Dairy products	30	8%
Other food products	151	42%
Processed and preserved meat	101	28%
Processing and preserved fruits and vegetables	15	4%
Total number of employees		
5-25	181	51%
25-50	30	8%
50-100	25	7%
>100	121	34%
Age of Company		
less than 3	272	76%
3-5	15	4%
5-10	35	10%
>10	35	10%

Source: own research

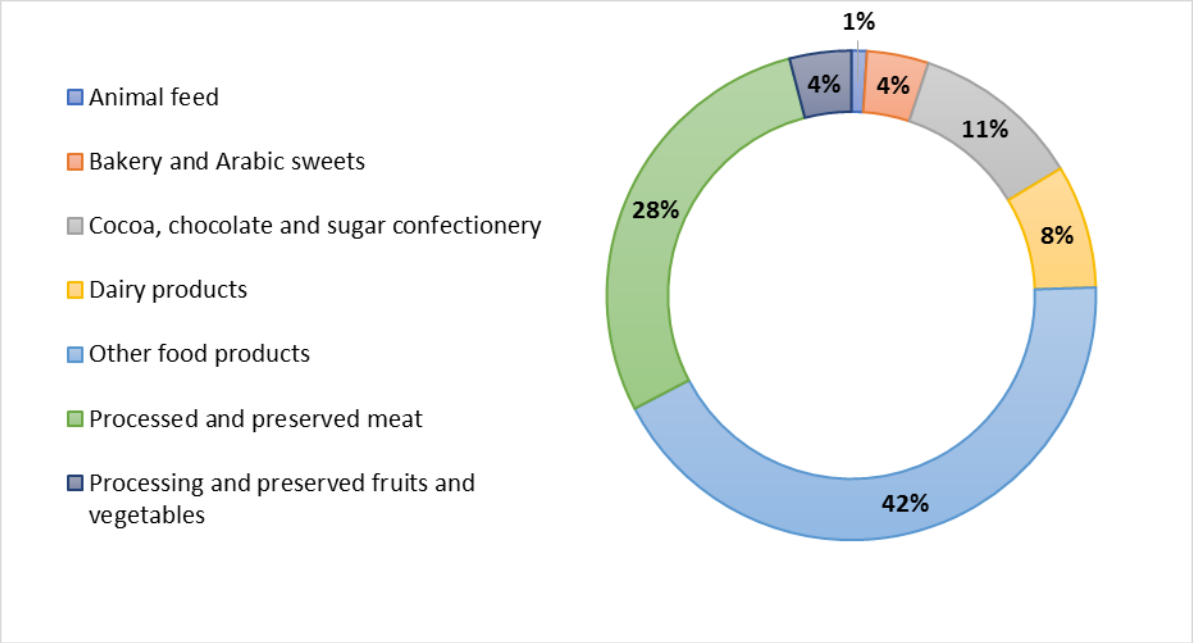

Figure 3. Distribution of companies according to main industry of food production (%)

Source: own research

Figure 3 illustrates the percentage of the main industry of food production in the surveyed companies, Figure 4 shows the number of employees of food production in the surveyed companies according to different size groups.

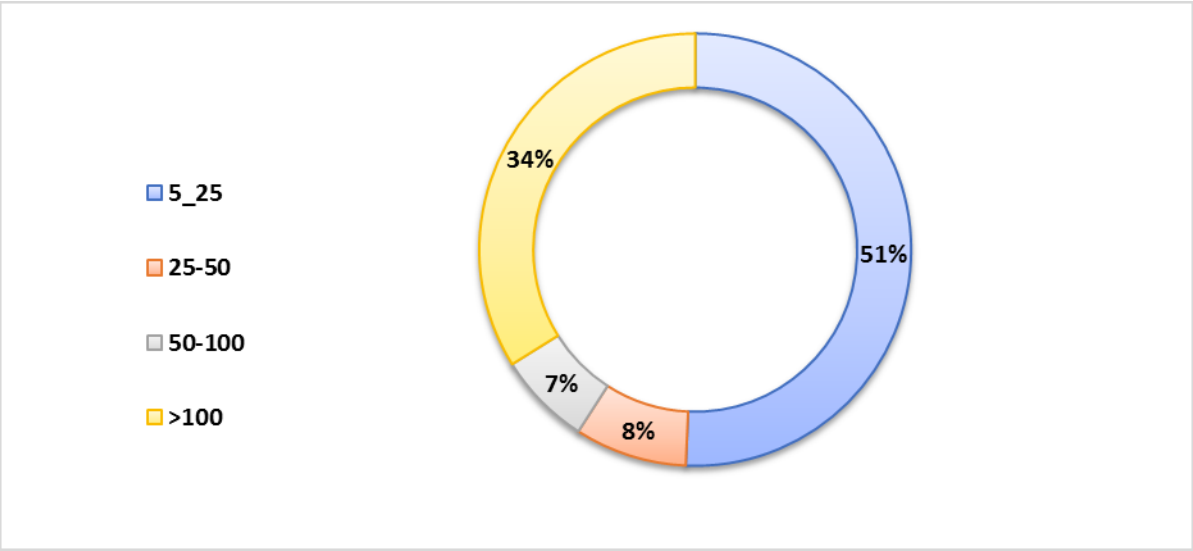

Figure 4. Distribution of companies according to their size (by number of employees) (%)

Source: own research

Study Variables Analysis (Descriptive Analysis) includes mean, standard deviation, t-value, importance, and rank. The importance is divided into three levels as follows:

The importance is calculated based on the following criteria: 5-1/3 = 1.33 (interval) as follows:

1- Low degree: between 1 and 2.33 (1 + 1.33= 2.33).

2- Medium degree: lies between 2.34 and 3.66 (2.33+ 1.33 =2.34-3.66).

3- High degree: lies between 3.67 up to 5.

4.2 The drivers of Eco-innovation

To assess and rank the drivers of eco innovation, respondents were asked to evaluate a set of statements categorized under a set of variables: Technological capabilities (TC), Environmental organization capabilities (EOC), Command and control instrument (CCI), Market-based instrument (MBI), Customer green demand (CGD) and Competitive pressure (CP). As shown in Table 3 (p. 54.), the first ranked group as the highest important group is "Command and control instrument (CCI)" where the least ranked group is "Market-based instrument (MBI)".

4.2.1 Technological Capabilities (TC)

Table 7 displays that the means of the respondent's perception about the degree of the implementation of Technological Capabilities (TC) items range from 3.90 to 3.53 with a standard deviation that ranges from 0.972 to 0.918; such results signify that there is agreement on high and medium significance of Technological Capabilities (TC) items.

Table 7. Mean, Standard Deviation, Importance and Ranking of Technological Capabilities (TC)

No.	Items	Mean	St.D.	Imp.	Rank
1	The ecological production technology of your company is very appropriate.	3.86	0.924	High	2
2	Your company easily gets eco-innovative consulting expertise from (planning, evaluation, and training, etc.)	3.90	0.928	High	1
3	Your company has some effective eco-innovation experience.	3.53	0.931	Medium	5
4	Your company has the required resources for the design of green products.	3.76	0.972	High	3
5	Your R&D team has more experienced and strong design capacities.	3.55	0.918	Medium	4
Total Technological Capabilities (TC)		3.72	0.696	High	

Source: own research

The mean of the total technological capabilities (TC) variable items is 3.72, which indicates that there is agreement on the high importance of this variable.

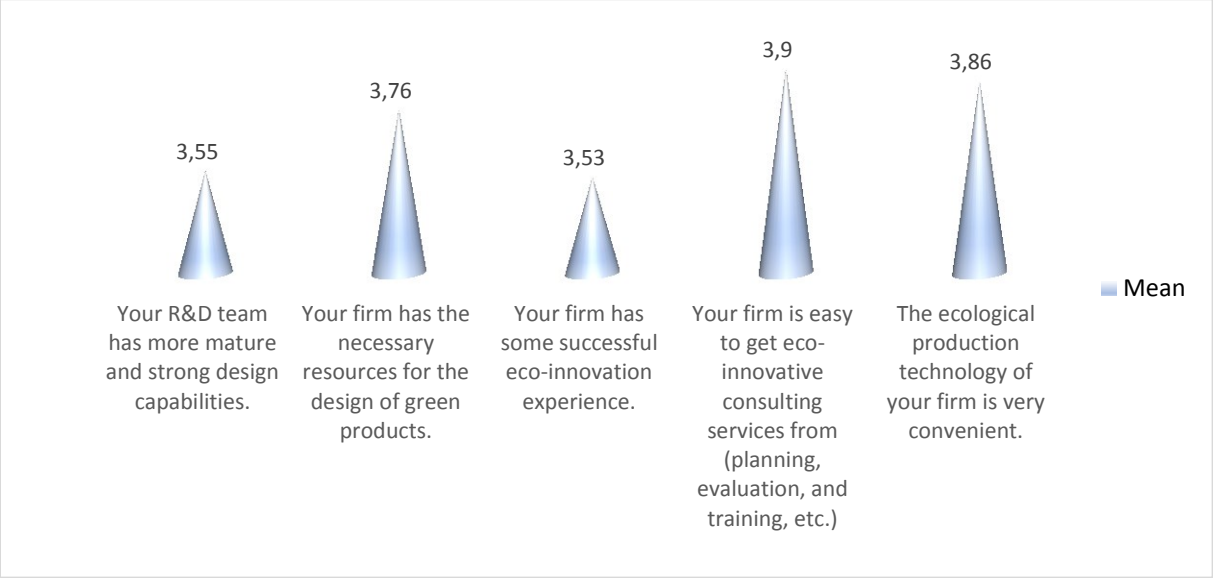

Figure 5. Technological Capabilities (TC)

Source: own research

Figure 5 above shows the degree of implementation of technological capabilities as well as detailed description of these capabilities in the surveyed firms.

4.2.2 Environmental organization capabilities (EOC)

Table 8 indicates that the means of the respondents' perception about the degree of the implementing the environmental organization capabilities (EOC) items range from 3.61 to 3.14 with a standard deviation that ranges from 1.138 to 0.958. These findings indicate the agreement on the medium importance of Environmental organization capabilities (EOC) items (EOC) items.

Table 8. Mean, Standard Deviation, Importance and Ranking of Environmental organizational capabilities (EOC)

No.	Items	Mean	St.D.	Imp.	Rank
1	Your company has a documented eco- innovation plan.	3.31	1.015	Medium	3
2	Your company has developed rules to guide the ecological management.	3.61	0.958	Medium	1
3	Your company offers rewards to people who have made contributions to energy preservation and emission reduction.	3.14	1.138	Medium	4
4	Your company considers environmental audit as a management norm.	3.51	0.993	Medium	2
Total Environmental organization capabilities (EOC)		3.39	0.779	Medium	

Source: own research

The mean of the total Environmental organization capabilities (EOC) variable items is 3.39, which indicates that there is agreement on medium importance of this variable.

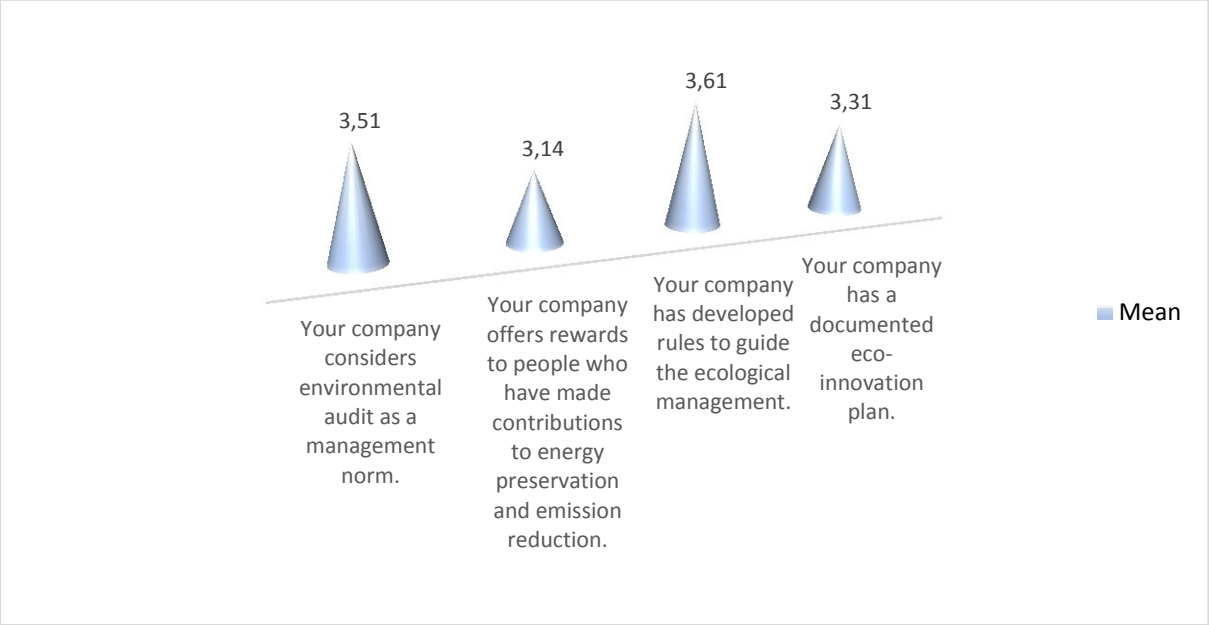

Figure 6. Environmental organization capabilities (EOC)

Source: own research

Figure 6 illustrates the environmental capabilities of the organization as well as detailed description of these capabilities in the surveyed firms.

4.2.3 Command and control instrument (CCI)

Table 9 shows that the means of the respondents' perception about the degree of implementing Command and control instrument (CCI) items range from 4.02 to 3.89 with a standard deviation ranging from 0.865 to 0.762. Such results indicate agreement on the importance of Command-and-control instrument (CCI) items.

Table 9. Mean, Standard Deviation, Importance and Ranking of Command-and-control instrument (CCI)

No.	Items	Mean	St.D.	Imp.	Rank
1	Your products should meet the requirements of national environmental regulations.	3.89	0.778	High	2
2	Your products should meet the requirements of international environmental regulations.	4.02	0.865	High	1
3	Your production processes should meet the requirements of international environmental regulations.	3.89	0.762	High	3
Total Command and control instrument (CCI)		3.96	0.712	High	

Source: own research

The mean of the total Command and control instrument (CCI) variable items is 3.96, which indicates that there is agreement on the high importance of this variable.

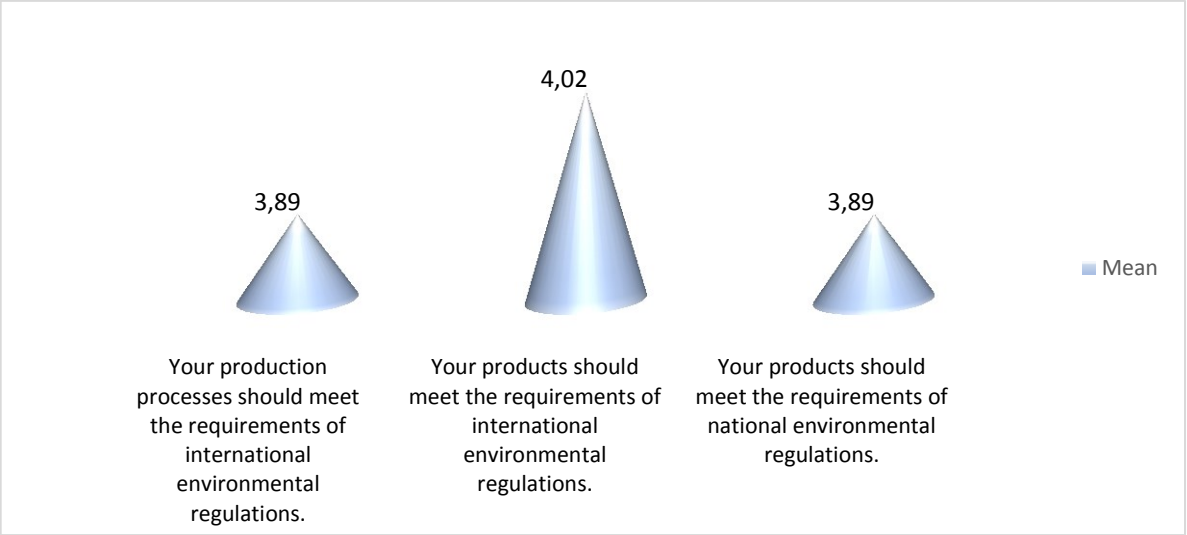

Figure 7. The Command-and-Control Instruments (CCI)

Source: own research

Figure 7 shows the command-and-control instruments as well as a detailed description of these instruments in the surveyed firms.

4.2.4 Market-based instrument (MBI)

Table 10 shows that the means of the respondents' perception about the degree of the implementation of Market-based instrument (MBI) items range from 3.29 to 2.84 with a standard

deviation that ranges from 1.096 to 1.005; such results indicate that there is agreement on medium importance of Market-based instrument (MBI) items.

Table 10. Mean, Standard Deviation, Importance and Ranking of Market-based instrument (MBI)

No.	Items	Mean	St.D.	Imp.	Rank
1	The government delivers privileged tax policy on eco-innovation.	2.84	1.005	Medium	3
2	The government propagates environmental protection.	3.29	1.046	Medium	1
3	The government delivers privileged grants for eco-innovation.	2.85	1.096	Medium	2
Total Market-based instrument (MBI)		2.99	0.957	Medium	

Source: own research

The mean of the total Market-based instrument (MBI) variable items is 2.99, which indicates that there is agreement on the medium importance of this variable.

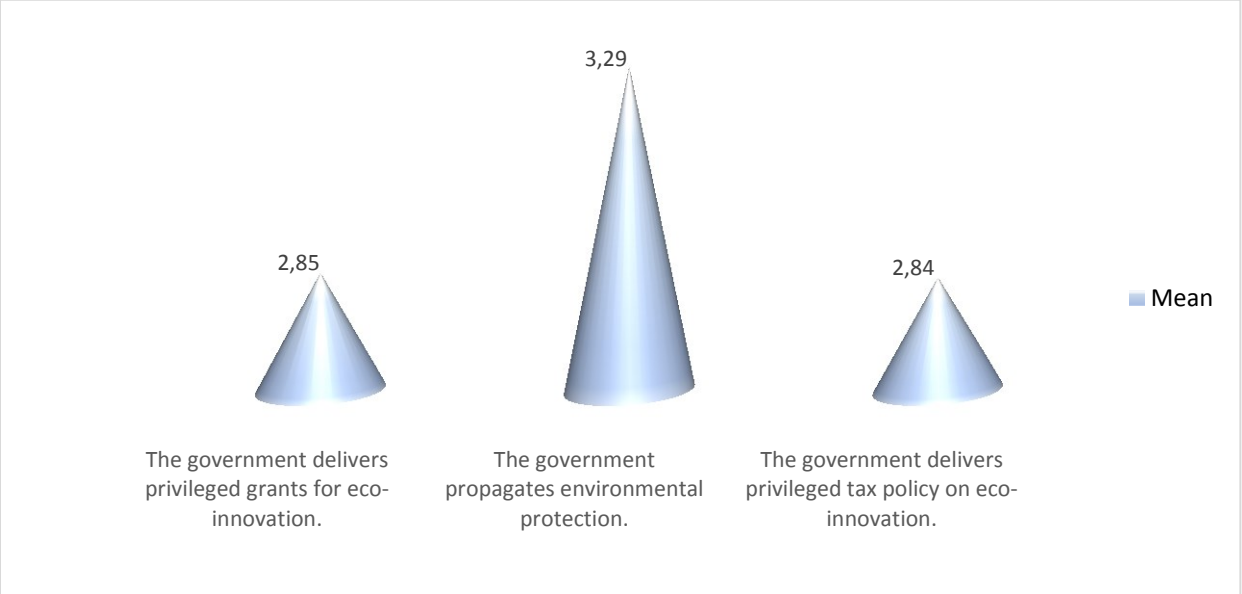

Figure 8. The Market-based Instruments (MBI)

Source: own research

Figure 8 shows the market-based instruments as well as a detailed description of these instruments in the surveyed firms.

4.2.5 Customer green demand (CGD)

Table 11 shows that the means of the respondents' perception about the degree of the implementation of Customer green demand (CGD) items range from 3.53 to 2.92 with a standard

deviation that ranges from 1.058 to 0.963; such results indicate that there is agreement on medium importance of Customer green demand (CGD) items.

Table 11. Mean, Standard Deviation, Importance and Ranking of Customer green demand (CGD)

No.	Items	Mean	St.D.	Imp.	Rank
1	The environment is an essential issue for our estimated customers.	3.53	1.058	Medium	1
2	Our estimated customers often propose environmental concerns.	2.92	0.997	Medium	4
3	Customer green requests encourage us in our environmental attempts.	3.34	0.963	Medium	2
4	Our customers have peculiar requests about environmental issues.	3.18	1.037	Medium	3
Total Customer green demand (CGD)		3.24	0.880	Medium	

Source: own research

The mean of the total Customer green demand (CGD) variable items is 3.24, which indicates that there is agreement on the medium importance of this variable.

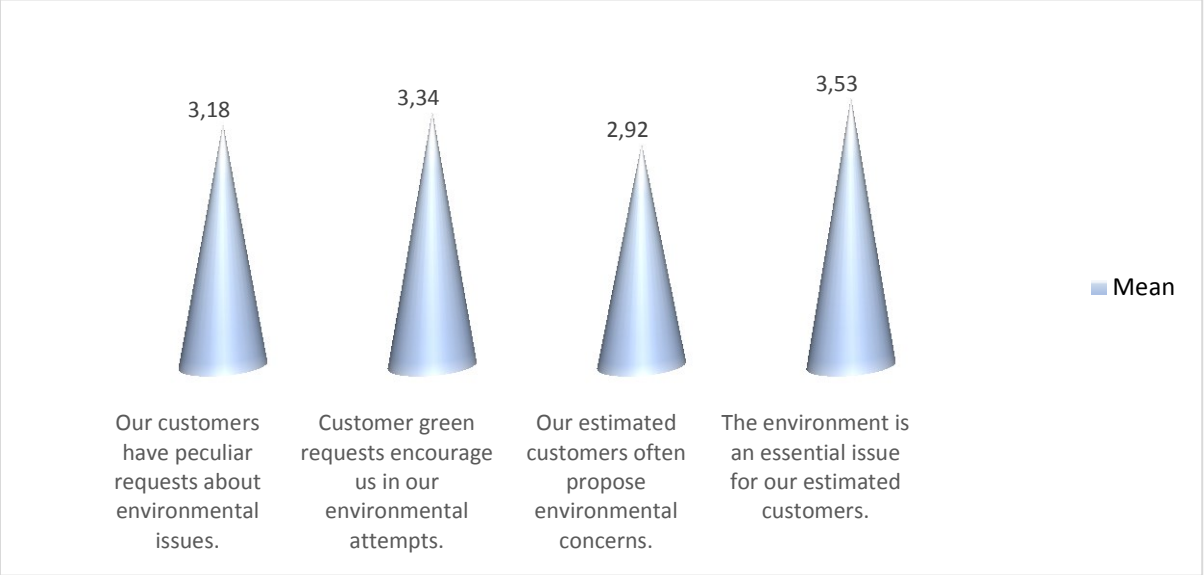

Figure 9. The Customer Green Demand (CGD)

Source: own research

Figure 9 shows the green customer demand as well as a detailed description of the effect of these demands in the surveyed firms.

4.2.6 Competitive Pressure (CP)

Table 12 shows that the means of the respondents' perception about the degree of the implementation of Competitive Pressure (CP) items range from 3.62 to 3.44 with a standard deviation that ranges from 1.002 to 0.914 Such results indicate that there is agreement on medium importance of Competitive Pressure (CP) items.

Table 12. Mean, Standard Deviation, Importance and Ranking of Competitive Pressure (CP)

No.	Items	Mean	St.D.	Imp.	Rank
1	We develop a green representation compared to competitors across environmental perceptions.	3.56	0.914	Medium	2
2	We increase market share through environmental concepts.	3.44	1.002	Medium	3
3	We acquire competitive advantage through environmental concepts.	3.62	0.982	Medium	1
Total Competitive Pressure (CP)		3.54	0.877	Medium	

Source: own research

The mean of the total Competitive Pressure (CP) variable items is 3.54, which indicates that there is agreement on the medium importance of this variable.

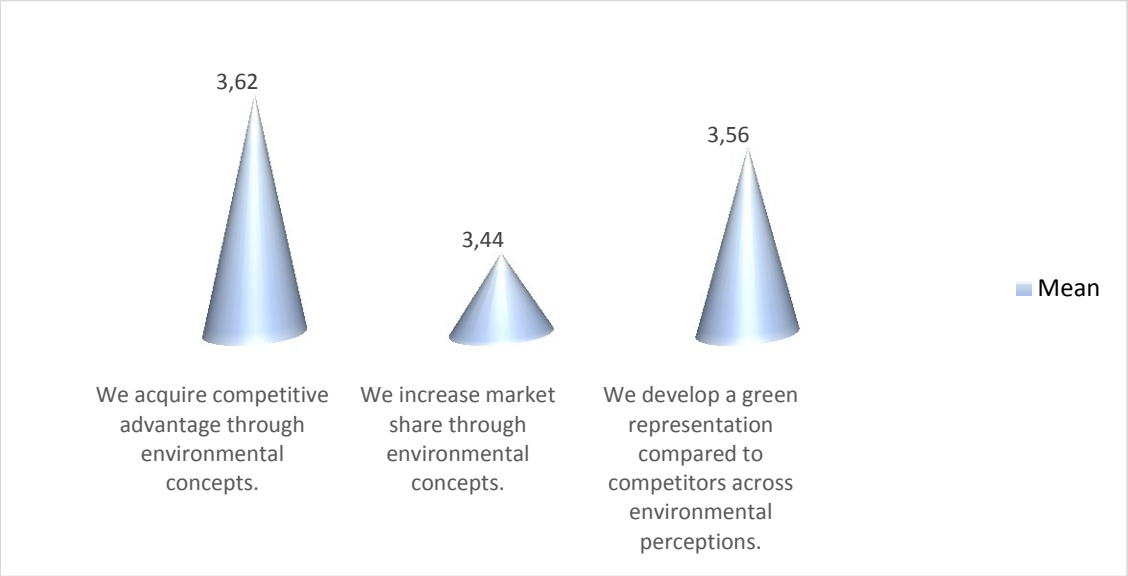

Figure 10. The Competitive Pressure (CP)

Source: own research

Figure 10 shows the Competitive Pressure as well as a description of this pressure in the surveyed firms.

The findings show that environmental regulation has the most important impact on driving SMEs to adopt eco-innovation practices. This indicates that this driver can be seen as “activation triggers”.

The transition in a firm’s environmental orientation from “passive” to “active” is substantially dependent on strict environmental regulation.

Jordanian SMEs in the food processing sector are more likely to be able to translate environmental requirements required from regulatory and competitive pressure into eco-innovation practices when they have high environmental orientation.

Food companies in Jordan abide by and apply the Jordanian government regulations and laws related to maintaining and saving environment, which, in turn, leads these companies to adapt to the environmental and technological change through operational processes.

Based on strengthening environmental regulatory requirements, policy and market innovations should be employed to reinforce constant cooperation between innovative entities and external stakeholders. Advocating innovative cooperation requires proper balance between the government and the market. It is essential to leverage the scientific guidance role of the government, and at the same time value the ultimate role of market resource allocation, achieve optimum allocation of innovation resources and successful sharing of innovative outcomes, and enable numerous innovative entities to found value through coupling interactive collaboration. Furthermore, continuous enhancement of laws, regulations, and policies can steer market entities to perform organized development based on their functional positioning.

SMEs’ technological capacity has a substantial impact on eco innovation activities as it helps them collect information, transfer it inside the company, and upgrade processes and products. Technologies support SMEs to advance their production processes, save energy, and better design products with less polluting materials. Companies in this sector require public policies to encompass technological capabilities to be more effective.

The need for the development of environmental technologies and process and organizational eco-innovations is mirrored in the development of relevant procedures. External technology collaboration network has a positive impact on the improvement of SMEs production process and may contribute to the SMEs cost reduction. SMEs’ external technology R&D cooperation is one of the determining factors to uphold eco innovation performance.

Public policies should inspire the acceptance of disruptive technology and free software to expand processes; form relationships with research centers and universities for the expansion of technological, innovative, and ecological projects; seek assistance from the government or foreign entities for the development of technological and innovative projects; adopt continuous training programs for members of the food sector and adopt certifications directed to ecological and/or green practices for product development.

Through accumulating expertise and knowledge in green training, enterprises' environmental capability has further developed, and will perform better in practices.

Environmental Management Systems and other eco-organizational innovations and their execution create organizational capacities and lead to the development of eco-innovations.

Another identified important external driver is the final customers' pressure. Among the conditions of this determinant is the raise of environmental awareness at consumers, which is translated into the preferences for environmentally friendly products. This can be interpreted as an environmentally oriented demand effect.

Responders have been asked about the significance of favored taxes and subsidies. The current system of environmental taxes hinders the eco-innovation initiatives along with their development.

The Government should advance more financial benefits and economic assistance to foster small- and medium-sized companies to apply greener practices, especially those related to organizational and marketing dimensions. Besides, decision makers should boost the access of SMEs to public funds specially intended for the development of ecological practices.

Jordan can incorporate eco-design principles into its industrial policies by advocating the acceptance of eco innovation practices. This can be achieved through the provision of incentives, such as tax breaks and subsidies, for the companies that adopt eco innovation practices. The government can also find governing frameworks to foster viable manufacturing practices, such as obligatory eco-design requirements for certain products.

The government can also arrange for incentives, such as reducing the taxes or providing favored access to government contracts for the companies assuming the reuse and refurbishment practices. Jordan can further expand its recycling strategies and infrastructure. The country has already introduced several policies and initiatives to increase recycling, which include the development of a national waste management strategy. The government can promote the development of a circular economy by investing in the recycling infrastructure and encouraging the development of local

recycling industries. This can be accomplished through the provision of financial incentives for firms that invest in recycling infrastructure, besides the formation of governing frameworks to adopt the recycling of certain materials.

Drivers can be either decisive or contributing factors of eco-innovation implementation and development. The synthesized findings of the study are primarily built on quantitative method, and thus investigate the relative strength of certain factors that act as motivators or catalysts of certain eco-innovation types, while their decisiveness stays a topic for further analysis. Moreover, some eco-innovation drivers need to grasp more interest in future research, such as an environmental management system EMSs and managerial environmental awareness.

4.3 Eco-innovation

In order to assess and rank eco-innovation, respondents were asked to evaluate a set of statements classified under a set of variables: Eco-innovation/ Product eco-innovation, Process eco-innovation, and organizational eco-innovation. As shown in Table 14, the first ranked group as the highest important group is "Process eco-innovation," whereas the least ranked group is "Organizational eco-innovation."

4.3.1 Eco innovation/ Product eco-innovation

Table 13 shows that the means of the respondents' perception about the degree of the implementation of Eco-innovation/ Product eco-innovation items range from 3.64 to 3.54 with a standard deviation that ranges from 1.127 to 0942. Such results indicate agreement on the medium importance of Eco-innovation/ Product eco-innovation items.

Table 13. Mean, Standard Deviation, Importance and Ranking of Eco innovation/ Product eco-innovation.

No.	Items	Mean	St.D.	Imp.	Rank
1	The firm designs and uses green product packaging.	3.64	1.081	Medium	2
2	The company manufactures products that are recyclable, reusable & recoverable.	3.54	1.127	Medium	4
3	The company models eco-products that decrease risks in the production of products	3.64	0.942	Medium	1
4	The company gives eco-labelling information on all its products.	3.54	1.076	Medium	3
Total Eco innovation/ Product eco-innovation		3.59	0.882	Medium	

Source: own research

The mean of the total Eco innovation/ Product eco-innovation variable items is 3.59, which indicates that there is agreement on the medium importance of this variable.

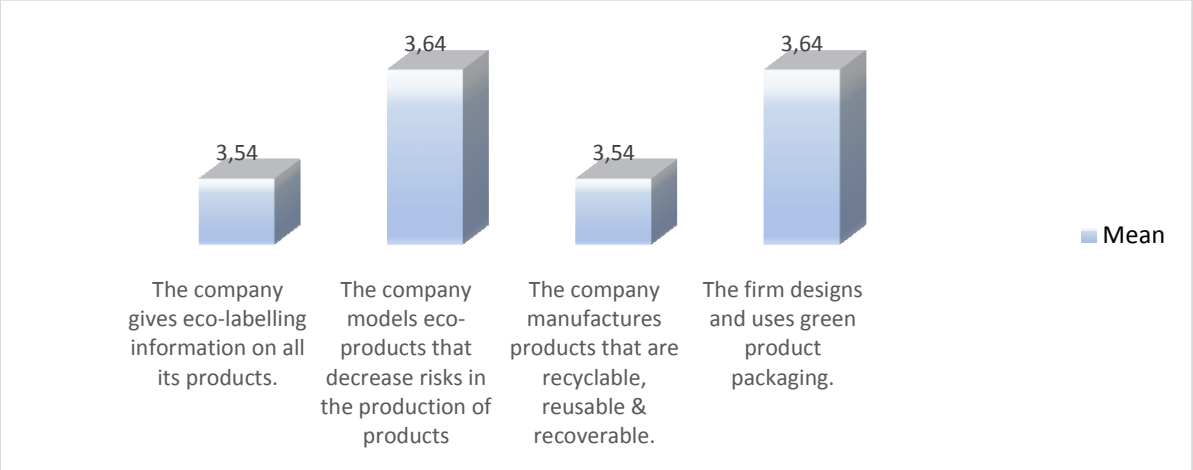

Figure 11: Eco innovation / Product eco-innovation

Source: own research

Figure 11 describes the eco innovation products of firms and methods of employing these products in the surveyed firms.

4.3.2 Process eco-innovation

Table 14 shows that the means of the respondents' perception about the degree of the implementation of Process eco-innovation items range from 3.79 to 3.69 with a standard deviation that ranges from 0.976 to 0.871 Such results indicate that there is agreement on the high importance of Process eco-innovation items.

Table 14. Mean, Standard Deviation, Importance and Ranking of Process eco-innovation.

No.	Items	Mean	St.D.	Imp.	Rank
1	The company employs innovation procedures that safeguard against contamination	3.79	0.871	High	1
2	The company applies innovative technologies that increase energy-saving in manufacturing practices.	3.75	0.976	High	2
3	The company is involved in operational practices that meet the environmental standards.	3.69	0.883	High	3
Total Process eco-innovation		3.74	0.768	High	

Source: own research

The mean of the total Process eco-innovation variable items is 3.74, which indicates that there is agreement on the high importance of this variable.

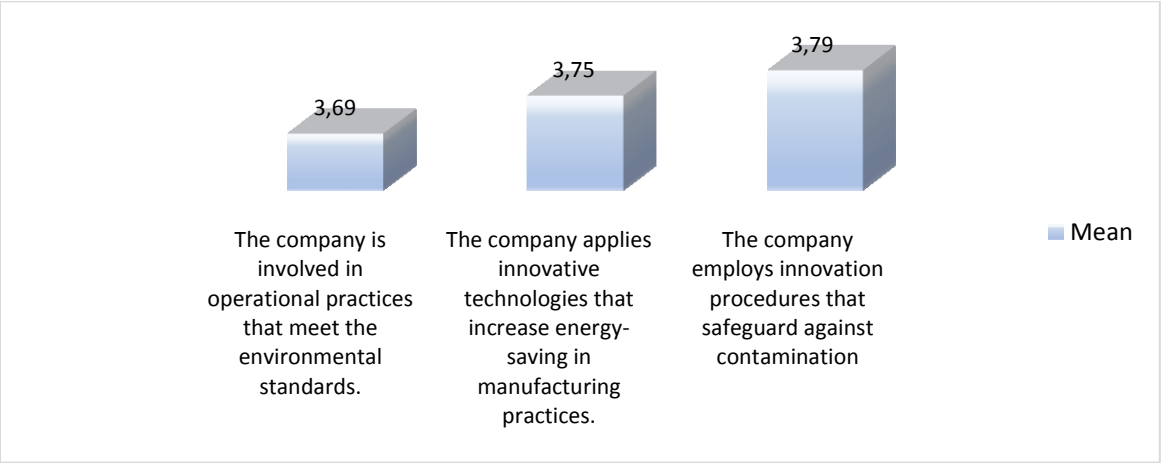

Figure 12: Process eco-innovation

Source: own research

Figure 12 shows a detailed description of the eco innovation process followed by the surveyed firms.

4.3.3 Organizational eco-innovation

Table 15 indicates that respondents' perceptions of the level of implementation of organizational eco-innovation items range from 3.47 to 3.07, with a standard deviation of 1.100 to 0.935. Such results show that there is consensus on the medium importance of organizational eco-innovation elements.

Table 15. Mean, Standard Deviation, Importance and Ranking of Organizational eco-innovation.

No.	Items	Mean	St.D.	Imp.	Rank
1	The company gives priority to high R&D investment in eco-innovation	3.09	0.935	Medium	4
2	The company advocates novel green management practices to support eco-innovation.	3.24	0.966	Medium	3
3	The company involves the employees in sensitization on eco-innovation.	3.47	0.990	Medium	1
4	The company subjects suppliers to eco-evaluation prior to the selection procedure.	3.07	1.100	Medium	5
5	The firm Collects information on eco-innovation trends	3.29	0.939	Medium	2
Total Organizational eco-innovation		3.23	0.855	Medium	

Source: own research

The mean of the total Organizational eco-innovation variable items is 3.23, indicating that this variable is regarded as medium in importance.

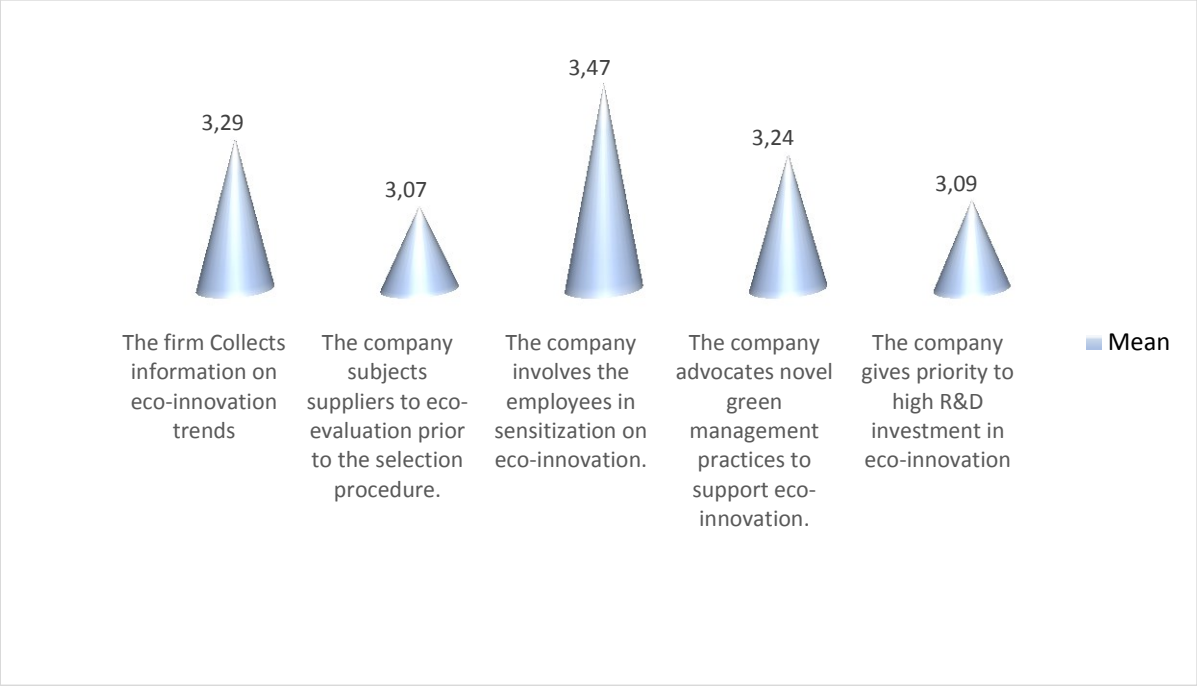

Figure 13. Organizational eco-innovation

Source: own research

Figure 13 shows a detailed description of the organizational eco innovation of the surveyed firms.

4.4 Business Performance

To assess and rank business performance items, respondents were asked to evaluate a set of statements categorized under variables: Economic performance (ECP), Social Performance, and Environmental performance. The first ranked item as the highest factor is "Environmental performance," whereas the least ranked item is "Economic performance."

4.4.1 Economic performance (ECP)

Table 16: Survey findings show that respondents' perceptions on the implementation of Economic Performance (ECP) items vary from 3.81 to 2.89, with a standard deviation of 1.118 to 0.677. Such findings indicate agreement on the medium importance of Economic Performance (ECP) factors.

Table 16. Mean, Standard Deviation, Importance and Ranking of Economic performance (ECP)

No.	Items	Mean	St.D.	Imp.	Rank
1	The firm's is experiencing increased market share.	3.64	0.840	Medium	2
2	The company's net revenue has risen.	3.43	0.851	Medium	3
3	The company has undergone sustainable product cost decrease.	2.89	1.118	Medium	4
4	The firm delivers sustainable value to the end users.	3.81	0.677	High	1
Total Economic performance (ECP)		3.44	0.644	Medium	

Source: own research

The overall Economic performance (ECP) variable items have a mean of 3.44, indicating that this variable is regarded as medium important.

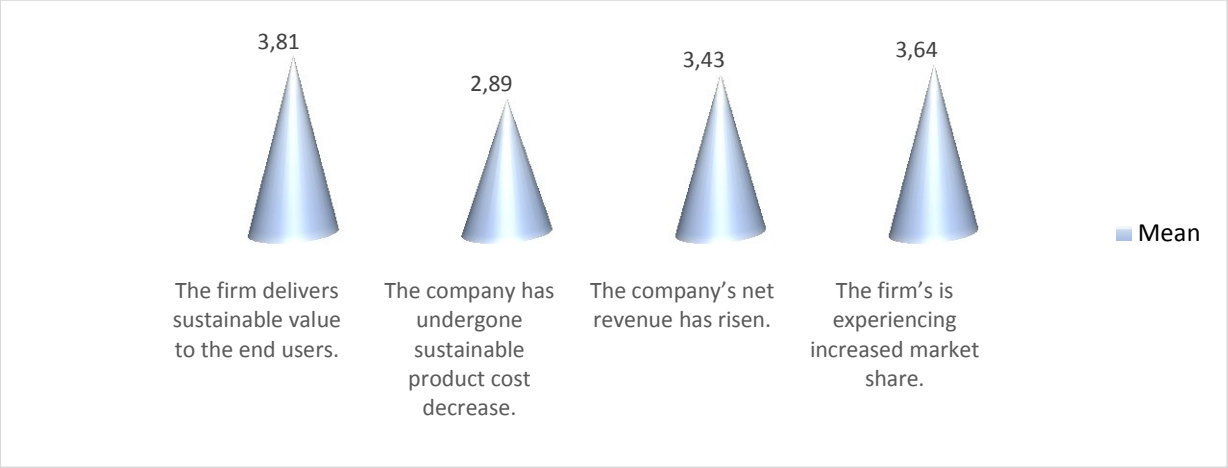

Figure 14. Economic Performance

Source: own research

Figure 14 illustrates a detailed description of the economic performance of the surveyed firms.

4.4.2 Social Performance (SP)

Table 17 The survey results indicate that respondents place a high and medium importance on Social Performance items, with a mean of 4.41 to 3.42 and a standard deviation of 0.928 to 0.662. items.

Table 17. Mean, Standard Deviation, Importance and Ranking of Social Performance

No.	Items	Mean	St.D.	Imp.	Rank
1	The social impression of the company has been enriched.	4.04	0.662	High	2
2	The company has enhanced staff training in eco-innovation and sustainability.	3.42	0.928	Medium	4
3	The company is more approaching with information release to the public.	3.59	0.797	Medium	3
4	The company guarantees health and safety at work.	4.41	0.683	High	1
Total Social Performance		3.86	0.540	High	

Source: own research

The mean of the total Social Performance variable items is 3.86, which indicates that there is agreement on the high importance of this variable.

Figure 15. Social Performance

Source: own research

Figure 15 shows a detailed description of the social performance of the surveyed firms.

4.4.3 Environmental Performance (EP)

Table 18: The averages of respondents' perceptions of the degree of application of Environmental Performance items range from 4.42 to 3.80, with a standard deviation of 0.880 to 0.685. Such findings suggest consensus on the critical necessity of Environmental Performance elements.

Table 18. Mean, Standard Deviation, Importance and Ranking of Environmental Performance

No.	Items	Mean	St.D.	Imp.	Rank
1	The company's environmental sustainability procedures enhance pollution control. (Exhaust gas, wastewater, solid waste).	4.07	0.829	High	2
2	The firm prioritizes cleaner production.	4.42	0.685	High	1
3	Decrease in frequency for environmental accidents	4.00	0.751	High	3
4	The company progresses green competencies to supervise its environmental effect.	3.80	0.880	High	4
Total Environmental Performance		4.07	0.641	High	

Source: own research

The mean of the total Environmental Performance variable items is 4.07, which indicates that there is agreement on the high importance of this variable.

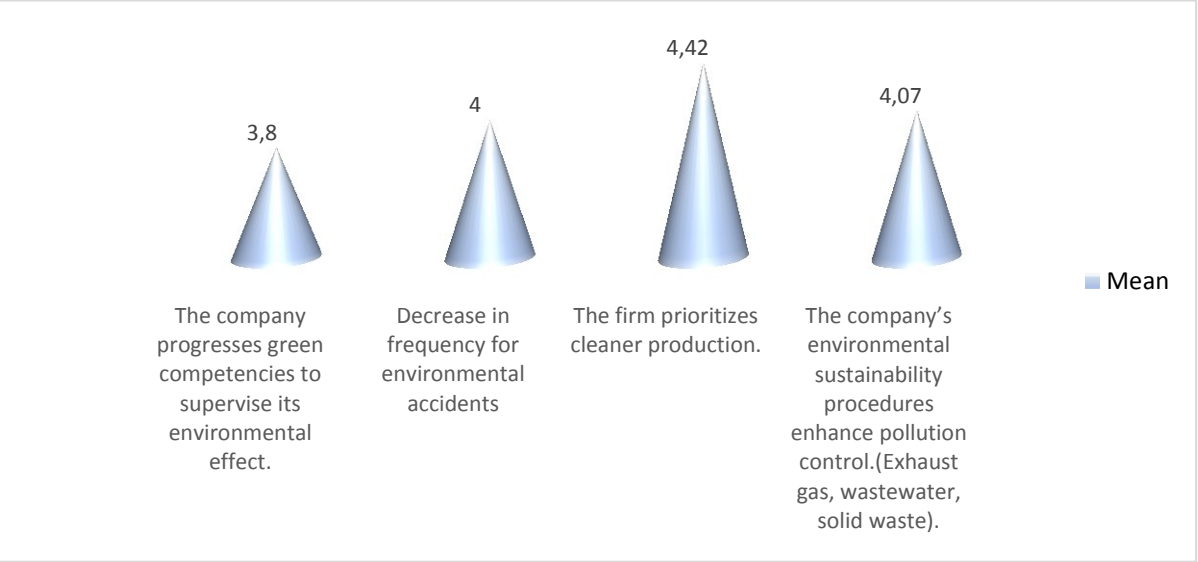

Figure 16. Environmental Performance

Source: own research

Figure16 shows a detailed description of the environmental performance of the surveyed firms.

4.5 Testing Study Hypothesis

Prior to employing multiple regression, the following assumptions must be met normality, validity, reliability, correlation, multicollinearity, and error independence. Normality, validity, reliability, and correlation have previously been assessed and assumed.

4.5.1 Normal Distribution (Histogram)

Skewness and kurtosis statistics are applied to decide on the distribution's normality. Skewness statistics are applied to examine the symmetry of distributions. Alternatively, the Kurtosis statistic is applied to verify how heavy the distribution tails are. (Kuvin et al., 2003). The research variables in Table 19 have a skewness of -2 to 2, suggesting that they are regularly distributed. normally distributed (West et al., 1995).

Table 19. Results of testing the normality of the distribution.

Variables	Skewness	Kurtosis
Technological capabilities (TC)	-0.712	1.191
Environmental organization capabilities (EOC)	-0.650	0.711
Command and control instrument (CCI)	-1.012	1.588
Market-based instrument (MBI	-0.488	-0.261
Customer green demand (CGD)	-0.374	0.277
Competitive pressure (CP)	-0.715	0.546
Product eco-innovation	-0.685	0.445
Process eco-innovation	-0.567	0.347
Organizational eco-innovation	-0.715	0.702
Economic performance (ECP)	-0.368	0.788
Social Performance	-0.399	1.108
Environmental performance	-0.506	0.153

Source: own research

4.5.2 Linearity Test

The Durbin-Watson test is applying to guarantee the independence of errors. The model does not violate this assumption if the Durbin-Watson test value is around 2. Simultaneously, VIF (Variance Inflation Factor) and tolerance are applied to examine multicollinearity. If the VIF is less than 10 and the tolerance is more than 0.05, then the multicollinearity model does not violate this assumption.

Table 20 indicates that the Durbin-Watson value is (d=1.533), which is around two, this means that the residuals are not correlated. Hence, the independence of errors is not violated. Table 20 results also indicate that the VIF values are less than 10 and the tolerance values are more than 0.05.

Table 20. Multi-Collinearity Test for Main Hypothesis – Coefficients

Model		Collinearity Statistics		Durbin-Watson
		Tolerance	VIF	
1	(Constant)			1.533
	Technological capabilities (TC)	0.379	2.635	
	Environmental organization capabilities (EOC)	0.507	1.972	
	Command and control instrument (CCI)	0.540	1.853	
	Market-based instrument (MBI	0.647	1.544	
	Customer green demand (CGD)	0.377	2.655	
	Competitive pressure (CP)	0.359	2.785	

Source: own research

4.5.3 The Main Hypotheses

Simple linear regression analysis was performed to test the Main hypotheses (H1, H2, H3, H4, H5, H6). To test the Main hypotheses (H7), Multiple regression analysis was performed, for H8, H9 and H10 ANOVA was used.

H1: "There is a positive impact of Technological capabilities (TC) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

Table 21. Impact test results H1

D.V	Model Summary		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
environmental innovation	0.641	0.410	247.181	0.000	0.628	0.040	15.722	0.000

*The effect is statistically significant at the level ($\alpha \leq 0.05$)

Source: own research

Table 21 shows that the R-value of the first dimension was (0.641), which indicates a positive correlation between the dimension (Technological capabilities (TC) and the dimension

(environmental innovation). The result of the coefficient of determination is (R2 = 410), which means that the (Technological capabilities (TC) domain explained (41%) the variance in (environmental innovation) when all other variables remain constant. It was also proved that at the level of confidence (sig = 0.000), the value of (F) reached (247.181), which confirms the importance of the regression at the level of significance ($\alpha \leq 0.05$).

Accordingly, the hypotheses are accepted: "There is a statistically significant effect at level ($\alpha \leq 0.05$) of Technological capabilities (TC) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

H2: "There is a positive impact of Environmental organizational capabilities (EOC) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

Table 22. Impact test results H2

D.V	Model Summary		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
environmental innovation	0.641	0.411	247.558	0.000	0..528	0.034	15.734	0.000

*The effect is statistically significant at the level ($\alpha \leq 0.05$)

Source: own research

Table 22 shows that the R-value of the first dimension was (0.641), which indicates a positive correlation between the dimension (Environmental, organizational capabilities (EOC) and the dimension (environmental innovation). The result of the coefficient of determination is (R2 = 411), which means that the (Environmental, organizational capabilities (EOC) domain explained (41.1%) the variance in (environmental innovation) when all other variables remain constant. It was also proved that at the level of confidence (sig = 0.000), the value of (F) reached (247.448), which confirms the importance of the regression at the level of significance ($\alpha \leq 0.05$).

Accordingly, the hypotheses are accepted: "There is a statistically significant effect at level ($\alpha \leq 0.05$) of Environmental, organizational capabilities (EOC) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector ".

H3: "There is a positive impact of Command and control (CCI) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

Table 23. Impact test results H3

D.V	Model Summary		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
environmental innovation	0.598	0.357	197.415	0.000	0.573	0.041	14.050	0.000

*The effect is statistically significant at the level ($\alpha \leq 0.05$)

Source: own research

Table 23 shows that the R-value of the first dimension was (0.598), which indicates a positive correlation between the dimension (Command and control (CCI) and the dimension (environmental innovation). It turns out that the result of the coefficient of determination is (R2 = 357), which means that the (Command and control (CCI) domain explained (35.7%) of the variance in (environmental innovation) when all other variables remain constant. It was also proved that at the level of confidence (sig = 0.000), the value of (F) reached (197.415), which confirms the importance of the regression at the level of significance ($\alpha \leq 0.05$).

Accordingly, the hypotheses are accepted: "There is a statistically significant effect at level ($\alpha \leq 0.05$) of Command and Control (CCI) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

H4: "There is a positive impact of Market based instruments (MBI) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

Table 24. Impact test results H4

D.V	Model Summary		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
environmental innovation	0.534	0.285	141.659	0.000	0.380	0.032	11.902	0.000

*The effect is statistically significant at the level ($\alpha \leq 0.05$)

Source: own research

Table 24 shows that the R-value of the first dimension was (0.534), which indicates a positive correlation between the dimension (Market-based instruments (MBI) and the dimension (environmental innovation). The result of the coefficient of determination is (R2 = 285), which means that the (Market-based instruments (MBI) domain explained (28.5%) the variance in (environmental innovation) when all other variables remain constant. It was also proved that at the level of confidence (sig = 0.000), the value of (F) reached (141.659), which confirms the importance of the regression at the level of significance ($\alpha \leq 0.05$).

Accordingly, the hypotheses are accepted: "There is a statistically significant effect at level ($\alpha \leq 0.05$) of Market-based instruments (MBI) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector ".

H5: "There is a positive impact of Customer green demand (CGD) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

Table 25. Impact test results H5

D.V	Model Summary		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
environmental innovation	0.612	0.375	213.042	0.000	0.475	0.033	14.596	0.000

*The effect is statistically significant at the level ($\alpha \leq 0.05$)

Source: own research

Table 25 indicates that the R-value of the first dimension was (0.612), which points out a positive correlation between the dimension (Customer green demand (CGD) and the dimension (environmental innovation). It shows that the result of the coefficient of determination is (R2 = 375), which means that the (Customer green demand (CGD) domain justified (37.5%) of the variance in (environmental innovation) when all other variables stay constant. It was also confirmed that at the level of confidence (sig = 0.000), the value of (F) reached (213.042), which proves the significance of the regression at the level of significance ($\alpha \leq 0.05$).

Accordingly, the hypotheses are accepted: “There is a statistically significant effect at level ($\alpha \leq 0.05$) of Customer green demand (CGD) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

H6: "There is a positive impact of Competitive pressure (CP) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

Table 26. Impact test results H6

D.V	Model Summary		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
environmental innovation	0.665	0.442	280.758	0.000	0.517	0.031	16.756	0.000

*The effect is statistically significant at the level ($\alpha \leq 0.05$)

Source: own research

Table 26 indicated that the R-value of the first dimension was (0.665), which shows a positive correlation between the dimension (Competitive pressure (CP) and the dimension (environmental innovation). The result of the coefficient of determination is (R2 = 442), which means that the (Competitive pressure (CP) domain justified (44.2%) of the variance in (environmental innovation) when all other variables stay constant. It was also confirmed that at the level of confidence (sig = 0.000), the value of (F) reached (280.758), which proves the significance of the regression at the level of significance ($\alpha \leq 0.05$).

Accordingly, the hypotheses are accepted: "There is a statistically significant effect at level ($\alpha \leq 0.05$) of Competitive pressure (CP) on environmental innovation in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

To test the Main hypotheses (H7), Multiple regression analysis was performed.

H7: " There is a positive impact of Eco-innovation on Business Performance (Economic performance, Environmental performance, Social performance) in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

The correlation coefficient indicates an effect of Eco–innovation on Business Performance methods (R = 0.747) and that the independent variable (Eco–innovation) on Business Performance is statistically significant, according to Table No. (4-22) where the calculated value was F (148.318) and the level of significance (sig = 0.000) is less than (0.05), where the value of the coefficient of determination (R2 = 0.558) indicates that the variance in quantitative methods can explain (55.8%) of the difference in (Business Performance).

Table 27. Results of Multiple Regressions Analysis (ANOVA): H7

I.V	Model Summary		ANOVA		Coefficients				
	R	R^2	F	Sig F*	variable	B	standard error	T	Sig T*
Eco–innovation	0.747	0.558	148.318	0.000	Economic performance	0.202	0.047	4.332	0.000
					Environmental performance	0.232	0.066	3.490	0.001
					Social performance	0.534	0.049	10.869	0.000

Source: own research

Table 27 presents the values of the regression coefficients for the sub-dimensions of the variable (Business Performance). It is obvious from the table that the value of B in the dimension of Economic performance amounted to (0.202). The value of T calculated in this dimension was (4.332) at a significant level (0.000), which is less than 0.05, which points out a significant positive effect at the significance level ($\alpha \leq 0.05$). The table also clarifies that the value of B in the Environmental performance dimension was (0.232), and the value of T calculated in this dimension was (3.490) with a significance level of (0.001), which is less than 0.05, which indicates a significant positive effect at ($\alpha \leq 0.05$). Also, the table shows that the B value in the social performance dimension was (0.534), and the T value was calculated at (10.869) with significance level of (0.000), which is less than 0.05, which indicates a significant positive effect at ($\alpha \leq 0.05$). Consequently, the main hypothesis is accepted: “There is a statistically significant effect at the level ($\alpha \leq 0.05$) of Eco-innovation on Business Performance (Economic performance, Environmental performance, Social performance) in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

To test the sub-hypotheses, simple linear regression analysis was performed.

H7.1: There is a statistically significant effect at level (α ≤ 0.05) of Eco-innovation on Economic performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.

Table 28. Impact test results H7.1

I.V	Model Summary		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
Eco–innovation	0.499	0.249	117.763	0.000	0.528	0.049	10.852	0.000

*The effect is statistically significant at the level (α ≤ 0.05)

Source: own research

Table 28 shows that the R-value of the first dimension was (0.499), which indicates a positive correlation between the dimension (Eco-innovation) and the dimension (Economic performance). It turns out that the result of the coefficient of determination is (R2 = 249), which means that the (Eco-innovation) domain explained (24.9%) of the variance in (Economic performance) when all other variables remain constant. It was also proved that at the level of confidence (sig = 0.000), the value of (F) reached (117.284), which confirms the importance of the regression at the level of significance (α ≤ 0.05).

Accordingly, the sub-hypotheses are accepted: "There is a statistically significant effect at level (α ≤ 0.05) of Eco–innovation on Economic performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

H7.2: There is a positive impact of Eco-innovation on Environmental performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.

Table 29. Impact test results H7.2

I.V	Model Summary		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
Eco–innovation	0.619	0.383	220.228	0.000	0.781	0.053	14.840	0.000

*The effect is statistically significant at the level (α ≤ 0.05)

Source: own research

Table 29 shows that the R-value of the first dimension was (0.619), which indicates a positive correlation between the dimension (Eco-innovation) and the dimension (Environmental performance). It turns out that the result of the coefficient of determination is (R2 = 383), which means that the (Eco-innovation) domain explained (38.3%) of the variance in (Environmental performance) when all other variables remain constant. It was also proved that at the level of confidence (sig = 0.000), the value of (F) reached (220.228), which confirms the importance of the regression at the level of significance ($\alpha \leq 0.05$).

Accordingly, the sup-hypothesis is accepted: "There is a statistically significant effect at level ($\alpha \leq 0.05$) of Eco–innovation on Environmental performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

H7.3: "There is a positive impact of Eco-innovation on Social performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

Table 30. Impact test results H7.3

I.V	Model Summary		ANOVA		Coefficients			
	R	R^2	F	Sig F*	B	standard error	T	Sig T*
Eco–innovation	0.695	0.483	332.077	0.000	0.739	0.041	18.223	0.000

*The effect is statistically significant at the level ($\alpha \leq 0.05$)

Source: own research

Table 30 shows that the R-value of the first dimension was (0.695), which indicates a positive correlation between the dimension (Eco-innovation) and the dimension (Social performance). It turns out that the result of the coefficient of determination is (R2 = 483), which means that the (Eco-innovation) domain explained (48.3%) of the variance in (Social performance) when all other variables remain constant. It was also proved that at the level of confidence (sig = 0.000), the value of (F) reached (332.077), which confirms the importance of the regression at the level of significance ($\alpha \leq 0.05$).

Accordingly, the sup-hypothesis is accepted: "There is a statistically significant effect at level ($\alpha \leq 0.05$) of Eco–innovation on Social performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".

H8: There are insignificant differences of the respondents' response toward the study's variables regarding different organization Type.

ANOVA at 95% confidence interval was conducted to test this hypothesis. As shown in table 31, the p values are more than 0.000. Hence, there is no statically significant difference in respondents' responses towards study variables regarding different organization type.

Table 31: ANOVA Impact test results H8

		Sum of Squares	Mean Square	F	Sig.
Technological capabilities (TC)	Between Groups	5.086	.848	1.854	.103
	Within Groups	29.263	.457		
	Total	34.349			
Environmental organization capabilities (EOC)	Between Groups	2.432	.405	.636	.701
	Within Groups	40.776	.637		
	Total	43.208			
Command and control instrument (CCI)	Between Groups	8.992	0.499	1.564	.084
	Within Groups	26.908	.420		
	Total	35.900			
Market-based instrument (MBI)	Between Groups	7.490	1.248	1.403	.227
	Within Groups	56.954	.890		
	Total	64.444			
Customer green demand (CGD)	Between Groups	4.099	.683	.856	.532
	Within Groups	51.088	.798		
	Total	55.187			
Competitive pressure (CP)	Between Groups	6.880	1.147	1.533	.182
	Within Groups	47.868	.748		
	Total	54.748			
Eco innovation/ Product eco-innovation	Between Groups	8.596	1.433	1.992	.080
	Within Groups	46.021	.719		
	Total	54.618			
Process eco-innovation	Between Groups	3.872	.645	1.093	.376
	Within Groups	37.787	.590		
	Total	41.659			

Table 31: ANOVA Impact test results H8

		Sum of Squares	Mean Square	F	Sig.
Organizational eco-innovation	Between Groups	3.642	.607	.807	.569
	Within Groups	48.167	.753		
	Total	51.810			
Economic performance (ECP)	Between Groups	2.081	.347	.811	.565
	Within Groups	27.371	.428		
	Total	29.452			
Social Performance.	Between Groups	1.251	.209	.685	.662
	Within Groups	19.477	.304		
	Total	20.729			
Environmental performance	Between Groups	.769	.128	.289	.940
	Within Groups	28.406	.444		
	Total	29.174			

Source: own research

H9: There are insignificant differences of the respondents' response toward the study's variables regarding different organization size.

ANOVA at 95% confidence interval was conducted to test this hypothesis. As shown in table 32, the p values are more than 0.000. Hence, there is no statically significant difference in respondents' responses towards study variables regarding different organization size.

Table 32: ANOVA Impact test results H9

		Sum of Squares	Mean Square	F	Sig.
Technological capabilities (TC)	Between Groups	1.297	.432	.827	.485
	Within Groups	25.611	.523		
	Total	26.907			
Environmental organization capabilities (EOC)	Between Groups	.666	.222	.345	.793
	Within Groups	31.534	.644		
	Total	32.200			
Command and control instrument (CCI)	Between Groups	2.481	.827	1.335	.274
	Within Groups	30.349	.619		
	Total	32.830			

Table 32: ANOVA Impact test results H9

		Sum of Squares	Mean Square	F	Sig.
Market-based instrument (MBI)	Between Groups	1.819	.606	.793	.503
	Within Groups	37.439	.764		
	Total	39.258			
Customer green demand (CGD)	Between Groups	9.158	.753	.693	.070
	Within Groups	35.672	.728		
	Total	44.830			
Competitive pressure (CP)	Between Groups	3.395	1.132	1.389	.257
	Within Groups	39.926	.815		
	Total	43.321			
Eco innovation/ Product eco-innovation	Between Groups	4.297	1.432	1.995	.127
	Within Groups	35.191	.718		
	Total	39.488			
Process eco-innovation	Between Groups	1.233	.411	.701	.556
	Within Groups	28.746	.587		
	Total	29.979			
Organizational eco-innovation	Between Groups	5.348	1.783	2.830	.058
	Within Groups	30.865	.630		
	Total	36.213			
Economic performance (ECP)	Between Groups	.831	.277	.673	.573
	Within Groups	20.176	.412		
	Total	21.007			
Social Performance.	Between Groups	.162	.054	.188	.904
	Within Groups	14.106	.288		
	Total	14.269			
Environmental performance	Between Groups	2.399	.800	1.888	.144
	Within Groups	20.759	.424		
	Total	23.158			

Source: own research

H10: There are insignificant differences of the respondents' response toward the study's variables regarding different organization age.

ANOVA at 95% confidence interval was conducted to test this hypothesis. As shown in table 33, the p values are more than 0.000. Hence, there is no statically significant difference in respondents' responses towards study variables regarding different organization age.

Table 33: ANOVA Impact test results H10

		Sum of Squares	Mean Square	F	Sig.
Technological capabilities (TC)	Between Groups	.194	.065	.127	.944
	Within Groups	34.155	.510		
	Total	34.349			
Environmental organization capabilities (EOC)	Between Groups	.379	.126	.197	.898
	Within Groups	42.829	.639		
	Total	43.208			
Command and control instrument (CCI)	Between Groups	.929	.310	.593	.622
	Within Groups	34.971	.522		
	Total	35.900			
Market-based instrument (MBI)	Between Groups	.862	.287	.303	.823
	Within Groups	63.583	.949		
	Total	64.444			
Customer green demand (CGD)	Between Groups	.609	.203	.249	.862
	Within Groups	54.577	.815		
	Total	55.187			
Competitive pressure (CP)	Between Groups	1.556	.519	.653	.584
	Within Groups	53.192	.794		
	Total	54.748			
Eco innovation/ Product eco-innovation	Between Groups	7.948	0.649	0.803	.054
	Within Groups	46.670	.697		
	Total	54.618			
Process eco-innovation	Between Groups	1.671	.557	.933	.430
	Within Groups	39.988	.597		
	Total	41.659			

Table 33: ANOVA Impact test results H10

		Sum of Squares	Mean Square	F	Sig.
Organizational eco-innovation	Between Groups	1.153	.384	.508	.678
	Within Groups	50.656	.756		
	Total	51.810			
Economic performance (ECP)	Between Groups	.396	.132	.304	.822
	Within Groups	29.057	.434		
	Total	29.452			
Social Performance.	Between Groups	.275	.092	.300	.825
	Within Groups	20.454	.305		
	Total	20.729			
Environmental performance	Between Groups	.938	.313	.742	.531
	Within Groups	28.237	.421		
	Total	29.174			

Source: own research

This study examined Eco-Innovation and Business Performance in Jordanian Small and Medium Enterprises in the Food Processing Sector. In this chapter, the study's findings are presented according to the analysis in the previous chapter. Results compared to previous studies will also be discussed. Finally, the recommendations made by the study are presented.

4.6 Summary of the results

The results of the analysis showed the following:

- There is agreement on the high average importance of technological capabilities (TC) elements, where the importance and arrangement of technological capabilities appear, as it is easy for companies to obtain innovative environmental advisory services from (planning, evaluation, and training,).
- There is agreement on medium importance. Elements of Environmental Regulation Capabilities (EOC), where companies create rules to guide environmental management.
- There is agreement on the importance of CCI components, as products must meet the requirements of international environmental regulations.

- There is agreement on the intermediate importance of Market-Based Instruments (MBI) components, where the government is concerned with environmental protection policies.
- The results indicate agreement on the medium importance of green customer demand (CGD) elements, as the environment is an essential issue for corporate customers.
- There is an agreement on the importance of the elements of competitive pressure, which gives companies a competitive advantage through environmental concepts.
- There is agreement on the medium importance of eco-innovation/products, high importance of eco-innovation components of the process, and medium importance of organizational eco-innovation components.
- The existence of an agreement about the average importance of items of economic performance allows the company to provide sustainable value to the consumer.
- There is an agreement on the high and medium importance of the elements of social performance, as the company guarantees health and safety at work.
- Having an agreement on the high environmental importance of the performance elements, the company gives priority to the cleanest and least harmful production in the environment.
- There is no statically significant difference in respondents' responses towards study variables regarding different organization types.
- There is no statically significant difference in respondents' responses towards study variables regarding different organization size.
- There is no statically significant difference in respondents' responses towards study variables regarding different organization age.

4.7 Summary of the hypotheses testing

H1: The first main hypothesis was accepted: "There is a statistically significant effect at the level ($\alpha \leq 0.05$) of technological capabilities (TC) on environmental innovation in Jordanian small and medium companies operating in the food processing sector." Whereas the field of (technological capabilities (TC) justified (41%) of the variation in (environmental innovation) when all other variables stayed constant.

Several studies have supported this finding. According to(Wu et al., 2020), state ownership promotes a positive relationship between firm-level technological capability and ecological innovation performance; While firms with lower technological capabilities tend to prefer in-house

research and development (R&D). The main findings of Valdez-Juárez and Castillo-Vergara (2021) demonstrate how technological capability substantially impacts open innovation and eco-innovation practices, albeit indirectly through open innovation or eco-innovation rather than directly on corporate performance. These findings also support the beneficial impacts of eco-innovation and open innovation on the business performance of SMEs.

H2: The second main hypothesis was accepted: "There is a statistically significant effect at the level ($\alpha \leq 0.05$) of environmental organizational capabilities (EOC) on environmental innovation in Jordanian small and medium enterprises operating in the food processing sector." Whereas the field of (Environmental Organizational Capabilities (EOC) explained (41.1%) the variance in (Environmental Innovation) when all other variables remain constant.

Several studies have supported this finding. According to Huang and Li (2017) findings, social reciprocity, dynamic capability, and coordination capability are all critical forces behind green innovation, including process and product innovation. Innovation in green products and processes benefits organizations' performance and the environment. In addition, according to Serrano-García et al. (2023) results. Sustainable development goals push businesses to implement protective measures that benefit the environment. Considering the link between the use of TECH and GPC, data points to its contribution to environmental performance but not financial performance. Additionally, there needs to be a discernible impact on both environmental and financial performance at high levels of association implementation.

H3: The third main hypothesis was accepted: "There is a statistically significant effect at the level ($\alpha \leq 0.05$) of command and control (CCI) on environmental innovation in Jordanian small and medium enterprises operating in the food processing sector." Whereas the field of (Command and control (CCI) explained (35.7%) the variance in (environmental innovation) when all other variables were kept constant.

H4: The fourth main hypothesis was accepted: “There is a statistically significant effect at the level ($\alpha \leq 0.05$) of market-based tools (MBI) on environmental innovation in Jordanian small and medium enterprises operating in the food processing sector.” It means that the (MBI) field explained (28.5%) the variance in (environmental innovation) when all other variables were held constant.

H5: The fifth main hypothesis was accepted: "There is a statistically significant effect at the level ($\alpha \leq 0.05$) of green customer demand (CGD) on environmental innovation in Jordanian small and medium enterprises operating in the food processing sector." The domain (green customer

demand (CGD) explained (37.5%) of the variance in (environmental innovation) when all other variables remain constant.

H6: The sixth main hypothesis was accepted: "There is a statistically significant effect at the level ($\alpha \leq 0.05$) of competitive pressure (CP) on environmental innovation in Jordanian small and medium enterprises operating in the food processing sector." The field of (competitive pressure (CP)) explained (44.2%) the variance in (environmental innovation) when all other variables remain constant.

H7: The seventh central hypothesis was accepted: "There is a statistically significant effect at the level ($\alpha \leq 0.05$) of environmental innovation on business performance (economic performance, environmental performance, and social performance) in Jordanian small and medium enterprises operating in the field of food processing sector."

H7.1: The first sub-hypothesis, was accepted: "There is a statistically significant effect at the level ($\alpha \leq 0.05$) of environmental innovation on the economic performance of Jordanian small and medium companies operating in the food processing sector." At the same time, the field of (environmental innovation) explained (24.9%) the variation in (economic performance) when all other variables remained constant.

Several studies have supported this finding. Maldonado-Guzmán and Pinzón-Castro (2022) state that eco-innovation is one of the critical concepts that can significantly increase a company's environmental sustainability the literature. It has been demonstrated, however, that businesses alone cannot sufficiently develop eco-innovation activities to increase the level of eco-innovation activities and significantly raise the level of sustainable performance of manufacturing organizations. According to Maldonado-Guzmán and Pinzón-Castro (2022) eco-innovation development influences not only economic growth but also has a positive effect on environmental performance. Eco-innovations development and economic growth can be interdepended, but this research investigates just one-way dependence. Yurdakul and Kazan (2020) discovered through structural equation modelling that eco-innovation has a direct impact on preventing pollution, conserving resources, and recycling; also, it has a favorable indirect impact on cost reduction and, therefore, on economic performance. The results imply that because eco-innovation has a cost advantage and the ability to reduce pollution, decision-makers should adopt it.

H7.2: The second sub-hypothesis was accepted: "There is a statistically significant effect at the level ($\alpha \leq 0.05$) of environmental innovation on environmental performance in Jordanian small and medium enterprises operating in the food processing sector." In contrast, the field of

(environmental innovation) explained (38.3%) the variance in (environmental performance) when all other variables remain constant.

Many studies have supported this finding. However, the critical finding of Beltrán-Esteve and Picazo-Tadeo (2017) is that environmental performance improved in both periods, primarily due to advancements in environmental technology. As a result, environmental policies encouraging catching up are strongly advised. According to Fernando et al. (2016) findings, the model's most significant predictor is adherence to environmental standards. Technology and market focus are highlighted as factors that positively influence environmental performance. According to Barriga Medina et al. (2022) organizational eco-innovation (OE) and process eco-innovation (PCE) are strongly and favorably correlated with a company's financial and environmental success. However, the two categories of performance outlined are not strongly correlated with product eco-innovation (PDE). The indirect effects of OE on PDE, environmental performance, and financial performance are also essential and favorable. These results imply that OE and PCE favorably impact the firm's performance.

H7.3: The third sub-hypothesis was accepted: "There is a statistically significant effect at the level ($\alpha \leq 0.05$) of environmental innovation on social performance in Jordanian small and medium enterprises operating in the food processing sector." Whereas the field of (environmental innovation) explained (48.3%) of the variance in (social performance) when all other variables remain constant.

Studies have supported this finding. According to Tumelero and Sbragia (2019) an eco-innovative strategy produces environmental sustainability, which positively impacts society. Moreover, eco-innovations fuel other eco-innovations by forging a route dependency on the environment since skills developed through a cleaner method will favorably impact the release of goods utilizing clean technologies. Tumelero and Sbragia, (2019) concluded that environmental sustainability derived from an eco-innovative strategy promotes favorable social outcomes like community care, adopting anti-corruption measures, adherence to rules and regulations, and supplier evaluation. Moreover, eco-innovations fuel other eco-innovations by forging a route dependency on the environment since skills developed through a cleaner method will favorably impact the release of goods utilizing clean technologies. According to Ch'ng et al. (2021), achieving each of the three aspects of sustainable company performance (economic, social, and environmental) is possible by choosing an eco-innovation approach, such as eco-process, eco-product, or eco-organizational innovation. A technological firm's economic performance can be considerably improved by establishing an eco-organizational management system, such as

monitoring their eco-innovation trends and regularly communicating experiences and information with employees and various departments. Second, the company can modernize its operational procedures or create new, environmentally friendly products to improve its environmental performance. Third, the impact of eco-organizational innovation on a technology firm's social performance is strengthened by market turbulence like severe rivalry, unexpected customer tastes, and technological advances. By adopting product, process, and organizational eco-innovation, the aspects of sustainable business performance are attainable, claim (Larbi-Siaw et al., 2022). The trinity of product, process and organizational eco-innovation can significantly boost a manufacturing firm's environmental performance. A company can then enhance its social performance by funding R&D for eco-innovations, using cutting-edge green management techniques, and raising employee awareness of eco-innovation.

H8: Investigating the hypothesis (H8) that posited the presence or absence of significant differences in respondents' responses across various organization types concerning the study's variables, an analysis of variance (ANOVA) was conducted at a 95% confidence interval. The results reveal compelling insights into the relationship between organization type and the study's variables.

Upon a thorough examination of the data, it becomes evident that the p-values associated with all the variables related to different organization types exceed the conventional significance threshold of 0.05. This outcome strongly suggests that there are no statistically significant differences in respondents' responses with respect to the study's variables in relation to different organization types.

These findings imply that the nature of the organization does not appear to exert a significant influence on the factors under investigation. In other words, organizations across various types in the food sector seem to exhibit similar patterns and practices concerning technological capabilities, environmental organization capabilities, command and control instruments, market-based instruments, customer green demand, competitive pressure, eco-innovation, economic performance, social performance, and environmental performance.

In conclusion, there is insufficient evidence to support the claim that there are significant differences in respondents' responses to the study's variables based on different organization types. These findings shed light on the homogeneity of responses across diverse organizational contexts and underscore the importance of further research to explore potential nuanced factors that may influence these variables within specific organizational settings.

Certainly, the hypothesis (H8) has been rejected based on the results obtained. The analysis, conducted at a 95% confidence interval, yielded p-values for all variables related to different organization types that exceeded the conventional significance threshold of 0.05. Consequently, there is no statistically significant evidence to support the hypothesis, indicating that there are no significant differences in respondents' responses regarding the study's variables across various organization types.

H9: There are insignificant differences of the respondents' response toward the study's variables regarding different organization size.

This hypothesis (H9) sought to investigate whether significant differences exist in respondents' responses regarding the study's variables across various organization sizes. To examine this hypothesis, an analysis of variance (ANOVA) was conducted at a 95% confidence interval,

Upon thorough scrutiny of the ANOVA outcomes, it becomes evident that all the p-values associated with the variables related to different organization sizes exceed the conventional significance threshold of 0.05. This compelling statistical evidence supports the conclusion that there are no statistically significant differences in respondents' responses concerning the study's variables based on varying organization sizes.

These findings collectively suggest that the size of an organization, whether it is small, medium, or large, does not exert a significant influence on the factors under investigation. In other words, organizations of different sizes exhibit similar patterns and practices concerning technological capabilities, environmental organization capabilities, command and control instruments, market-based instruments, customer green demand, competitive pressure, eco-innovation, economic performance, social performance, and environmental performance.

In conclusion, the results of the ANOVA analysis led us to confidently reject the alternative hypothesis (H9) in favor of the null hypothesis (H0). There is compelling statistical support for the notion that there are no significant differences in respondents' responses to the study's variables based on different organization sizes. These findings contribute to our understanding of the homogeneity of responses across a variety of organizational sizes and emphasize the need for further exploration of potential nuanced factors that may impact these variables within specific organizational contexts.

H10: There are insignificant differences of the respondents' response toward the study's variables regarding different organization age.

The tenth hypothesis (H10) aimed to investigate whether there are significant differences in respondents' responses concerning the study's variables based on different organization ages. To test this hypothesis, an analysis of variance (ANOVA) was conducted at a 95% confidence interval.

Upon a thorough examination of the ANOVA results, all the p-values associated with the variables related to different organization ages are well above the conventional significance threshold of 0.05. This compelling statistical evidence indicates that there is no statistically significant difference in respondents' responses regarding the study's variables based on different organization ages.

Collectively, these results suggest that the factors under investigation are not significantly influenced by an organization's age, regardless of whether it is young or has a long history. To put it another way, businesses of all ages share common patterns and practices in terms of technological prowess, environmental management prowess, command and control tools, market-based tools, customer green demand, competitive pressure, eco-innovation, and economic, social, and environmental performance.

In conclusion, the results of the ANOVA analysis led us to confidently reject the alternative hypothesis (H10) in favor of the null hypothesis (H0). There is compelling statistical support for the assertion that there are no significant differences in respondents' responses to the study's variables based on different organization ages. These findings contribute to our understanding of the homogeneity of responses across organizations of varying ages and emphasize the need for further exploration of potential nuanced factors that may impact these variables within specific organizational contexts.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

- The hypotheses (H1, H2, H3, H4, H5, and H6) that are used to evaluate and rank the factors that drive eco-innovation range in importance from very important to moderately important.
- H7 was approved regarding how eco-innovation variables affect business performance. Eco-process has the biggest impact on business performance, followed by eco-product and eco-organizational, in that order. The hypothesis was confirmed, and the impact of eco-innovation factors on business performance was ranked.
- Accordingly, the sub-hypothesis accepted: "There is a statistically significant effect at level ($\alpha \leq 0.05$) of Eco–innovation on Economic, Environmental and Social performance in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector".
- The hypotheses (H8, H9, H10) proved that there is no statically significant difference in respondents' responses towards study variables regarding different organization types, size, and age.

5.2 Recommendation

Based on the results, the study recommends the following:

- Companies need to have some successful experience in the field of environmental innovation in order to support their technological capabilities; their R&D team must have more mature and robust design capabilities.
- Importance of Attention Environmental Regulatory Capabilities (EOC), companies have been awarding bonuses to people contributing to energy conservation and emissions reduction.
- The companies' production processes must meet the requirements of the International Environmental Regulations to support the Command-and-Control Instrument (CCI).
- Pay attention to a preferential tax policy on environmental innovation the government provides to support a market-based instrument.
- Attention to the customer's green demand Since valued customers often raise environmental issues, customers have specific demands on environmental issues.

- Attention to competitive pressure (CP) for companies by increasing market share through environmental concepts.
- Supporting Product eco-innovation so that the company produces recyclable, reusable, and recoverable products.
- The company needs to participate in operating processes that meet environmental standards in the process of eco-innovation.
- The company's suppliers must undergo an environmental assessment before selecting to support organizational eco-innovation.
- Supporting the company's economic performance (ECP) through a sustainable increase in the cost of the product.
- Companies need to increase employee training in environmental innovation and sustainability as a way to pay attention to social performance.
- Companies must develop green competencies to manage their environmental impact.
- Policymakers must consider that the food industry's SMEs' motivations for adopting eco-innovation are unaffected by the firm's size or age, so they must assist these SMEs in putting eco-innovation into practice.
- Managers of SMEs in Jordan's food sector must focus on internal and external capabilities and resources, as neither firm size nor age determine the impact of eco innovation in their businesses.

5.3 Further Research

As the region's population increases and arable land and water resources continue to decrease, trade and food policies will have to respond accordingly. Integrating nutritionary targets and planning nutrition-sensitive food policies will both be fundamental to address the adverse public health implications of trade (food) policies. Thorough efforts will engage region-wide and local attempts and initiatives.

It is well-known that water and food security are two significant priorities for Jordan as a whole, and by default for the agriculture sector. A prolonged plan has been developed to implement initiatives in these areas to continue progress and to improve the situation largely. The sector has also developed plans to expand productivity and water efficiency on existing farms, improve local production, food security and storage capacity and maintain forests and biodiversity.

As stated in "Jordan 2025", A National Vision and Strategy. currently 81% of Jordan's food requirements are imported. The agriculture sector has a great opportunity to produce more food

domestically and hence alleviate the vulnerabilities related to importing such a high percentage of the food consumed, as well as facilitating green growth specifically in the areas of resilience; for example, through crop types that are drought-tolerant, along with social development and poverty alleviation.

Jordan can further increase its recycling policies and infrastructure. The country has already developed several policies and proposals to boost recycling, including the development of a

national waste management strategy. The government can improve the development of circular economy through the investment in recycling infrastructure and encouraging the development of local recycling industries. This can be achieved through the planning of monetary incentives to companies that advance their recycling infrastructure, alongside the formation of governance frameworks to adopt the recycling of certain materials.

Jordan can apply resource efficiency procedures such as energy-saving technologies, renewable energy adoption, and energy-effectiveness in high-consuming sectors such as food and agriculture to support the reduction of energy consumption and costs. The approach, in which energy is generated and consumed, has a remarkable effect on resource efficiency and waste reduction. By adopting renewable energy sources such as solar and wind, it is possible to decrease the dependence on constrained fossil fuels and reduce greenhouse gas emissions that result in climate change.

A German consultancy will develop a water resource management program for the food processing sector to classify and improve vulnerable points in their water use and treatment.

It is necessary to restore and use agricultural and processing methods which allow for the return to a high content of nutrients in food. The Jordanian food economy demands a paradigm shift. Such a need stems both from the very low biological and health quality of some products, but also from the need to safeguard the agricultural environment effectively.

The method to adopt innovation can be presented by linking the industry's needs with academic resources. The realization of applied research projects needs both parties to have an apparent and joint understanding of the essential output and a backed source of finance or grants.

Developing relations between academia and industry to boost applied research requires collaboration with universities that provide technical assistance in production, waste management, risk assessment and quality assurance.

The technical assistance from universities will help SMEs in the reduction of product contamination, improves consistency, increase efficiency, reduce waste or energy consumption and Provision Clean production, good manufacturing, and hygiene practices, which will add a competitive advantage.

The prompt growth of social media and platforms such as Facebook, Twitter, and Instagram among firms from diverse industries proposes the possibility for social manufacturing, and widely spreading eco-innovation awareness. Future studies could therefore study differential impacts of social media incorporation on online and offline involvement in eco-innovation awareness. Other studies could concentrate on the role of social media and social manufacturing within different eco innovation networks. Surplus insights may appear from in-depth analysis of social constructs.

More consideration should be paid to the significance of long-term support for those SMEs during their pursuit of sustainability. Research should be directed to having an elevated understanding of the impacts of the industry's norms and values. It would be also interesting to analyze the impact of direct contact with end-consumers.

The deployment of quantitative questionnaires embraces promise in investigating the implication of motivations, their influence on behavioral intentions, and how they might be affected by variables such as age (across diverse ranges), gender, cultural contexts, and other intervening factors. This process will drive the field forward and offer more thorough understanding of the intricate web of consumer motivations within the context of eco-innovative foods.

5.4 Research Limitations

The limitations of the research are related to the location (Jordan, food sector, SMEs) and time as the research was conducted in the time frame (November 2022 till April 2023).

The procedural tool (questionnaire) was filled online (Google Forms) using google drive. Local SMEs were visited to increase the number of valid questionnaires. The research focused only on three types of eco-innovation.

One of the key limitations in this type of study is the source of the data because the gathered information is collected from the managers and staff of the surveyed companies, which can sometimes lead to bias. Future studies could consider the participation of customers.

Other drivers for companies to eco innovate were not covered by the study. Also, often internal, and external drivers are defined as static by the literature, but reality show that mixed motivations

are not so easily classified. These drivers might overlap and appear in various ways in companies' eco-innovation strategies. Innovation in the company is complicated and implies many distinct characteristics of the organizational structure.

In other words, whether sustainable development is fulfilled by the adoption of eco-innovation, is an influential point to be investigated. In that sense, further analyses of how those drivers can result in outcomes from eco-innovation would have focal practical consequences for companies and governments in terms of strategical and public policies.

Most of the reviewed studies are based on the so-called variance theories, which deliver enlightenments for the phenomena in terms of relationships among dependent and independent variables argued that, although quantitative analyses are usually considered more demanding and objective than qualitative analyses, they are less able to portray the relevance of the local institutional and socioeconomic context. Quantitative analyses regularly establish general relationships and thus omit critical variables of the determinants for innovation/adoption of specific eco-innovations. There has been a change in the use of a combination of quantitative and qualitative methods to acquire greater perceptions into the process of eco-innovation.

The abovementioned facts represent a limitation for the general use of the research results, but as the original goal of my research was to conduct an analysis for Jordanian SMEs, the research goal was achieved.

Nevertheless, the research questionnaire and the methodology may be replicated, so similar research may be conducted in other countries, or – after some corrections – for other industries.

6. NEW SCIENTIFIC RESULTS

New scientific results either challenge old scientific results and provide new approaches or support the former findings in different aspects. These results could help to develop new strategies for companies to implement eco innovation and determine the most effective drivers for inducing eco innovation in SMEs in the Jordanian food sector.

The research develops a model that illustrates the relative significance of each type of eco innovation in business performance.

The theoretical framework mixes the resource-based view and institutional economics to examine the complexity of factors stimulating eco-innovation decisions as well as performance. by pointing out the internal factors that companies can manage to fully adopt eco innovation. While companies have minimum control of external factors, they can go beyond mere compliance when adhering to internal factors. These factors, identified in the business literature and part of our conceptual model, can lead companies to change to a more sustainable performance.

The examination of environmental regulation as two individual components (a command-and-control instrument and a market-based instrument) also leads to valuable insights and various implications for researchers and policymakers. Academic research has an important role in enhancing sustainability and innovation orientation, providing decision-makers, managers, and policy makers alike, with tools that can be helpful in the process of implementation and adaptation to new strategies.

1. I have demonstrated that the drivers (TC, EOC.CCI.MB, CGD, CP) have a favorable effect on environmental innovation in Jordanian small and medium-sized businesses engaged in the food processing industry. after performing. statistical analysis using ANOVA. And the study's findings confirmed the significance of these drivers.
2. I have proved that correlation coefficient indicates an effect of Eco–innovation on Business Performance and that the independent variable (Eco–innovation) on Business Performance is statistically significant.
3. My research results confirm that the regression coefficients for the sub-dimensions of the variable (Business Performance). which indicates a significant positive effect at ($\alpha \leq 0.05$). of eco-innovation on Business Performance (Economic performance, Environmental performance, social performance) in Jordanian Small and Medium Enterprises Operating in the Food Processing Sector.

4. The study found that firm size and firm age don't show any significant effect, this evidence suggests that the potential connections and complementarities between Eco innovation and business performance depend primarily and critically on the organizational capabilities and coordination mechanisms that firms are able to implement instead of on the size or age of the organizations. Therefore, the results are in line with the Natural Resource-Based view postulates. and complements other contributions that also use a firm-level approach to environmental innovation analyze the determinants of environmental innovation activities. In this sense, our work takes a complementary perspective and a closer look to the inner mechanisms of the firm that explain the environmental innovation success.

7. SUMMARY

Innovative performance is a fundamental asset for building competitive advantage of small and medium enterprises. This research empirically examines the direct and indirect relationship between eco-innovation and business performance in Jordanian enterprises working in the food processing sector. This research draws on the resource-based view theory to investigate the inter-relationships among three types of eco innovation (process, product, organizational) and their relative impact on business performance (economic, social, and environmental). It sheds light on the driving forces of eco-innovation and the effects on firm performance. Furthermore, the researchers used structural equation modelling of 357 samples collected from Jordanian SMEs operating in the food processing sector.

The major contribution of this research is providing a holistic view that explains the inter-relationship among eco-process, eco-product, and eco-organizational innovation. The research reveals the impact of eco-innovation variables on business performance. The greatest is the impact of eco-process on business performance followed by eco-product and eco-organization respectively.

This research focuses on an investigation of the relationship of the drivers of eco-innovation behavior and performance. With this understanding, policymakers in the food industry could refer to this research for further developing policies and strategies which aim to boost eco-innovation implementation and green economy contribution. Secondly, various suggestions can be provided to the management and business owners in the industry. Finally, Eco-product and eco-process and eco organizational innovation need to be adopted if the company intends to achieve environmental, social, and economic performance.

The results of the study demand a more detailed comprehension of the boundary conditions governing the relationship between innovation and performance. Such as contingency perspective challenges researchers to develop more nuanced theoretical predictions that consider the firm size age and theoretical perspectives that align with firm size, age and highlight the respective strengths of larger and smaller firms for their innovation activities, such as resource-based theory.

APPENDIX 1: BIBLIOGRAPHY

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APPENDIX 2: Questionnaire

ECO INNOVATION IN JORDANIAN SMALL AND MEDIUM ENTERPRISES IN THE FOOD PROCESSING SECTOR

Dear respondents,

As part of my doctoral work, I am carrying out a survey on eco innovation in Jordanian small and medium enterprises. The data collected through this questionnaire will help us to progress better in our research and will only be used for research purposes.

The information collected by means of the attached questionnaire will naturally remain totally anonymous and confidential.

Your opinion is very important for the success of this research. You are kindly requested to answer the following questionnaire in the most free and sincere way possible.

If you have any questions regarding this research, you may address them to me at the contact details below.

Reham Al-Hanakta.

PhD candidate.

Supervised by: Prof Dr. Anna Dunay.

Hungarian University of Agriculture and Life Sciences, Szent István Campus,

Doctoral School of Economic and Regional Sciences.

COMPANY INFORMATION

THIS PART CONTAINS BACKGROUND OF YOUR COMPANY

- your company main industry
- Processed and preserved meat.
- Dairy products
- Processing and preserving fruits and vegetables.
- Bakery and Arabic sweets
- Animal and vegetables fats and oils
- Products from the milling industry
- Cocoa, chocolate, and sugar confectionery
- Processed fish and crustaceans.
- Macaroni and pasta products
- Animal feed
- other food products

- Total number of employees

O 5-25 O 25-50 O 50-100 O >100

- Age Of Company

O less than 3 years O 3-5 O 5-10 O >>10

Technological capabilities (TC)

TC includes tangible technologies, intangible experience, and the specific knowledge the company owns to develop green products and practices.

Please indicate to what extent you agree or disagree with the following statements (1-strongly disagree to 5-strongly agree)

- The ecological production technology of your firm is very appropriate.

O strongly disagree O Disagree O Neutral O Agree OStrongly agree

- Your company easily gets eco-innovative consulting expertise from (planning, evaluation, and training, etc.)

O strongly disagree O Disagree O Neutral O Agree O Strongly agree

- Your company has some effective eco-innovation experience.

O strongly disagree O Disagree O Neutral O Agree O Strongly agree

- Your company has the required resources for the design of green products.

O strongly disagree O Disagree O Neutral O Agree O Strongly agree

- Your R&D team has more experienced and strong design capabilities.

O strongly disagree O Disagree O Neutral O Agree O Strongly agree

Environmental organization capabilities (EOC)

Environmental regulation may urge companies to elaborate green technology, practices or products, advance management methods, and partially or fully offset the compliance costs of environmental regulation.

- Your company has a documented eco- innovation plan.

O strongly disagree O Disagree O Neutral O Agree O Strongly agree

- Your company has developed rules to guide ecological management.

O strongly disagree O Disagree O Neutral O Agree O Strongly agree

- Your company offers rewards to people who have made contributions to energy preservation and emission reduction.

O strongly disagree O Disagree O Neutral O Agree O Strongly agree

- Your company considers environmental audit as a management norm.

O strongly disagree O Disagree O Neutral O Agree O Strongly agree

Command and control instrument (CCI)

Customer green requirement is an essential normative pressure. Meeting the requirements, demands, and expectations of customers is a crucial motivator for a company to apply eco-innovation.

- Your products should meet the requirements of national environmental regulations.

O strongly disagree O Disagree O Neutral O Agree O Strongly agree

- Your products should meet the requirements of international environmental regulations.

○ strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly agree

- Your production processes should meet the requirements of international environmental regulations.

○ strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly agree.

Market-based instrument (MBI)

Customer green demand is an important normative pressure. Meeting the needs, demands, and expectations of customers is a critical motivator for a firm to implement eco-innovation.

- The government delivers privileged tax policy on eco-innovation.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly agree.

- The government propagates environmental protection.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly agree.

- The government delivers privileged grants for eco-innovation.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly agree.

Customer green demand (CGD)

Adopting new green products or management processes may give your company a competitive advantage in the future.

- The environment is an an essential issue for our estimated customers.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly agree.

- Our estimated customers often propose environmental concerns.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly agree.

- Customer green demands encourage us in our environmental attempts.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly agree.

- Our customers have peculiar requests about environmental issues.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly agree.

Competitive pressure (CP)

Eco-innovation is a strategy for providing customer and business value that contributes to sustainable development and decreases environmental costs and impacts.

- We develop a green representation compared to competitors across environmental perceptions.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- We increase market share through environmental concepts.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- We acquire competitive advantage through environmental concepts.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

Eco innovation/ Product eco-innovation

This means the introduction of new or significantly improved products (regarding their characteristics), such as improvements in technical components and materials.

Rate your firm compared with your major competitors over the last three years in terms of.

- The firm designs and uses green product packaging.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- The company manufactures products that are recyclable, reusable & recoverable.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- The company models eco-products that decrease risks in the production of products.

O Strongly disagree O Disagree O Neutral O Agree O Strongly Agree

- The company gives eco-labelling information on all its products.

O Strongly disagree O Disagree O Neutral O Agree O Strongly Agree

Process eco-innovation.

Eco-process innovation refers to the improvement of existing production processes or the addition of new processes to reduce environmental impact.

Rate your firm compared with your major competitors over the last three years in terms of.

- The company employs innovation procedures that safeguard against contamination.
- O Strongly disagree O Disagree O Neutral. O Agree O Strongly Agree
- The company applies innovative technologies that increase energy-saving in manufacturing practices.

O Strongly disagree O Disagree O Neutral.O Agree O Strongly Agree

- The company is involved in operational practices that meet environmental standards.

O Strongly disagree O Disagre O Neutral.O AgreeO Strongly Agree

Organizational eco-innovation.

Eco-organizational innovation refers to upgrading the organization's management processes through a new eco method in business practices.

Rate your firm compared with your major competitors over the last three years in terms of.

- The company gives priority to high R&D investment in eco-innovation.
  O strongly DisagreO disagree O neutral.O agree O strongly agree.
- The company advocates novel green management practices to support eco-innovation.
  O strongly disagreeO Disagree O neutral.O agree O strongly agree.
- The company involves the employees in sensitization on eco-innovation.
- O strongly disagreeO Disagree O neutral.O agree O strongly agree.
- . The company subjects' suppliers to eco-evaluation prior to the selection procedure.

O strongly disagree O Disagree O neutral.O agree O strongly agree.

- The firm Collects information on eco-innovation trends.

O strongly disagree O Disagree O neutral.O agree O strongly agree.

Business performance

Economic performance (ECP)

Relative to competing eco-innovation firms' business performance during the last three years, our firm's business performance is very successful in terms of.

- The firm is experiencing increased market share.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- The company's net revenue has risen.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- The company has undergone sustainable product cost decrease.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- The firm delivers sustainable value to the end user.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

Social Performance.

The social impression of the company has been enriched.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- The company has enhanced staff training in eco-innovation and sustainability.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- The company is more approaching with information release to the public.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- The company guarantees health and safety at work.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

Environmental performance.

- The company's environmental sustainability procedures enhance pollution control. (Exhaust gas, wastewater, solid waste).

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- The firm prioritizes cleaner production.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- Decrease in frequency of environmental accidents.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree

- The company progresses green competencies to supervise its environmental effect.

○ Strongly disagree ○ Disagree ○ Neutral ○ Agree ○ Strongly Agree