



The effect of ERP systems on financial performance
"A study on commercial companies in Jordan"

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تأثير أنظمة تخطيط موارد المؤسسات على الأداء المالي
"دراسة على الشركات التجارية في الأردن"

إعداد

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قدمت هذه الرسالة استكمالاً لمتطلبات الحصول على درجة الماجستير في تخصص
المحاسبة في جامعة الشرق الأوسط

كانون الثاني، 2025

Decision Committee

This Thesis titled “**The effect of ERP systems on financial performance "A study on commercial companies in Jordan"**” was successfully defended and approved on **21st January 2025**.

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Dedication

No one has been more significant in the dedication of this thesis than my university, esteemed professors, and my beloved family.

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تأثير أنظمة تخطيط موارد المؤسسات على الأداء المالي "دراسة على الشركات

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الملخص

تهدف هذه الدراسة إلى البحث في تأثير أنظمة تخطيط موارد المؤسسة على الأداء المالي في الشركات التجارية في الأردن، حيث اعتمدت الدراسة النهج الكمي من خلال جمع البيانات عبر توزيع (285) استبياناً على الموظفين والمديرين في أقسام المحاسبة، المالية، والإدارة العامة، وتم استرجاع (183) استبياناً منها، وكان (157) منها صالحاً للتحليل. تم اختبار الفرضيات باستخدام تحليل الانحدار المتعدد عبر برنامج SPSS، وأظهرت النتائج وجود تأثير إيجابي لأنظمة تخطيط موارد المؤسسة من خلال أبعادها المختلفة، والتي تشمل النظام المالي، إدارة الموارد البشرية، إدارة علاقات العملاء، إدارة المخزون، وتخطيط المنتجات، على الأداء المالي. وبناءً على ذلك، أوصى الباحث بضرورة الاستمرار في تحديث وتطوير أنظمة تخطيط موارد المؤسسة المستخدمة، كما يُوصى بأن تستفيد الشركات من الاستثمار في تدريب موظفيها لتعزيز كفاءتهم في استخدامها.

الكلمات المفتاحية: أنظمة تخطيط موارد المؤسسة، الأداء المالي.

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Abstract

The main aim of this study is to find the effect of Enterprise Resource Planning systems on financial performance within commercial companies in Jordan. The study adopted a quantitative research approach, where data was collected by distributing (285) questionnaires among employees and managers of the accounting department, financial department, and general management department. Where (183) questionnaires were sent back and (157) were applicable for analysis. Hypotheses were tested by performing multiple regressions using SPSS software. The study resulted in that there is a positive effect of Enterprise Resource Planning systems through its dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance. The researcher recommended keeping up-grading the used system of Enterprise Resource Planning. In addition, firms are recommended to benefit from investing in training their employees.

Keywords: ERP systems, financial performance

Chapter One

The Introduction

1.1 Introduction

Financial performance is a notion that is utilized as a broad measure of company's entire financial health during a particular time period. Also, this term could be utilized in order to compare either similar companies within the same sector or to compare sectors in aggregation. Essentially, financial performance among firms could be measured through the utilization of values of stock market and accounting information in the context of financial management practices (Kader and Khan, 2019). In addition, financial performance measures the entire financial well-being of a firm during a particular period. Where financial performance explains the effectiveness by achieving the financial expectations of shareholders (Mwalolo et al., 2023).

Keeping in mind, that various indicators are available for the purpose of evaluating the financial performance of different entities, for example: ROI (return on investment), ROA (return on assets), and ROE (return on equity). Moreover, the analysis of financial performance tends to include the examination of critical financial ratios that are calculated during the last three to five years or even more (Mwalolo et al., 2023).

Mainly, many companies have analysed several studies for the purpose of taking the optimal decision to invest in ERP systems efficiently. Where that is to enhance the obtained outcomes, as well to enhance firm performance. Interestingly, ERP systems play a role of uniting a series of procedures of a business. Thus, data is considered to be as complete and accurate as possible (Barna and Igna, 2021). Moreover, the application of ERP system is considered to a complicated procedure. By which in order to experience a successful application, then attention to several aspects should be paid (Stoica et al., 2022)

Furthermore, the enterprise resource planning system (ERP) is found to be a cross-functional enterprise system, which merges and automates organizational essential business procedures. Where that is attained to meet effectiveness and efficiency. In addition, firms that are required to enhance business performance and experience a sustainable competitive advantage tend to shift to (ERP) system instead of an in-house promotion of information systems. (Mahmood et al., 2019) Moreover, it was indicated that several companies tend to implement ERP systems to link all functional and department units. Where that is obtained to be connected into a unified and single information system that meets the requirements of a firm as a whole (Shatat, 2019).

Therefore, this study is going to investigate the effect of (ERP) systems through the dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance among commercial companies in Jordan.

1.2 Problem statement

Some companies are facing problems related to their efficiency, which can be seen when managing and using their resources. By this, there comes the need to implement an enterprise resource planning system that allows linking and connecting several business procedures. That is attained to permit data to flow among these procedures. Keep in mind that the cost of implementing enterprise resource planning systems is high. Where it was added by Chibuzo and Ikechukwu (2022), that businesses which select to utilize ERP system will have various difficulties when utilizing. Where an essential number of individuals, time, and money are required due to ERP. Therefore, not all companies can afford this cost either completely or partially to enhance their performance. In addition, the application of ERP systems is useful in enhancing financial performance. ERP systems play an essential role in providing efficient

resource planning and optimizing productivity. Moreover, the use of ERP systems will lead to cost reduction and eliminate manual procedures by automating these procedures. It was mentioned by Chibuzo and Ikechukwu (2022), that practical benefits of ERP systems are: cost savings, having a leaner organization, and operations time savings which are expected from installing ERP systems.

Mainly, some firms may experience a poor financial performance due to several reasons, for example: inefficient decision making, poor cash flow management, low-quality of offered goods and services, poor strategic planning, instability within the economy in general, and failure in the adaptation of novel and latest technology. Therefore, it was indicated by Badewi et al., (2018) that several technologies are required to be integrated into the ERP system and being assisted through organizational resources, for example: the upholding of management and cultural practices and professional users.

It is worth mentioning, that Andries and Ungureanu (2022) indicated that enterprise resource planning systems are useful among firms to meet their business objectives. Also, it was added that enterprise resource planning systems make information flow easier within the entire internal procedures of a firm. In addition, based on the study conducted by Wilmer et al., (2021), it was mentioned that there are several kinds of possible benefits related to the implementation of ERP systems, for example: costs related to consumers, eliminating time in marketing, knowledge of process, innovation, operational costs, staff productivity, organizational communication, and data control. Also, it was mentioned by Mahmood et al., (2019) that implementing an enterprise resource planning system will enhance business performance, eliminate working capital, position firms for growth, and serve customers better. Interestingly, the studies conducted by Ismail et al., (2021) and Subanidja and Legowo (2019) recommended to conducted related studies in the future.

Therefore, in this study, the researcher is going to find the effect of ERP systems through the dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance.

1.3 Research questions

The study has one main question, that is:

Q1: “Is there an effect of ERP systems through the dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance?”

Accordingly, the study has five sub-questions as listed below:

Q1.1: “Is there an effect of the financial system on the financial performance of commercial companies in Amman?”

Q1.2: “Is there an effect of human resource management on the financial performance of commercial companies in Amman?”

Q1.3: “Is there an effect of customer relationship management on the financial performance of commercial companies in Amman?”

Q1.4: “Is there an effect of inventory management on the financial performance of commercial companies in Amman?”

Q1.5: “Is there an effect of product planning on the financial performance of commercial companies in Amman?”

1.4 Research objectives

Based on the questions of the study, the research has the following objectives:

- To investigate the effect of ERP systems on financial performance.
- To investigate the effect of the financial system on financial performance.
- To investigate the effect of human resource management on financial performance.
- To investigate the effect of customer relationship management on financial performance
- To investigate the effect of inventory management on financial performance.
- To investigate the effect of product planning on financial performance.

1.5 Research hypotheses

The study has one main hypothesis, that is:

H01: There is no effect of ERP systems through its dimensions through the dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance.

Accordingly, the study has five sub-hypotheses as listed below:

H01.1: There is no effect of the financial system on the financial performance of commercial companies in Amman.

H01.2: There is no effect of human resource management the on financial performance of commercial companies in Amman.

H01.3: There is no effect of customer relationship management on the financial performance of commercial companies in Amman.

H01.4: There is no effect of inventory management on the financial performance of commercial companies in Amman.

H01.5: There is no effect of product planning on the financial performance of commercial companies in Amman.

1.6 Significance of the study

1.6.1 Theoretical significance

This current study will add to the literature by investigating the effect of ERP systems through the dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance in Jordan. Interestingly, conducting this study will allow development and comparison among other studies.

1.6.2 Practical significance

This study is going to be useful among commercial firms. Where ERP will enable firms to enhance their efficiency and speed financial procedures. Also, it is useful to management by having compliance support, enhancing data security, and enhancing productivity. Finally, this study is helpful to decision-makers who are responsible for making decisions strategically, allocating resources, and handling disturbances to enhance the operations of a certain business.

1.7 The model of the study

The researcher developed the model of this study depending on several previous studies. The model presents the relationship between the independent variable which is ERP systems and the dependent variable which is financial performance. The selected dimensions of the independent variable that is ERP systems: are selected based on three studies, that are: Fauzi (2021), where ERP systems included: financial system, inventory

management, human resource management, and product and process management. Then the study conducted by Sislian and Jaegler (2021), ERP systems included: financial accounting, product planning, human resources, quality management, sales and distribution, material management, and customer relationship management. Thirdly, the study conducted by Shatat (2019), where ERP systems included: an information model, human resource model, and financial model. Moreover, the dependent variable that is financial performance is selected based on the study conducted by Subanidja and Legowo (2019). The following is the developed model of this study:

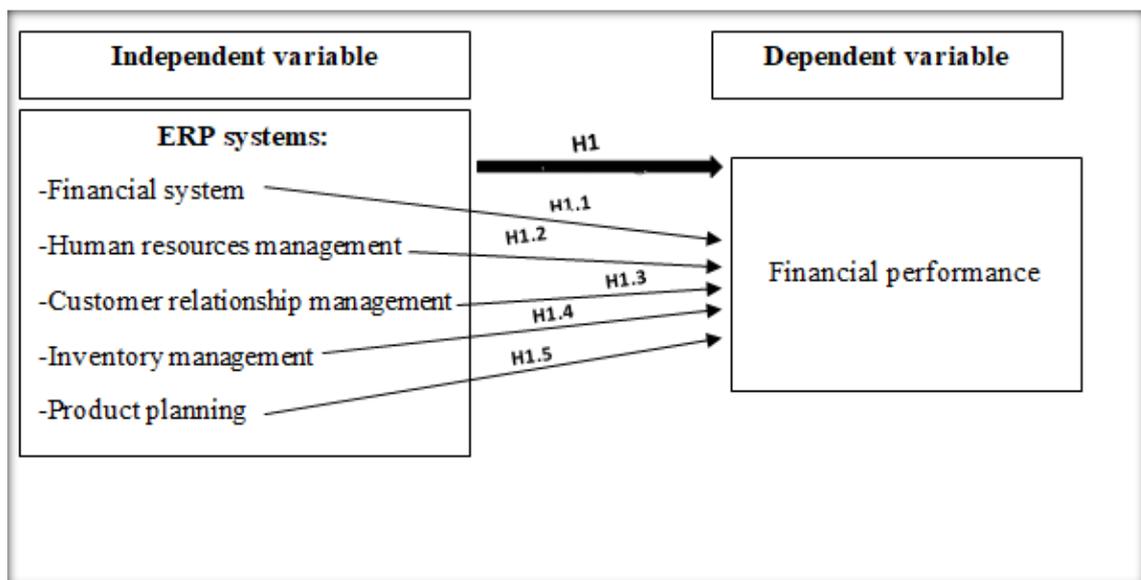


Figure 1.1: Conceptual model

Source: developed by the researcher based on the studies conducted by Fauzi (2021), Sislian and Jaegler (2021), Shatat (2019), and Subanidja and Legowo (2019),

1.8 Operational definitions and terminology

- Enterprise Resources Planning ERP: it is defined by Fauzi (2021) as an information system that is utilized for planning and identifying the resources that are required by a firm. Where that is attained to utilize, send, create, and calculate efficiently as well as it could better respond to the requirements of consumers.
- Financial system: it is defined by Mardianto et al., (2018) as the reflection of the influence of acquisitions and mergers on the financial performance of a firm.
- Human resource management: it is defined by Armstrong and Taylor (2020) as how individuals are managed, promoted, and employed within companies.
- Customer relationship management: it is defined by Ledro et al., (2022) as collecting, utilizing intelligently, and managing data through the support of technology solutions. That is attained to enhance consumer relationships within the long-term except for consumer experience.
- Inventory management: it is defined by Orobia et al., (2020) that it presents the avoidance of both too little and too much inventory. Thus, there will be an achievement of minimum holding costs, uninterrupted sales and productions, and better customer services.
- Product planning: it is defined by Meyer et al., (2021) that it is the first action to be taken in the creation procedure of a product.
- Financial performance: it is defined by Mwalolo et al., (2023) that financial performance reflects the entire financial well-being of a firm during a particular period and it demonstrates the firm's effectiveness by achieving the financial expectations of shareholders.
- Number of employees: the researcher is going to define it into five categories based on the classifications of the Central Bank. =

Chapter Two

Literature Review

This chapter presents literature review by having information related to theoretical framework and a group of related previous studies.

2.1 Theoretical framework

This section presents theoretical information related to the topic of this study, such as: information about ERP systems (the development of ERP, the definition of ERP, about ERP, the importance of ERP, the implementation of ERP, and a group of advantages and disadvantages of ERP), related theories (such as contingency theory, resources-based view theory, and diffusion of innovation theory), the selected dimensions of ERP (that are: financial system, human resource management, customer relationship management, inventory management, product planning), financial performance.

2.1.1 Enterprise Resource Planning (ERP) systems

2.1.1.1 The development of ERP systems

These systems started to be evolved in USA during the Second World War. Where they were known as Material Requirements Planning Systems (MRPS). During 1960s, manufacturing firms adopted the idea of MRPS for the purpose of retaining and managing their inventories, as well planning the utilization of resources based on the real demand of these firms' products. Therefore, MRPS was developed to Manufacturing Resource Planning (MRP). Then, during 80's the utilization of these systems involved concepts as customer and supplier relationship management and "Just in time". By which that led to the fully development to MRP II. After that, during 90's and due to globalization, firms started to need systems in order to merge business's parts, uphold essential aspects of management, uphold business management, and enhance operational efficiency.

Therefore, software industry promoted initially applications for the purpose of merging several MRP I and MRP II systems. Years later came incorporated enterprise system that is known nowadays as ERP (Enterprise Resource Planning). (Stoica et al., 2022)

Furthermore, the utilization of ERP systems became increasingly known world-wide due to the advancement of Information systems. Therefore, most enterprises nowadays moved from being function driven into being processed driven. Where the incorporation of enterprises processes is accomplished by ERP systems. It is worth mentioning that ERP systems are an inclusive software solution among enterprise operations. Where attempts to merge an inclusive group of business functions and processes to present an entire view of the enterprise based on a single unit. Then, as a result of the utilization of ERP systems, that allows companies to perform day-to-day activities through easier, simpler, and faster manner which will save resources related to organizational level. That will eventually improve the performance of a business. (B.C.P. et al., 2019)

The concept of ERP was first utilized in 1990 by Gartner Community, however, resources planning programs within a firm have their roots within the manufacturing industry.

Meanwhile, manufacturers searched for better ways for monitoring, planning, and retaining their inventories. By which there been a development of basic software solutions that were called Material Requirement Planning (MRP) for the purpose of achieving their requirements. In addition, during 1970s, MRP systems were adopted by more and more manufacturers, where these systems became more complicated. Then, through 1980s, MRP was promoted to be what is called MRP II. Where more manufacturing procedures have been executed to initial MRP systems. Then these MRP II systems have enhanced characteristics. That is by being better capable of managing production processes and scheduling. Finally, in 1990s the first real systems of ERP were utilized. By which these

systems set the level of ERP solutions, as is known nowadays through combining several departments and procedures into one system. (Aloqaily, 2021)

2.1.1.2 The definition of ERP systems

According to Ali and Miller (2017), ERP system is considered as a part of a strategy that is used in order to optimize the internal business activities of a firm. Or in the same study it was indicated that ERP system is considered as a phase of applying the functions of ERP software to operational activities which exist at a firm. Then, it was mentioned by Wandera et al., (2018) that ERP system is defined as a system that merges the main business procedures of an organization with a single software system. Where that permits a seamless of information flow internally by the organization. However, that includes external clients as suppliers. In addition, Wandera et al., (2018) stated another definition of ERP system that it refers to a central system for an entity that improves information sharing within entire functions of a business as well management levels. Where that is attained in order to uphold the running of an entity. By which this reduces issues related to lack of information and inconsistencies that are made through multiple transaction systems, that exist among individual departments.

Moreover, ERP system was defined by Subanidja and Legowo (2019) as a system that refers to business management. Where it comprises from a series of inclusive software that is created for the purpose of managing and merging the entire functions of a business within an organization. Also, B.C.P et al., (2019) added that ERP system is considered as a procedure by which a firm, that is often manufacturing, that tends to merge and manage essential parts that relates to its business. Where it merges the functional areas as a whole, for example: purchasing, manufacturing, marketing, human resources, planning, inventory, sales, and finance. After that it was mentioned by Aremu

et al., (2020) that ERP system is the procedure of managing techniques of a business by a merging system that tends to be in form of a software. Furthermore, Uddin et al., (2020) indicated that ERP system is a multidimensional and incorporated system that depends on a business model that includes: control, planning, and optimization.

It is worth mentioning that Ismail et al., (2021) listed a group of definitions of ERP system as follows:

- ERP system refers to business management system that consists from a group of software which manages and merges the entire functions of a business within an organization.
- ERP system is an inclusive information system which upholds the required information that is related to the entire functions of a business, in real time, by the inclusion of finance, operations, sales and supply chain, human resources, marketing, and customer information.
- ERP system is a group of business applications which connects units within an organization, such as: finance, accounting, human resources, and manufacture into one single incorporated system that tend to provide a platform that is related to information flow among the entire units of business with the utilization of internet.
- ERP system is a group of software that are created for the purpose of merging the entire functions of a business within an organization.

At the end, Sebayang et al., (2020) concluded that ERP system is considered as a group of software which could merge operations within the firm as well becoming an operating system that a firm utilizes. Where ERP system is capable to offer condition reports in real time among top management whenever there is a requirement of decisions.

2.1.1.3 About ERP systems

According to Wandera et al., (2018), it was mentioned that using ERP, old computer systems are being replaced in manufacturing, stores, HR, and finance. Where ERP system is capable to merge the entire external and internal information within an organization. That is obtained through embracing finance, sales and services, accounting, management, and customer relationship management. In addition, Sheik and Sulphey (2020) pointed out that by analysts and practitioners that businesses shall strategically utilize and build ERP system for the purpose of succeeding within enhancing economy that is e-based. Also, it was stated by Subanidja and Legowo (2019) that the success of ERP system is based on four indicators, that are: system quality, organizational effect, information quality, and individual effect. Moreover, de Souza et al., (2019) indicated that ERP system aims to get a company advantage. That is achieved by permitting the management of all firm procedures entirely, resolving conflicts, replacing legacy systems, and solving issues among individual information systems.

Moreover, the main reason behind a business to adopt ERP system is due to smoothen business operations, improve job performance, and create value. Where that is attained by enhancing the incorporation of best practice job procedures, real time reporting, management operations, and knowledge analysis abilities. Also, ERP system is useful for a firm in order to handle its operations as a whole. That is obtained for the purpose of staying competitive within today's business atmosphere. (Ismail et al., 2021) Furthermore, it was added by Badewi et al., (2018) that several technologies are required to be integrated into the ERP system and being assisted through organizational resources, for example: the upholding of management and cultural practices and professional users. That is obtained for the purpose of providing the firm with a sustainable competitive advantage. In addition, Aremu et al., (2020) indicated that ERP system has the capability

of connecting lower, middle, and top management levels. Where that is useful in coordinating the entire levels of management in association with their department (for example: production department, quality control, human resources, finance department, and logistics and marketing) by an incorporated system.

Keeping in mind that most systems of ERP merge flows in relation with suppliers, clients, and employees. The most complicated information system are those systems which merge production flows with modules that create complicated data analysis. Whereby ERP system, a firm implements its strategy. By which the most essential benefits of implementing ERP systems among top management could be obtained control and transparency. Moreover, ERP systems are useful among firms to meet their business objectives. Where ERP systems smoothen information flows among firms functions. In addition, ERP systems could merge functions among firms, such as procurement, sales, finance and production, accounting, marketing, human resources, and business intelligence, however, as well particular functions that are promoted in relation to the requirements of firms. Essentially, firms which implement ERP systems could accomplish the desired performance by time, to the degree by which the entire factors participated adapt to changes made through these implementations in the workflows within a firm. (Andries and Ungureanu, 2022)

At the end, Wilmer et al., (2021) indicated general features of ERP systems as follow:

Flexible user interface:

ERP systems adopt recent technologies regarding to the interface of users and the potential of accessing from other several access devices. Where a main a factor is that ERP systems permit Web interface, that permits the access from extranet of a firm. That

allows information entry from the home of employees and other several remote offices that belong to the central office of the organization.

The capacity of parameterization:

Parameterization is considered the most suitable functionality within the system of ERP. That permits the system to follow particular requirements of all institutions. Also, it allows the system to integrate novel functions that are based on organizational requirements. Where that is obtained without requesting particular developments. In addition, experiencing successful parameterization is based on an essential previous effort of consultation. That permits the right mapping among activities and planning the execution of activities. Moreover, it was indicated the requirements that are needed to perform parameterization, that are:

- Structure of tax
- Policies regarding to profits, prices, and marketing
- Structure of functions that are performed in order to define the roles and profiles, users, and accessible tasks
- Organization's documentary records and structure
- Physical structure that is performed in order to allow the comparison of delivery sites and warehouse sites, etc.
- The flow of process and automating task

The incorporation with other different applications and the capability to access information:

This characteristic permits data exchange and communication by standardized interfaces. Where the system has a group of predefined outcomes and report. That permits the interaction from various tools of accessing data.

2.1.1.4 The importance of ERP systems

ERP systems tend to guarantee organization's sustainability, that is because of most activities are automated the amount of the documents as well that are printed is eliminated by almost 40%. Where there is a positive effect between implementing ERP and adopting the strategy of a business as efficient as possible. However, that will enhance the performance of the organization. In addition, ERP system has an essential role for the purpose of meeting strategic, management, IT infrastructure, organizational, and operational goals. Also, the systems of ERP play a role in eliminating administration costs and inventory. It will cause an increment in the capacity in responding towards the demands of the market. (Barna and Igna, 2021)

Furthermore, ERP systems play a role as a software to merge and control the entire levels of management within an organization by an incorporated system. By which ERP systems have the capability in connecting lower, middle, and top management levels. Where that is considered useful in coordinating management levels as a whole that is associated with their departments, for example: production department, quality control, human resources, finance department, and logistics and marketing by an incorporated system. (Aremu et al., 2020) Moreover, implementing ERP systems could cause to improve efficiency, productivity, quality, and profitability. In addition, ERP system has an essential role in the implementation of best practices and meet operational excellence among organizations. Where they have presented the potential for the purpose of facilitating business growth, promotion, and sustainability. Also, choosing the technology of ERP is essential and a main concern among decision makers at the level of business among organizations. Where these organizations have the goal to retain sustainable competitiveness. By which it reflects an important investment decision. (El-Baz et al., 2023)

According to the study performed by Tarigan et al., (2021), it was stated that the systems of ERP allow the business to create internal incorporation between departments and external incorporation with clients and suppliers. Also, it was added in the same study that firms which adopt ERP systems, that give firms an overview that is related to internal conditions. That is obtained through giving regular reports about the availability of raw materials that allow suppliers to give the requirements of the firm. At the end, Tarigan et al., (2021) concluded that a supplier could give a daily schedule progress, by making it easier for production, transportation departments to give timely delivery, and giving data that is related to raw materials and products that are received in a warehouse in order to facilitate warehouse, purchasing, and planning departments in predicting the need for raw materials.

2.1.1.5 The implementation of ERP systems

According to Chibuzo and Ikechukwu (2022), it was mentioned that through selecting the vendor of ERP systems, the typical phases in implementing ERP include: the establishment of business process reengineering, then implementing and assessing the accepted system. In addition, it was instated in the same study that for the success of projects that implement ERP systems. That is by the adoption of firm's business staff and internal IT. Also, Chibuzo and Ikechukwu (2022) added that in addition to the adoption of firm's outside consultants among partners of the implementation are needed typically. Moreover, it was stated by Kamdjoug et al., (2019) that the ERP systems which are used to be implemented should follow the requirements that a firm needs.

Furthermore, ERP systems are considered amongst the main forms of IT applications which are evolved among the best means of meeting top organizational performance. Therefore, that led businesses to implement increasingly ERP systems among their operations. In addition, implementing ERP systems led to the modernization of business

operations. Moreover, organizations tend to go for implementing ERP systems in order to meet competitive and strategic advantages as well change business procedures. Keeping in mind that the implementation of ERP systems causes to the accrued of competitive advantage. Where the implementation of ERP systems consists from the centralization of the information that is related to the organization, the acquisition of current information, and faster transactions. Which are useful to management to perform quick decisions that are related to organization's operations. (Mercy and Paul, 2023)

In the current time, most of scholars focused on the implementation of ERP systems. By which large number of firms are utilizing ERP software at several levels. But it is a challengeable undertaking to implement ERP systems. That is because of complicated configuration data conversion, and adaptation. It is worth mentioning that whenever implementing ERP systems, the main concern relates to the size of the firm, such as large scale and Small and Medium (SMEs). Where that depends on the number of workers and revenue. By which most of larger firms tend to employ more ERP functionality in comparison to small firms. In addition, the top three ultimate essential successful factors that are related to implement ERP systems within large businesses are: good project management teams, the support of top management, and experiencing good communications while implementing. (B.C.P et al., 2019) It was added by Mpanga and Elbana (2019) that to succeed in implementing ERP systems, a group of activities should be included, that are: monitoring and assessment, implementation, realization and contextualization, and transition.

Firms that implement ERP systems would meet the desired performance by time. That is obtained to the degree where the entire involved factors tend to adapt produced changes through these implementations among the work flows of the firm. In addition,

firms which enhance initial implementations by novel development of ERP, tend to perform better in comparison to firms which don't perform. (Andries and Ungreanu, 2022) Moreover, it was indicated that experiencing a successful implementation of ERP systems includes the capability of an organization to adapt novel changes. Where that could be met whenever the organization offers training programs and work processes among workers. Thus, they could cope with novel changes that are caused by the implementation of these systems of ERP. Also, the procedures of implementing ERP has an effect on business strategy. Where the strategy of an organization should be reconfigured because of the implementation. (Barna and Igna, 2021)

According to what was stated in the study conducted by Chibuzo and Ikechukwu (2022) that firms tend to invest in ERP systems are gaining:

- Technical benefits: for example, the replacement of legacy systems and the consideration of the business as the improvement of efficiency and operational performance.
- Technological justifications: for example, replacing several systems with a single incorporated system. Also, ERP systems provide a system of tried-and-true security foundation. Where that ensures the retainment of firms' compliant with security regulations as well for the purpose of giving data protection.
- Commercial factors: that include business procedure automation and reengineering.
- Business justifications: for example, enhance management, better accessibility of information, enhance operations, reengineering procedures, enhance teamwork and collaboration among workers within a firm.
- Intangible benefits: for example, integrating information, enhancing customer satisfaction, and having higher quality of information.

-Practical benefits: for example, cost savings, having a leaner organization, and operations time savings which are expected from installing ERP systems.

It is worth mentioning that the system of ERP could offer facilities that belong to the execution in real-time and it could be set based on the requirements of the firm. Where the internal incorporation within a firm could provide rapid information to the warehouse in the process of purchasing material. By which related department could have an access to the availability of material in the current time based on the requirements of other different departments. Also, the capability for a firm to utilize ERP would be capable to provide efficiency and eliminate the levels of inventory in a firm. The inventory of a firm has a critical role within a firm and has implications among the shareholders of a firm. Keeping in mind that the capability of utilizing information technology could rise the efficiency of inventory in a firm. As well, it has an effect on firm's stock price. In addition, there will be an increment in stock market. (Sebayang et al., 2020)

In conclusion, experiencing a successful implementation of ERP systems will cause to lower inventories, enhance customer services, enhance profitability, eliminate product growth time, enhance productivity, and enhance efficiency by better customer services. In addition, the implementation of ERP systems has led to better results. Where ERP systems have offered organizations with huge benefits, for example: enhance productivity, enhance workflow, share knowledge, improve the access to timely and accurate information, tight control, and finally the automation of business procedures through incorporating and organizing departmental information. (Ismail et al., 2021)

2.1.1.6 The advantages and disadvantages of ERP systems

The Advantages of ERP systems:

It was mentioned that ERP systems eliminate expenses, enhance information management, and facilitate firm procedures. In addition, through the utilization of ERP systems, that will lead to a decrement of lead time as one of the operational issues. Also, ERP systems are useful in accelerating the achievement of clients' requirements. By which ERP systems enhance customer satisfaction through accelerating the delivery of product. (Chibuzo and Ikechukwu, 2022) Moreover, ERP system is considered as an advantage among firms which are seeking for being differentiated within the competition. Keeping in mind that the advantages of firms that implement ERP systems are reflected through experiencing faster and better performance of offered services in comparison to competitors, as well being more efficient and better coordinated. Where being automated by ERP systems, then the firm that is in question tend to enhance productivity related to daily calls. That will cause to enhance profitability and revenue. (Andries and Ungureanu, 2022)

Based on the study conducted by Wilmer et al., (2021), it was mentioned that there are several kinds of possible benefits related to the implementation of ERP systems, for example: costs related to consumers, eliminating time in marketing, knowledge of process, innovation, operational costs, staff productivity, organizational communication, and data control. Moreover, Oracle (2020) listed the main advantages of ERP systems that are:

- The data of the business is considered to be accurate and complete generated within current time.
- Enhance data sharing among users of financial-accounting information.
- Having an easy design to utilize among users of financial-accounting information.
- Experiencing low costs for particular operations.
- Experiencing low operating costs.

- Tasks automation
- Eliminate risks because of the implementation of financial controls.

Furthermore, Stoica et al., (2022) added a group of the advantages of ERP systems, that are:

- Automating and facilitating procedures which are conducted manually. That is obtained through imposing a novel logical structure.
- ERP systems offer incorporated solutions towards some of the organizations' functions. Where that guarantees the immediate and continuous data update within different geographical areas.
- Organizations have several kinds of software, where ERP system combines this group of software into a single system.
- ERP systems incorporate the entire areas of an organization. Thus, ERP systems have more control among their operations. Also, ERP systems create coordination and corporation connections between various departments.

Moreover, the capability to incorporate business procedures is amongst the key objectives of installing ERP. Where ERP is considered effective in decreasing inventory costs, enhancing efficiency, and improving profitability. In addition, other various of economic sequences of ERP include dramatic decrement in inventory, breakthrough decrement in vast client desires, and working capital, and the chance to present and handle expanded partnership, client's organization, and supplier as an interconnected entirely. Also, ERP causes to the ability to utilize data in order to lead the organization, that is the cause of having an effective execution. (Aloqaily, 2021)

The advantages of ERP systems:

It was stated by Stoica et al., (2022) a list of the advantages of ERP systems as follow:

- Cost → Where besides to product cost itself, there are other costs to be taken into consideration, for example: implementation, configuration, training, and support.
- Personnel → Where ERP systems tend to automate several tasks that supposed to be performed by individuals. But if people were not trained well and did not have the skills required to manage ERP system. Then the organization will be affected as a whole.
- Time and complexity of implementation → where the implementation of ERP systems is considered as time intensive procedure that could affect the efficiency of time related to firm's processes.
- Complication to incorporate external information → where it is difficult to merge information that is related to ERP systems that exists due to firms are having an independent system based on several suppliers. By which these suppliers have a data structure that conforms a model of data that is not compatible with the one offered by ERP systems.

At the end, Businesses which select to utilize ERP system will have various difficulties when utilizing. Where an essential number of individuals, time, and money are required due to ERP. Keeping in mind that most of this cost belongs to the implementation of the package of ERP software by the inclusion of configurations, adaptations, and consulting services. In addition, due to the inclusive commercial and technical incorporation needed, usually ERP systems consume longer and cost more money in comparison to what is expected. Furthermore, it was indicated that there might be external and internal organizational factors which are connected to the failure of ERP systems. By which the failure with internal extent is related to insufficient understanding of a business. While

within the external extent, it relates to the insufficient technical expertise as consultants. Where that is obtained for the purpose of helping in the installation of ERP systems. Essentially, the failure in ERP systems may exist due to poor communication among competing teams. (Chibuzo and Ikechukwu, 2022) Moreover, Barna and Igna (2021) indicated the main disadvantages regarding to the implementation of ERP systems, are:

- * Experiencing higher implementation costs
- * Specifying a greater number of human resources
- * Experiencing long-lasting and difficult implementation
- * Specifying a greater time in the procedure of implementing ERP systems.

2.1.1.7 Related theories

Contingency Theory (CT)

The core of contingency theory is that the best practices are based on situation's contingencies. Where according to the hypothesized relationship of Carton, practices of inventory management such as ERP systems. By which having variations among inventory management practices that would reflect organizational competitiveness. Where value creation is the core of organizational competitiveness. In addition, having a combination between non-financial and financial goals. Keeping in mind that experiencing a successful organizational competitiveness within a company could be equated with the success of value addition and consequently the performance of the organization. (Wandera et al., 2018)

Contingency theory it is related to organizational management, that concentrates on the elaboration of the training of workers and the utilization of technology for the purpose of developing and enhancing the organization. In addition, Contingency theory was promoted based on behavioral theories that are related to how environmental components

have an effect on behaviors within an organization during late 1960s. It was indicated that Contingency theory characterizes that good leadership among managers within an organization can be presented by the distribution of information outside and inside the organization. Also, Contingency theory shows further how managers require to concentrate on the adoption and variations of technology, outside the organization. Where that is attained by the inclusive of organizational structure that is an example that relates to internal factors that are decided by the contingencies of the external environment and could present the level of environmental uncertainty and the change in technology. (Aremu et al., 2020) In conclusion, Aremu et al., (2019) added that generally, researchers of management information systems suppose that organizational performance is considered a contingent on a group of variables, for example: adoption of technology, environmental variations, individual features and task that influence organization's performance, strategy, and size.

Resource-Based View Theory (RBV)

In general, for a company to have a competitive advantage among rivals, it requires generating a value through the utilization of resources. Where these resources are rare, available, non-substitutable, and inimitable. Therefore, Resource-Based View theory within a company forecasts that particular kinds of resources are controlled and owned through a business. Where these businesses have the probability and the promise to create competitive advantage, technological infrastructure, better organizational culture, and the support of top management that leads at the end to an outstanding organizational performance. Moreover, it is outlined by Resource-Based View theory the performance of an organization, internal organization, and resource of the organization. In addition, it was added that this theory explains how organizations could utilize internal resources. That is obtained for the purpose of enhancing organizational performance and enhancing

their service and good to gain competitive advantage among rivals within the market. Moreover, Resource-Based View theory tends to find how organizations' internal factors have a direct effect on their performance. That is obtained in comparison to external organizational factors. (Aremu et al., 2020)

Furthermore, the theory of Resource-Based View concentrates on the capability to retain a mix of resources which could not be built or owned in the same manner among rivals. Where Resource-Based View theory is too essential among firms in managing resources well by the inclusion of information systems beside other various organizational elements. That is attained for the purpose of creating competitive advantage. At the end, firms could utilize information systems to earn competitive advantage whenever the firm could execute them in a suitable way. Therefore, the execution of ERP system could offer maximum added value among firms, for example: the utilization of Resource-Based View method through achieving the criteria for rare resources, non-substitutability (VRIN) resources, and imperfectly imitable resources. (Putra et al., 2021)

Diffusion of Innovation Theory (DOI)

The Diffusion of Innovation theory is considered a model which was founded in 1962 by Everett Rogers. Where this theory focuses on making decision and awareness that are related to innovation. By which this model from the side of diffusion that relates to the way by which an innovation depends on communication by channels during a time period among a particular group of individuals and a social system. Keeping in mind that the main issue to be taken into consideration about the Diffusion of Innovation theory is that the individuals of the system are required to recognize that the idea which is presented to them is either novel or innovative. Moreover, the Diffusion of Innovation theory would

be applicable in the examination of the effect of users' contribution also the effect of the support of top management in implementing ERP systems. (Mercy and Paul, 2023)

Furthermore, the Diffusion of Innovation theory refers to the procedure that is utilized to transfer innovation and spread its existence among the members of a social setting. That is obtained by some specific channels during a particular time period. Also, innovation that is for the purpose of adoption is being considered as an idea, object, art, and practice that is considered novel through an individual. Moreover, it is acknowledged by literature that Diffusion of Innovation theory had been utilized back to many decades ago for the purpose of finding the acceptance of innovation within several fields, for example: organizational innovations and tools of agriculture back to 1960s. It was indicated that the Diffusion of Innovation theory refers to the adoption rate of innovation that is affected through five elements, that are: relative advantage, complexity, compatibility, observability, and trialability. Also, this theory finds the success factors of adopting ERP and individual factor, innovation factor, organizational factor, and task factor. At the end, Diffusion of Innovation theory is utilized for the purpose of finding the acceptance of computer programs by users as well other different widely utilized technologies. By which Diffusion of Innovation theory utilizes communication and media channels in order to deliver innovation within a society. (Aremu et al., 2020)

2.1.1.8 The dimensions of ERP

The researcher selected the following dimensions of ERP systems, that are: financial system, human resources management, customer relationship management, inventory management, and product planning.

2.1.2 Financial system

The financial system plays a role in bridging the gap between investment and saving. Where that is obtained by an efficient allocation and mobilization of surplus funds. Also, the financial system is useful among businesses related to capital information. Where a financial system smoothens financial transactions by the provision of several financial tools and smoothens the trading of financial assets/tools. That is attained through regulating and enhancing financial markets. Moreover, the existence of a financial system could create more opportunities of employment within a country. By which the market of money, that is considered as a part of financial system, provides manufacturers and businessmen with working capital. That will lead to enhance production, which ends up offering more employment opportunities. Keeping in mind that the financial system is useful in the enhancement of both foreign and domestic trade. Where financial entities lead to finance traders. Also, the financial market assists in having a discount on financial instruments, for example: bills. In addition, foreign trade is developed and enhanced because of the post- and pre-shipments that are financed through commercial banks. (Babu, 2018) Based on the study conducted by Emenalo et al., (2018), it was indicated that although the development of financial system has no immediate effect on economic development. Where current research has found that the development of the financial system is attached positively with the performance and growth of a company. By which the development of financial system has some preferable economic effect and look for enhancing the economy.

Furthermore, the financial system has an essential role in the development of the economy of a country. Where the financial system encourages investment and savings. In addition, the financial system builds a connection between investors and savers. Moreover, the financial system tends to smoothen the growth within the financial market and help in financial broadening and financial deepening. Also, the financial system is

useful in the development of the economy and enhancing the standard of living among individuals. It is useful in enhancing the promotion of weaker part within society. That is obtained by rural development banks as well through co-operative societies. Where financial entities are useful among clients for the purpose of taking better financial decisions through giving effective advisory and financial services. It was indicated that financial systems within several countries are able to develop economic integration. Which means that among all those countries, there would be mutual economic policies, for example: common investment, commerce, employment legislation, trade, and commercial law. (Babu, 2018)

2.1.2.1 Human Resources Management

According to Anwar and Abdullah (2021), it was mentioned that there are different tasks of human resources management, such as: human resource preparation, strategic recruiting, management of growth compensation, workers' relations, employee satisfaction, employee training, efficiency, health care, and provision of workers services. In addition, Khan and Abdullah (2019) added that human resources management consists of a group of practices and policies for the purpose of enhancing organizational efficiency, the involvement of workers, and the quality of work.

Moreover, it was stated by Anwar and Abdullah (2021) that experiencing practices of human resources management will positively enhance the performance of a company, like: benefit, market share, revenue, and competitiveness. Also, Singh et al., (2020) indicated that human resources management comprises policies in order to deal with basic and important areas, for example: the enhancement of workforce involvement, assessment, knowledge application, the preparation of capacity, training workers, staff retainment, and the management of problems that are related to administration.

Furthermore, the concept of human resources (HR) and human resources management (HRM) have greatly changed instead of the concept of personnel management (PM) within the procedure of managing individuals within an institution. Where human resources management refers to a consistent and strategic method among firm's most values assets behind on employees. It is worth mentioning that among global businesses, human resources management is counted increasingly as a modern evolution for the purpose of redesigning employment relationships as an instrument. Where this instrument might has influentially changed other different management traditions as personnel management (PM). Moreover, from 1980s, the strategy of human resources management has become an essential subject within the management field. Where the rise of human resources management during 1980s, led managerial scholars to connect between the management of individuals and performance. Interestingly, human resources management is utilized globally by the inclusion of (a) particular practices of human resources (like: selection, evaluation, and recruitment), (b) formal policies of human resources by the inclusion of both partially and immediate constrain the promotion of particular practices., and (c) comprehensive philosophies of human resources that assign the values which tell the practices and policies of an entity. (Goswami, 2018)

Generally, the practices of human resources management among several institutions are mostly participated in operations, the enhancement of people and recruiting, problems and systems related to set compensation. But whenever the practices of human resources management follow a strategic role. Then it concentrates on making high performance within the near future. Moreover, investing into human resources management practices that are followed by a firm would be involved in having organization-particular human capital. Where it is difficult to be imitated, as well it will participate into enhancing the knowledge, capabilities, and skills of workers, decrease the number of workers who leave

the firm, and enhance employees' motivation to work. (Aburumman et al., 2020) In addition, Troth and Guest (2020) stated that human resources and human resources management are essential for the entire success of a firm. Also, in the same study it was added that human resources and human resources management are considered amongst the conditions which permit a firm to realize several benefits.

At the end, the objective of the discipline of human resources management is to encourage and enhance the training of workers, employees' enhancement, employees' recruitment, and the power of enhancing the satisfaction and efficiency of workers. In addition, the activities of human resources management could be considered as a powerful global remedy to conform workers' attitudes and capabilities. By which that will cause to better organization performance. It is shown by other previous studies that there is an optimistic and strong relation between work performance and the activities of human resources management. Keeping in mind that human resources management is considered as a pragmatic method that is used to manage employment relationships. Where that presents the increasing potential of people. Finally, human resources are considered as a source of competitive advantage because of their capability to turn other resources (for example: machinery, material, money, and approaches) into production (as good/services). (Al Masud et al., 2021)

2.1.2.2 Customer Relationship Management

Customer relationship management concentrates on maintaining, improving, and creating long term association with clients. Where it depends on collecting information before making decision. In addition, customer relationship management is considered as an inclusive strategy and the procedure of maintaining and acquiring with chosen clients. Where that is attained for the purpose of generating outstanding rate among both clients

and the firm itself. In addition, the current emergence of customer relationship management systems has concentrated more on the data of clients as being a main organizational asset. Moreover, customer relationship management is the main profitable strategy that is utilized in order to retain and preserve clients. Thus, customer relationship management has been attracted among several areas that are related to marketing and information technology. Where during recent years, communicating with clients is counted as profitable trading among institutions and clients. (Sltani et al., 2018) Furthermore, it was indicated by Das et al., (2018) that customer relationship management is created for the purpose of optimizing revenue, profit, and customer satisfaction. Where it enhances customer satisfying behaviors through connecting the procedures among suppliers to clients. Also, Das et al., (2018) added that customer relationship management is used for satisfying, maintaining, and acquiring clients.

Customer relationship management is considered amongst the tools which are utilized in order to maintain clients. Where customer relationship management refers to a business method that depends on managing the relation among clients. In addition, customer relationship management concentrates more on what consumers value instead of the product that is wanted by the firm to sell. Also, by the implementation of customer relationship management, it is expected to have the ability to create good relationship with participants. Therefore, when producing a good or service, the firm sells and markets the good. That is obtained by having a good quality and with competitive price. As well, by customer relationship management it allows a firm to answer the requirements of customers. (Ridwan et al., 2021) Moreover, Das et al., (2018) stated that nowadays, customer relationship management is utilized through big houses of business. Where it is considered applicable into almost the entire kinds of businesses.

Today, customer relationship management is increasingly considered essential among companies as they search for enhancing their profits by longer term connections with clients. Where recently, many have heavily invested into information technology (IT) assets. That is attained in order to better manage transactions among clients before, during, and after the process of buying. In addition, customer relationship management is useful among the practices of customer retention within an institute. Which is to enhance profitability, fundamentally through decreasing costs the exist in having novel clients. (Kebede and Tegegne, 2018) Furthermore, customer relationship management is presented as a result of the advancement of several systems by the inclusion of systems of transactions support, systems of decision support, database marketing and call center management, and marketing information systems. Where customer relationship management in addition includes several procedures that belong to technology and business. Keeping in mind, that the literature of customer relationship management includes many measurements and methods for customer relationship management. By which it includes: the success factors of customer relationship management, the practices of customer relationship management, and the performance of customer relationship management. Where the success factors of customer relationship management are: top management support, data-sharing readiness, cultural change/customer orientation, competence in process change, knowledge management capabilities, customer relationship management strategy communication, and competence in system integration. And the factors of customer relationship management are: knowledge management, customer relationship management organization, customer orientation and technology based on customer relationship management. Finally, the performance of customer relationship management is the level of enhancement obtained through retailers about the strength of customer relationship, the effectiveness of sales that follow the application of customer relationship management technology, and marketing efficiency. (J.A. et al., 2021)

2.1.2.4 Inventory management

Generally, inventory management within a firm is related with the identification of all items of stock. Where inventory management is mainly related to specify the placement and size of stocked products. In addition, inventory management refers to the art that is utilized for the purpose of retaining the levels of stock. That is within a particular group of items that afford the minimum cost consistent with other different relevant goals management sets. Also, inventory management refers to the shape of administrative control which is specifically important among manufacturing, retails, and wholesale entities. Where the core of inventory is to have the right quality and quantity of products at the right time and place. Where this procedure is required as a part of supply chain network in order to protect the system of production against all types of disturbance. (Anisere-Hameed and Bodunde, 2021) Moreover, it was stated by Akinlabi (2021) that inventory is an essential element in the production of services and products beside several production factors. Where inventory management relates to the art that belongs to a particular group of elements that afford the minimum cost that is consistent with other different related goals that management sets.

Furthermore, the approaches of inventory management relate to the techniques that are utilized within a business which manages both non-capital properties and stock in a firm. Where inventory management is a method that is used to control products' movements from the supervision, producer, warehouse, and sale respectively. In addition, inventory management could be categorized in three methods, that are: process work, stock of natural resources, and the inventory of finished products. By which the practices of inventory management are useful within a business through several method. That is obtained because inventory management keeps the balance for needed inventories within a firm. (Almrdof and Attia, 2021) Also, inventory management is used for the purpose of

locating the right amount to be ordered and stored at a particular time period that belongs to costs. In addition, inventory management leads to performing a balance among the costs of inventory, customer service, and the availability of product. Finally, inventory management is a critical part in taking the entire decisions that are related to handling inventory within a firm. For example: policies of inventory management and processes to handle inventory for the purpose of guaranteeing sufficient of all items that are stored in the warehouse. (Djiantoro and Tarigan, 2022)

2.1.2.5 Product planning

Based on the study performed by Zheng et al., (2017), product planning is defined as the procedure of mapping customer requirements with engineering characteristics. That is at the very starting level of the procedure of product development. In addition, Meyer et al. (2022) indicated that the main tasks of product planning are finding promising ideas that are related to a product, identifying the potential to succeed in the future, and planning the business. Where it was added that product planning has a considerable effect on other different level of the life cycle of the product.

Furthermore, product planning is considered the first performed activity in the procedure of creating a product. Where its goal is to produce a promising good design in the type of principle solution. In addition, the outcomes of product planning are: developing goods through an entity, as well the corresponding needs that are attained from consequent of developing a product. At the end, it is indicated that product planning is considered as the initial level or level zero of developing a product. (Meyer et al., 2021)

2.1.3 Financial performance

Financial performance is considered as a particular measure of how well a company would utilize assets from its fundamental business mode and creating revenue. Moreover,

the term of financial performance is being utilized as a general measure of the entire financial health of a company over a particular time period. As well, it could be utilized for the purpose of performing comparison among similar companies in the same industry or perform comparison among industries in aggregation. In addition, financial performance among firms could be measured through the utilization of stock market value and accounting information in the context of financial management practices. It is asserted that accounting systems tend to give information source about the operating business within any industry. That is attained in order to be utilized in measuring financial performance. (Abdul Kader and Khan, 2019) According to Kim et al., (2021) it was indicated that the financial performance of a company is utilized as an instrument to measure the current development of an entity as well the potential growth. Where although there exist several indicators of financial performance, but the selection of suitable ratios is based on the features of the purpose and the goal of the study.

Generally, performance within a corporate is considered the answer that presents either the failure or the success regarding the organizational objectives that are set. Where firm performance refers to the measure of its success that is measured during a particular period. Keeping in mind that there is an effect of good performance on the survival of a firm. In addition, getting a good performance is essential to get an appraisal of the performance. By which firm performance could be evaluated from both non-financial and financial performance of a firm. It is worth mentioning that financial performance is measured through measurement that depends on accounting data, for example: the measurement of profitability (such as: return on assets, return on sales, return on investment, and return on equity) (Mwalolo et al., 2023)

Furthermore, Karamoy and Tulung (2020) indicated that financial performance is amongst the factors that reflect institutions' efficiency and effectiveness in meeting the objectives. Where it is effective whenever the management is capable to set suitable objectives and proper tools to meet financial performance. Based on the study performed by Nurhayati and Ali (2023). The researchers listed a group of definitions about financial performance, as follow:

- Financial performance is counted as an analysis which is executed for the purpose of finding how far a firm has executed through the rules that are related to financial implementation in a right manner. Where financial report analysis is considered indicators of financial performance.
- Financial performance is an image that presents the financial condition of a firm during a particular time period about the aspects related to channel a raise funds. Where the dimensions of financial performance include liquidity, capital adequacy, and profitability.
- Financial performance is a group of financial activities during a particular time period. Where these activities are reported in the financial reports by the inclusion of balance sheets and income statements. By which financial reports are the dimensions of financial performance.

In conclusion, Mwalolo et al., (2023) added that improving financial performance is an essential goal among firms, where it participates in the rise in the wealth of shareholders as well as the entire profitability. Furthermore, it was included in the same study that financial performance reflects the entire firm financial well-being across a particular period, and it demonstrates the effectiveness of a firm in achieving the financial expectations among shareholders.

2.2 Previous studies

Wandera et al., (2018): “Effect of Enterprise Resource Planning System (ERP) on the Performance of Supermarkets in Bungoma County, Kenya.”

The study aims to find the effect of ERP on performance. Data was collected by distributing questionnaires among 8 supermarkets that are in Bungoma County. The independent variable is ERP with the dimensions: of cycle time, schedule adherence, and customer satisfaction. The dependent variable is performance with its dimensions that are: profitability and volume of sales. The hypotheses were tested by the utilization of inferential statistics and descriptive statistics. The study showed that there is a significant and positive effect of ERP on performance. Researchers recommended that supermarkets should invest in technology.

Shatat (2019): “The Effect of ERP Systems on Academic Performance: A Case Study Approach.”

The study aims to find the effect of the ERP system on academic performance. Data was collected by distributing questionnaires among academic stakeholders at Sohar University. The dimensions of ERP that are the independent variable are the students' information module, human resource management module, and financial management module. While the dependent variable is academic performance. The hypotheses were tested by the use of Pearson correlation. The study concluded that there is a connection among ERP modules and academic performance.

Serhan and Hajj (2019): “Effect of ERPS on Organizations’ Financial Performance.”

The study aimed to find the effect of implementing ERP on financial performance. Data was collected by distributing questionnaires among Lebanese companies. The

independent variable is ERP, while financial performance is the dependent variable. Data analysis was performed using SPSS. The study resulted in that most firms in Lebanon have not executed ERP systems. Researchers recommended that future researchers should concentrate on the awareness of using ERP and the advantages on operational performance.

Owusu-Mainu et al., (2019): “Assessing the Effect of Implementing ERP Systems on the Operational Performance of Businesses.”

The study aimed to evaluate the effect of implementing ERP systems on operational performance. Data was collected by interviews and questionnaires among respondents within selected organizations in Kumasi. The independent variable is implementing ERP systems and operational performance is the dependent variable. Data analysis was performed using descriptive tools. The study resulted in the implementation of ERP systems has a positive effect on businesses performance. Researchers recommended that all types of businesses seek to follow ERP systems in their operations.

Zhang and Zheng (2019): “An Empirical Study on the Effect of ERP Implementation on the Performance of Listed Companies.”

The aim of the study is to examine the effect of ERP implementation on performance and operating efficiency. Data was collected from the financial data of 40 listed firms. The independent variable is ERP, while the dependent variable is performance. The hypotheses were tested by the use of the T-test. The study concluded that there is a significant effect of ERP on performance. Researchers recommended that businesses that apply ERP should take into consideration their industry features.

Subanidja and Legowo (2019): “Financial Constraints Help the ERP System Success Improving the SMEs’ Performance: An Empirical Study.”

The study aims to find whether financial constraints are useful in the success of ERP systems and enhance financial performance. Data was collected by distributing questionnaires among several SEMs industry sectors that are located in different cities in Indonesia. The independent variable is the ERP system, while the dependent variable is financial performance. The hypotheses were tested by the use of Smart-PLS and SPSS. The study showed that there is an effect of financial constraints on the success of ERP and performance. Also, the success of ERP mediates the relationship between performance and financial constraints.

B.C.P et al., (2019): “Effect of ERP usage on the operational performance of Sri Lankan manufacturing companies.”

The aim of the study is to find the effect of the current level of using ERP on operational performance. Data was collected by distributing questionnaires among Sri Lankan manufacturing firms. The independent variable is ERP with the dimensions that are: financial accounting, fixed asset register, supply chain and logistics, inventory management, management accounting, production, e-commerce, payroll, sales and marketing, quality management, and distribution. The dependent variable is operational performance. The hypotheses were tested by the use of inferential and descriptive statistics. The study concluded that ERP usage has a significant effect on operational performance.

Aremu et al., (2019): “The Empirical Evidence of Enterprise Resource Planning System Adoption and Implementation on Firm’s Performance Among Medium-Sized Enterprises.”

The aim of the study is to investigate the mediating role of ERP on the link among medium enterprise performance (MEP) and communication process (CP), information technology readiness (ITR), government policy (GP), technology infrastructure support (TIS), organizational culture (OC), technological change (TC), and information access (IA). Data was collected by distributing 658 questionnaires among organizations that are a medium-sized enterprise that are located in South Western Nigeria. The variables of the study are medium enterprise performance (MEP) and communication process (CP), information technology readiness (ITR), government policy (GP), technology infrastructure support (TIS), organizational culture (OC), technological change (TC), and information access (IA). While ERP is the mediator. The hypotheses were tested by the use of Partial Least Square Structural Equation Modelling. The study showed that CP, GP, ITA, OS, TIS, ERP, IA, OC, and TC have a direct link with ERP and MEP. On the other hand, GP is not connected significantly to ERP adoption.

Fauzi (2021): “Effect of enterprise resource planning systems on management control systems and firm performance.”

The aim of the study is to find the mediating effect of supply chain management on the effect of ERP on financial performance. Data was collected by distributing questionnaires among 300 agricultural sector firms. The independent variable is ERP systems with the dimensions: of financial system, inventory management, human resource management, logistics, and product and process management. While the dependent variable is financial performance. The hypotheses were tested by the use of Structural Equation Modeling (SEM) and Partial Least Square (PLS). the study showed

that supply chain management mediates in part the effect of ERP on financial performance. Also, the application of ERP leads to an increment in financial performance. The researcher recommended conducting further studies in the future.

Aloqaily (2021): “The Effect of ERP Systems Implementation on Organizational Performance at Small and Medium Companies in Amman – Jordan”

The study aimed to find the effect of implementing ERP systems on organizational performance. Data was collected by distributing questionnaires among selected sample of SMEs in Jordan. The independent variable is ERP system with its dimensions that are: developing control, improved lead time, process development, and inventory control. While the dependent variable is operational performance. Data analysis was performed by the use of correlation and regression. The study resulted in that implementing ERP is effective on organizational performance of SMEs. The researcher recommended that implementing ERP systems might be common instrument within firm’s organizational performance.

Putra et al., (2021): “The Influence of Enterprise Resource Planning (ERP) Implementation System on Company Performance Mediated by Organizational Capabilities.”

The study aimed to investigate the effect of implementing ERP systems on firm performance with the mediating role of organizational capabilities. Data was collected from documentation reports and published evidence of manufacturing firms that are listed on Indonesia Stock Exchange for the time period from 2013 till 2018. The independent variable is ERP system implementation, while the dependent variable is firm performance with its dimensions: ROE, ROA, and NPM. Data analysis was performed by the use of SEM-PLS test. The study resulted in that the implementation of ERP systems has a positive and significant effect on firm performance and organizational capabilities. Where organizational capabilities mediate the relation between ERP implementation and firm

performance. Researchers recommended to conduct further studies in the future by having suitable measures of organizational capabilities.

Sebayang et al., (2021): “ERP compatibility on business performance through the inventory system and internal integration.”

The aim of the study is to investigate the role of ERP compatibility in enhancing performance. Data was collected by distributing 78 questionnaires among manufacturing firms. The independent variable is ERP, while the dependent variable is business performance. The hypotheses were tested by the use of the SEM-PLS tool. The study concluded that ERP compatibility has no direct effect directly on performance.

Sislian and Jaegler (2021): “Linkage of blockchain to enterprise resource planning systems for improving sustainable performance.”

The aim of the study is to analyze the utilization of ERP packages in order to be included in the solution for issues that belong to blockchain to enhance sustainable performance. Data was collected by distributing questionnaires among 10 firms in Europe from several different industries. The dimensions of ERP are financial accounting, production planning, human resources, quality management, sales and distribution, materials management, and customer relationship management. The hypotheses were tested using Smart PLS and SPSS. The study showed that the selected firms could benefit from both blockchain technology merging and ERP. That is achieved since both enhance companies' sustainable performance. Researchers recommended that firms are suggested to enhance their supply chain strategy by the utilization of blockchain with the modules of ERP.

Barna and Igna (2021): “The influence of the implementation of ERP systems on the performance of an organization.”

The aim of the study is to find the effect of implementing ERP on an organization's performance. Data was collected through studied articles as well as by distributing questionnaires. The independent variable is ERP with the dimensions that are: information availability, standardization, on-time delivery, information quality, and inventory management. The dependent variable is firm performance by the inclusion of both financial and non-financial performance. The study showed that ERP implementation enhances organizational performance.

Tarigan et al., (2021): “Effect of Enhanced Enterprise Resource Planning (ERP) on Firm Performance through Green Supply Chain Management.”

The aim of the study is to examine the effect of enhanced ERP on company performance. Data was collected by distributing 150 questionnaires among manufacturers domiciled in East Java in Indonesia. The independent variable is the performance of a company. The hypotheses were tested by the use of smart PLS. The study showed that enhanced ERP has improved the performance of a firm.

Andries and Ungureanu (2022): “ERP and Performance of Companies in Romania.”

The aim of the study is to investigate the effect of applying solutions of ERP on companies' performance. Data was collected by distributing questionnaires among 406 firms in Romania. The independent variable is ERP implementation, while the dependent variable is performance. The control variables are fixed assets, revenues, number of employees, turnover, and equity. The hypotheses were tested by the use of OLS approach. The study showed that implementing ERP has a limited effect on performance.

Djiantoro and Tarigan (2022): “The Effect of ERP Implementation on Firm Performance Through Information Technology Capability and Inventory Management During the Covid-19 Pandemic.”

The aim of the study is to find the effect of implementing ERP on company performance. Data was collected from 85 manufacturing firms located in East Java, where these firms applied ERP for three years by the use of purposive sampling. The independent variable is ERP, while the dependent variable is firm performance. The hypotheses were tested by the use of structural equation modeling. The study showed that the implementation of ERP has no direct effect on performance.

Chibuzo and Ikechuku (2022): “Implementing Enterprise Resource Planning (ERP) Systems in Digital Firms”

The aim of the study is to find the effect of ERP on business performance. Data was collected by interviewing three managers within a single case study. The independent variable is ERP, while the dependent variable is business performance. The study resulted in that based on the reports of business users, the application of ERP caused a group of advantages for business performance.

Mercy and Paul (2023): “Implementation of enterprise resource planning system and performance in the manufacturing firms in Nakuru city county, Kenya”

The aim of the study is to investigate the application of ERP on performance. Data was collected by distributing questionnaires among 27 manufacturing companies in Nakuru city county. The independent variable is ERP with the dimensions that are: human resource management, accounts and finance, customer relationship management, supply chain management, and manufacturing management. The dependent variable is performance. The hypotheses were tested by inferential and descriptive statistics. The study concluded that top management communication and coordination, leadership

resource allocation, training and educating, user involvement, change management, and implementation management have an effect on companies' performance. Researchers recommended that management of the manufacturing companies in Nakuru City County is suggested to guarantee top management support.

2.3 What distinguishes this study?

This study is going to investigate the effect of ERP systems through the dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance among commercial companies in Jordan. This study will differ from other previous studies since it will be conducted in Jordan Where the researcher could not find any related previous study that was performed in Jordan. Also, the study will differ by being conducted within commercial companies, since no study was found to be conducted within this sector. Additionally, the researcher could not find any related previous study that took into consideration the five selected dimensions of ERP systems together in one study

It is worth mentioning that the researcher found previous studies that were conducted in other countries, since this study will be conducted in Jordan. For example: the study performed by Mercy and Paul (2023) was conducted in Kenya, the study performed by Andries and Ungureanu (2022) was conducted in Romania, the study performed by Tarigan et al., (2021) was conducted in Indonesia, the study performed by Aremu et al., (2019) was conducted in Nigeria, the study performed by B.C.P et al., (2019) was conducted in Sri Lanka, and the study performed by Wandera et al., (2018) was conducted in Kenya.

Furthermore, in this current study the researcher selected financial performance as the dependent variable. Where there was a group of previous studies that took into consideration other dependent variables than financial performance. For example, the

study conducted by Shatat (2019) who selected academic performance as the dependent variable. Also, the study conducted by Sebayang et al., (2021) who selected business performance as the dependent variable. Moreover, the studies conducted by Owusu-Mainu et al., (2019), B.C.P et al., (2019), and Aloqaily (2021) who selected operational performance as the dependent variable.

Also, other related previous studies were conducted within other sectors than commercial companies. For example: the study performed by Shatat (2019) was conducted at Sohar University, the study performed by Subanidja and Legowo (2019) was conducted within SEMs Industry sector, the study performed by B.C.P. et al., (2019) was conducted within manufacturing companies, the study performed by Aremu et al., (2019) was conducted within Medium-Sized Enterprises, the study performed by Fauzi (2021) was conducted within agriculture sector, and the study performed by Djiantoro and Tarigan (2022) was conducted within manufacturing firms.

Chapter Three

Methodology

3.1 Preface

This chapter presents the justification of adopting quantitative research approach, the justification of using questionnaire, survey design, measurement and scaling, population and sample, data sources, and statistical tests.

3.2 Justification of quantitative methodology

This current study will adopt quantitative research approach. Where according to Taherdoost (2022) it was mentioned the advantages of adopting this method, for example: the ability to generalize the findings, the ability to replicate and share documentation of approaches and frameworks, the outcomes reflect the population because of the large size of the sample, and the ability to reconduct the study by time because of the standardized approaches.

Furthermore, based on the study conducted by Kittur (2023), the researcher set the following points about the nature of quantitative research approach:

- Amongst the main goals of quantitative research is to present the outcomes to a larger population that might be generalized to lead to inferences.
- Quantitative research is useful in distinguishing the relationships within data.
- It is helpful in order to quantify attitudes, beliefs, findings, and behaviours.
- Statistical analysis is performed within gathered data where that leads to conclusions from the study.

3.3 Justification of the questionnaire

In this current study, the researcher is going to use questionnaire for the purpose of collecting data. Where according to Kuphanga (2024) there are different advantages of the questionnaire, for example: it permits contacting with a large number of individuals at a low level of cost, reaching people that are dispersed within remote locations and wide geographical regions, questionnaire also guarantees accessibility among people who might not be reachable easily, and using questionnaire facilitates the inclusion of large sample.

Furthermore, that the utilization of questionnaire permits to meet of generating data in most efficient and cost-effective method. Also, the outcomes from a questionnaire shall include positive sequences of several interactions of parties that are involved. In addition, questionnaires permit the tools to be easily applied, piloted, data analysed, and outcomes shared with stakeholders (Bihu, 2021).

3.4 Survey design

The developed questionnaire in this current study included several steps. Where after identifying the variables and the dimensions of the study, the researcher searched for related previous studies for the purpose of developing the statements of the questionnaire.

It is worth mentioning that the questionnaire included three parts, that are: the first part is a cover letter. The second part is the demographic questions that include respondents' personal and job variables. That is by the inclusion of gender, academic level, job level, department, experience, number of employees, and the income per month. The third part is about the statements of the questionnaire that are related to the variables of the study. Where each dimension follows Likert Scale that ranges from (1) strongly disagree to (5) strongly agree.

3.5 Measurement and scaling

This section presents the definitions of the selected dimensions and variables and the developed statements in the questionnaire. Where the internal validity of the questionnaire is going to be tested using SPSS software. While to guarantee reliability, Cronbach's Alpha will be utilized for the purpose of examining the internal consistency of all scales.

There are different dimensions of the independent variable that is ERP system, where the definition of ERP system was based on the study conducted by B.C.P et al., (2019). Therefore, the definitions of the selected dimensions were adopted in relation to several previous studies, for example: the definition of financial system is adopted by Babu (2018), the definition of human resource management is adopted by Goswami (2018), the definition of customer relationship management is adopted by Ridwan et al., (2021), the definition of inventory management is adopted by Anisere-Hameed and Bodunde (2021), and the definition of product planning is adopted by Meyer et al., (2021). While the definition of the dependent variable that is financial performance is adopted by Abdul Kader and Khan (2019).

The following table presents the definition of each variable and dimensions as follow:

Table 3.1: Study Variables and Definitions

Variable	Definition	Source
ERP system	is considered as a procedure by which a firm, that is often manufacturing, that tends to merge and manage essential parts that relates to its business. Where it merges the functional areas as a whole, for example: purchasing, manufacturing, marketing, human resources, planning, inventory, sales, and finance.	B.C.P et al., (2019)
Financial system	is useful system in the development of economy and enhancing the standard of living among individuals. It is useful in enhancing the promotion of weaker	Babu (2018)

Variable	Definition	Source
	part within the society. That is obtained by rural development banks as well through co-operative societies.	
Human resource management	is a consistent and strategic method among firm's most values assets behind on employees.	Goswami (2018)
Customer relationship management	is considered amongst the tools which are utilized in order to maintain clients. Where customer relationship management refers to a business method that depends on managing the relation among clients.	Ridwan et al., (2021)
Inventory management	is related with the identification of all items of stock. Where inventory management is mainly related to specify the placement and size of stocked products.	Anisere-Hameed and Bodunde (2021)
Product planning	is considered the first performed activity in the procedure of creating a product. Where its goal is to produce a promising good design in the type of principle solution.	Meyer et al., (2021)
Financial performance	is considered as a particular measure of how well a company would utilize assets from its fundamental business mode and creating revenue.	Abdul Kader and Khan (2019)

The questionnaire included 30 statements, where it starts with the first dimension of the independent variable that is the financial system. It included five-item measure, and it is adopted by Babu (2018).

As for the second dimension that is human resource management, it included five - item measure and it is adopted by Esen & Ozer (2020).

As for the third dimension that is customer relationship management, it included five-item measure and it is adopted by Ridwan et al., (2021).

As for the fourth dimension that is inventory management, it included five-item measure and it is adopted by Anshur et al., (2018).

As for the fifth dimension that is product planning, it included five-item measure and it is adopted by Maurice et al., (2021).

Finally, the dependent variable that is financial performance, it included five-item measure, and it is adopted by Nguyen et al., (2021) & Anshur et al., (2018).

The following table presents the statements of each dimension and variable as follow:

Table 3.2: Study Measures

Variable	# of items	Measures	Sources
Financial system	5	<ul style="list-style-type: none"> - The firm tends to well link investors with depositors. - The firm performs several financial services within the community. - Firm's financial system belongs to the existence of regulated and integrated financial markets. - The financial system that is followed by the firm is useful for a business that is related to create capital. - The firm is looking for minimizing risks. 	Babu (2018)
Human resource management	5	<ul style="list-style-type: none"> - Employees are given regular trainings on their jobs. - Employees are offered opportunities to improve their careers. - Long-term employment of employees at all levels is emphasis placed on. - Work areas are physically and psychologically comfortable and suitable for work. - Flexible working hours (flexible working hours, part-time working hours, home office, tele-working) are applied. 	Esen & Ozer (2020)
Customer relationship management	5	<ul style="list-style-type: none"> - Employee collaboration has created customer relationships. - The firm tends to maintain loyal customer relationships. - The partnership relationship between customers and the company has increased satisfaction. - There is a good relationship between customers and firm's employment. - The firm concentrates on what consumers value 	Ridwan et al., (2021)

Variable	# of items	Measures	Sources
		instead of the products which are sold by the firm.	
Inventory management	5	<ul style="list-style-type: none"> - The firm pays maximum attention to those inventories whose value is highest. - The company uses Just-In-time (JIT)/lead time for purchasing system of inventory. - The company has computerized all inventory management systems. - The company uses Activity Based Costing analysis techniques. - The staff of the company well trained on the use of Information Technology applications in inventory management. 	Anshur et al., (2018)
Product planning	5	<ul style="list-style-type: none"> - The goal of the firm is to create a promising design for its product. - The firm takes into consideration the enhancement of customer and user involvement. - The firm understands the requirements of its customers. - The firm looks for enhancing the procedure of decision making. - The firm follows higher innovative strength. 	Maurice et al., (2021)
Financial performance	5	<ul style="list-style-type: none"> - The profit of the company has increased in the last three years. - The number of the asset (property) of our company has increased in the last three years. - The number of working capitals has increased in the last three years. - The number of sales growths has increased in the last three years. - The firm presents the association's financial wellbeing in general during a particular time period. 	Nguyen et al., (2021) & Anshur et al., (2018)

3.6 Population and sample

The sample of this study will be all commercial companies that are located in Amman city. Questionnaires will be distributed among employees and managers of the accounting department, financial department, and general management department.

3.7 Data sources

The data will be collected from primary and secondary resources as follows:

- **Primary source:** where data will be collected by distributing questionnaires to find the effect of ERP systems on financial performance: A case study among commercial companies in Jordan.
- **Secondary sources:** the researcher will use secondary sources such as previous studies, articles, journals, and other research papers to enhance the theoretical part of this study.

3.8 Statistical tests

The researcher will use SPSS software by the utilization of:

- Descriptive tests such as the mean, standard deviation, and frequency.
- Multiple regressions to test the hypotheses.

Chapter Four

Statistical Analysis Results

4.1 Introduction

This study aims to analyze the effect of ERP systems on financial performance in commercial companies in Jordan. A questionnaire was designed for this purpose and distributed to employees and managers working in the accounting, finance, and general management departments within commercial companies located in Amman. After completing the data collection, the Statistical Package for Social Sciences (SPSS) program was used to conduct the necessary statistical tests and ensure accurate results. This chapter discusses the results of testing the validity and reliability of the study tool, testing the suitability of the data for statistical analysis, in addition to the descriptive analysis of the questionnaire, and presents the results of testing the hypotheses using Multiple Linear Regression Analysis.

4.2 Stability and Reliability of the study tool

The consistency and suitability of the study tool paragraphs were verified by presenting them to a group of academic experts from Jordanian university professors known for their expertise and scientific competence, as shown in Appendix No. (1). The questionnaire was reviewed based on the comments and recommendations they provided, and the necessary amendments were implemented to ensure that the paragraphs were balanced and accurately formulated to suit the study objectives and cover all its aspects comprehensively. To achieve stability and reliability, Cronbach's Alpha test was adopted as one of the statistical tools to ensure the internal consistency of the paragraphs and measure their efficiency in assessing the variables under study.

The interpretation of the Cronbach's alpha test results depends on the values obtained, which range between 0 and 1, where higher values indicating a higher level of internal stability. According to modern research standards (Henseler et al., 2022; Hair et al., 2023), values less than 0.6 are considered insufficient and reflect weak stability, making the tool unsuitable for use. Values between 0.6 and 0.7 are acceptable in exploratory studies or in the case of new dimensions being tested. While values above 0.7 are considered evidence of a good level of internal stability, which enhances confidence in the measurement results. Values reaching 0.8 or more are considered excellent and indicate strong consistency between the paragraphs. To ensure the stability of the questionnaire, the results were as follows:

Table 4.3: Study tool test.

Variable	Cronbach's Alpha
Financial system	0.859
Human resources management	0.778
Customer relationship management	0.852
Inventory management	0.729
Product planning	0.837
Financial performance	0.705
All Variables	0.839

The following table shows the Cronbach's Alpha values for the variables used in the study. The results show that all values exceed the minimum acceptable limit (0.7), indicating that the study tool has high stability and reliability in measuring the variables.

For example, the financial system variable achieved a value of 0.859, which is an excellent value indicating high internal consistency between the paragraphs. As for the Human resources management variable, its value was 0.778, which is a very acceptable level of stability that enhances the reliability of the measurement. As for the Customer relationship management variable, its value was 0.852, which reflects the quality of the design of the paragraphs related to this dimension.

On the other hand, the inventory management variable recorded the lowest value among the variables of (0.729), but it is still within the scientifically acceptable range, indicating that the paragraphs related to inventory management are consistent enough to provide reliable data. Finally, the stability of all variables combined reached 0.839, which reflects the consistency of the tool in measuring all dimensions in general. The results presented in the table provide a solid basis for confident data analysis, which enables to reach reliable conclusions that contribute to achieving the study objectives.

4.3 Testing the suitability and validity of the study sample data for statistical analysis.

To ensure the accuracy of statistical analysis and the reliability of results, it is necessary to ensure that the study data meets several basic conditions before starting to test the hypothesis analysis. These conditions include achieving a normal distribution of the study variables, in addition to the absence of multicollinearity or autocorrelation between the independent variables in the statistical model. The normal distribution of variables is a major condition for analysing data using parametric statistical models, as it ensures the stability and accuracy of the results (Hair et al., 2023). Moreover, the absence of multicollinearity is essential to avoid negatively affecting the strength of the model and the accuracy of the estimates and is usually verified using tests such as the Variance Inflation Factor (VIF). As for autocorrelation, it indicates the presence of a regular pattern in the residuals of the model and is measured using the Durbin-Watson test. In this study, all necessary tests were conducted to ensure that the data met these conditions, which ensures the quality of the results and the stability of the analytical model. The following section presents the results of the study data verification tests represented by the normal distribution test, multicollinearity tests, and autocorrelation tests.

4.3.1 Normal Distribution Test

To ensure the reliability of the study results, the suitability of the study sample data for statistical analysis tests was verified. Linear regression analysis requires a normal distribution of the residuals of the variables, as the normal distribution of the residuals is one of the basic assumptions to ensure the validity of the statistical analysis (Hair et al., 2023). If the normal distribution condition is not met, non-parametric statistical analysis tests must be used, which allows dealing with data that follow a non-normal distribution. To achieve this, normal distribution tests for the residuals were conducted using the Kolmogorov-Smirnov test. This test helps determine whether the study data follow a normal distribution or not, which is an essential step to verify the validity of the data and use appropriate statistical tools to analyze it. The following table shows the results of the normal distribution of the study variables as follows:

Table 4.4: Results of the normal distribution test for the study data

Variable	Sig	Kolmogorov-Smirnov
Financial system	0.054	0.204
Human resources management	0.058	0.172
Customer relationship management	0.098	0.195
Inventory management	0.062	0.207
Product planning	0.067	0.260
Financial performance	0.094	0.165

The table above presents the results of normal distribution test for the residuals using Kolmogorov-Smirnov for all the study variables. The Sig values for all the variables are above 0.05, which means that the data follows a normal distribution. For example, the financial system variable reached a Sig value of 0.054, indicating that it conforms to a normal distribution. Similarly, other variables such as Human resources management and Customer relationship management recorded values of 0.058 and 0.098 respectively, which are also within the acceptable limits of a normal distribution.

It is worth noting that the Product planning variable showed the highest Kolmogorov-Smirnov value of 0.260 with a Sig value of 0.067, reflecting a high stability in its conformity with the normal distribution. These results support the validity of the data used in the study and confirm its suitability for statistical regression tests, which enhances the reliability of the analysis and final conclusions.

4.3.2 Multicollinearity test:

Multicollinearity refers that there is a strong correlation between the independent variables in the model, which may lead to poor estimation of model parameters and instability of statistical results. To verify the existence of multicollinearity, the Variance Inflation Factor (VIF) and Tolerance are used. VIF indicates the extent to which the variance in each independent variable is affected by interference with other variables, while Tolerance reflects the opposite, the proportion of variance which is not explained by other variables. According to modern standards (Hair et al., 2023), if the VIF value is less than 10 and the Tolerance value is greater than 0.1, multicollinearity can be considered insignificant and acceptable.

Autocorrelation also indicates the presence of a specific pattern or dependence between successive values of the residuals in the statistical model, which may affect the accuracy of the estimates and impose challenges in analysing the results. Autocorrelation is verified using the Durbin-Watson test, where acceptable values range between 1.5 and 2.5, indicating the absence of significant autocorrelation in the residuals (Field, 2022). Values less than 1.5 or greater than 2.5 reflect the possibility of strong autocorrelation that may need to be addressed. The following table shows the results of the Multicollinearity Test, as follows:

Table 4.5: Results of the study model's predictive ability

Variables	Variable's	Multicollinearity	
		Tolerance	VIF
<i>Independent</i>	Financial system	0.453	2.207
	Human resources management	0.511	1.958
	Customer relationship management	0.372	2.688
	Inventory management	0.225	4.543
	Product planning	0.509	1.966
Durbin-Watson = 1.860			

The table shows the results of the multicollinearity tests for all independent variables, as well as the Durbin-Watson value for the autocorrelation test. The values indicate that the multicollinearity is within acceptable limits. For example, the financial system variable reached a VIF value of 2.207 and a Tolerance of 0.453, reflecting weak and insignificant multicollinearity. Similarly, the Human resources management variable reached a VIF value of 1.958, which is well below the maximum allowed of (10), indicating a good fit to the model.

On the other hand, the Inventory management variable showed the highest VIF value of 4.543 with a Tolerance of 0.225, which is still within the acceptable range, but indicates some relative interference compared to the other variables. The Durbin-Watson value was 1.860, which is within the acceptable range (1.5-2.5), indicating that there is no autocorrelation between the residuals. These results reflect the stability of the model and the data's fulfillment of the basic conditions for analyzing the hypotheses.

In addition to the multicollinearity test to ensure that there is no problem of interference between the independent variables, the Pearson correlation matrix was used as an additional test to verify any strong correlation between the independent variables that may affect the accuracy of the statistical model. Pearson correlation is an effective tool to measure the strength and direction of the relationship between the independent variables. According to research standards (Schober et al., 2018), the presence of

correlation coefficients less than 0.8 indicates the absence of high correlation between the variables, which enhances the reliability of the analytical results of the model. Using this additional test is an essential step to provide additional confirmation of the results of multicollinearity tests. Accordingly, the following table shows the Pearson linear correlation matrix as follows:

Table 4.6: Results of the linear Pearson correlation matrix between the study variables

	FS	HRM	CRM	IM	PP
FS	1				
HRM	0.391**	1			
CRM	0.302**	0.482**	1		
IM	-0.621**	-0.611**	-0.666**	1	
PP	0.357**	0.418**	0.443**	-0.177*	1

Correlation is significant at the 0.01 level (2-tailed).

Correlation is significant at the 0.05 level (2-tailed).

Where FS: Financial system; HRM: Human resources management; CRM: Customer relationship management; IM: Inventory management; PP: Product planning

The table shows Pearson correlation coefficients between the independent variables of the study, represented by financial system (FS), Human resources management (HRM), Customer relationship management (CRM), Inventory management (IM), and Product planning (PP). The results indicate that all correlation coefficients between the variables are less than 0.8, indicating that there is no high correlation between the independent variables.

For example, the correlation of FS with HRM recorded a positive value of 0.391 at the significance level of 0.01, indicating a weak to medium relationship between these two variables. Similarly, CRM showed a positive correlation with HRM of 0.482 at the same significance level, reflecting an acceptable fit between the variables. In contrast, IM showed a negative correlation with FS, HRM, and CRM, with correlation values of -

0.621, -0.611, and -0.666, respectively, indicating an inverse relationship but not strong enough to cause an interference problem.

As for PP, it showed a positive correlation with FS, HRM and CRM with values ranging from 0.357 to 0.443 at a significance level of 0.01, which supports the idea of consistency between the variables without high correlation problem. It also showed a weak negative correlation with IM with a value of -0.177 at a significance level of 0.05, which supports the statistical stability of the model.

The results of the Pearson correlation matrix analysis confirm that there is no strong correlation between the independent variables, as none of the relationships recorded a correlation coefficient higher than 0.8. These results support the conclusions of the multicollinearity test, indicating that the study model is free from problems of multicollinearity or high correlation between variables. This enhances the validity of the data and allows relying on the model in analyzing hypotheses and drawing conclusions.

4.4 Descriptive statistics of study data

The researcher distributed 285 questionnaires to employees and managers working in the accounting, finance, and general administration departments in commercial companies located in Amman. The questionnaires were distributed directly and via e-mail, and the data collection process took about four months. After 183 questionnaires were retrieved, the reliability test using Cronbach's alpha showed that there was a decrease in some values, which led to excluding incomplete questionnaires and retesting them after amendments. This resulted in improving the reliability values to exceed the acceptable limit, and 157 questionnaires were adopted as a final sample valid for statistical analysis. The following section presents the descriptive analysis of the demographic information of the study sample based on frequencies and percentages. The

descriptive analysis of the personal information of the sample was conducted in order to display the frequencies and percentages for the categories of each paragraph, in order to display its results. The following is its results:

Table 4.7: Results of demographic information

Variable	Category	Percent	Frequency
Gender	Male	65.61	103
	Female	34.39	54
	All	100.0	157
Academic level	High school	0.64	1
	Diploma	6.37	10
	Bachelor	64.97	102
	Higher diploma	3.18	5
	Masters	20.38	32
	PhD	4.46	7
	All	100.00	157
Job level	Employee	66.88	105
	Manager	33.12	52
	All	100.00	157
Department	Accounting department	36.94	58
	Financial department	29.94	47
	General management department	33.12	52
	All	100.00	157
Experience	Less than 5 years	28.03	44
	5 - Less than 10 years	50.32	79
	10-15 years	11.46	18
	More than 15 years	10.19	16
	All	100.00	157
Number of employees	500 or fewer	6.37	10
	501-1000	45.86	72
	1001-2000	12.74	20
	2001-3000	12.10	19
	More than 3000	22.93	36
	All	100.00	157
Income per month	Less than 350 JDs	24.20	38
	351-550 JDs	45.86	72
	551-750 JDS	11.46	18
	751-1000 JDs	10.19	16
	More than 1000 JDs	8.28	13
	All	100.00	157

The data shows that the majority of the sample was male by (65.61%) (103 individuals), while females constituted 34.39% (54 individuals). This indicates that males constitute the largest percentage in commercial companies in Amman, which may reflect the distribution of the workforce in the targeted sectors.

As for Academic Level, the results indicate that the majority of participants hold a bachelor's degree by (64.97%) (102 participants), followed by master's degree holders by (20.38%) (32 participants). Holders of lower academic degrees (diploma and high school) represented a small percentage, while PhD holders recorded a percentage of only 4.46% (7 participants). This reflects a focus on highly educated individuals in commercial companies.

The results also show that the majority of the sample held positions at the employee level by 66.88% (105 participants), compared to managers who represented 33.12% (52 participants). This diversity reflects a good balance between the different job levels in the sample.

It was also found that employees in the accounting department had the highest percentage in the sample by 36.94% (58 participants), followed by the general administration department by 33.12% (52 participants), and then the finance department by 29.94% (47 participants). This distribution indicates a relatively balanced representation of the main administrative departments.

Regarding Experience, the results indicate that almost half of the sample (50.32%) have experience ranging from 5 to less than 10 years, while individuals with less than 5 years of experience represent 28.03% (44 participants). Those with more than 10 years of experience represented a smaller percentage, reflecting a trend towards hiring individuals with medium experience.

The results also showed that the majority of participants work in medium size companies (501-1000 employees) by 45.86% (72 participants), while fewer are employed in large companies with more than 3,000 employees by 22.93% (36 participants). This indicates that the sample is concentrated in medium and large companies.

Finally, the results showed that the majority of the sample had a monthly income ranging between 351-550 dinars by 45.86% (72 participants), while the higher income groups (more than 1000 dinars) recorded a lower percentage of 8.28% (13 participants). This distribution reflects the diversity of income levels in the sample.

Through these results, the diversity of the sample can be judged in terms of gender, academic level, experience, and job level, which ensures a comprehensive representation of different categories in commercial companies. These results reflect the work environment in Amman, where the effect of education and experience in shaping the workforce is highlighted. The balanced distribution between functional departments and job levels enhances the reliability of the results extracted from this sample.

To analyse the descriptive data of the questionnaire paragraphs, arithmetic means and standard deviations were used to determine the level of importance of the paragraphs. Based on the five-point Likert scale, the results were divided into three levels to determine importance. The time periods are calculated using the following equation: $(5-1)/3 = 1.33$, thus, the importance scale is distributed as follows: from 1 to 2.33 is considered low, from 2.34 to 3.66 is medium, and more than 3.66 is considered high (Hair et al., 2023), and the following table shows the classifications of the importance of the tasks as follows:

Table 4.8: Likert scale classification of importance

Range	Level of importance
“From 1 to 2.33”	"Low"
“From 2.34 to 3.66”	"Medum"
“More than 3.66”	"High"

Based on the classification shown in the previous table for the level of importance, the results of the paragraphs related to the financial system were analysed as follows:

Table 4.9: Results of descriptive analysis of financial system

No.	Questions	Rank	Mean	Standard Deviation	Level of importance
1	The firm tends to well link investors with depositors.	3	3.648	1.123	Medum
2	The firm performs several financial services within the community.	1	3.864	1.187	High
3	Firm’s financial system belongs to the existence of regulated and integrated financial markets.	5	3.247	1.221	Medum
4	The financial system that is followed by the firm is useful for a business that is related to create capital.	4	3.327	1.141	Medum
5	The firm is looking for minimizing risks.	2	3.796	1.137	High
Financial system			3.572	0.930	Medum

Analysis of the results of the paragraphs related to the financial system shows a diversity in the level of importance based on arithmetic means and standard deviations. The second paragraph, “The firm performs several financial services within the community,” reached the highest arithmetic mean of 3.864 with a standard deviation of 1.187, indicating a high level of importance that reflects the role of the institution in providing distinguished financial services to the community.

In contrast, the third paragraph, “Firm’s financial system belongs to the existence of regulated and integrated financial markets,” reached the lowest mean of 3.247 with a standard deviation of 1.221, indicating a medium level of importance and reflecting a potential challenge in linking the financial system with regulated financial markets.

The fifth paragraph, “The firm is looking for minimizing risks,” recorded the second highest arithmetic mean of 3.796 with a standard deviation of 1.137, reflecting the firm’s focus on reducing risks, which is a positive indicator of its financial strategy. The first paragraph, “The firm tends to well link investors with depositors,” and the fourth paragraph, “The financial system that is followed by the firm is useful for a business that is related to creating capital,” had arithmetic means of 3.648 and 3.327, respectively, indicating a medium level of importance.

In general, the analysis of the results shows that the financial system followed by the institution has a medium level of importance, as shown by the overall mean of 3.572 and the standard deviation of 0.930. This result reflects a general agreement on the importance of the role of the financial system in achieving the institution’s goals and supporting its financial strategies.

Table 4.10: Analysis of the descriptive results of human resources management

No.	Questions	Rank	Mean	Standard Deviation	Level of importance
1	Employees are given regular trainings on their jobs.	5	3.484	0.837	Medum
2	Employees are offered opportunities to improve their careers.	4	3.535	0.881	Medum
3	Long-term employment of employees at all levels is emphasis placed on.	1	3.771	0.619	High
4	Work areas are physically and psychologically comfortable and suitable for work.	2	3.688	0.687	High
5	Flexible working hours (flexible working hours, part-time working hours, home office, tele-working) are applied.	3	3.554	0.812	Medum
Human resources management			3.606	0.563	Medum

Analysis of the descriptive results related to Human resources management shows a difference in the level of importance of the paragraphs based on arithmetic means and

standard deviations. The third paragraph, “Long-term employment of employees at all levels is emphasis placed on,” came in first place in terms of importance, achieving the highest arithmetic mean of 3.771 with a standard deviation of 0.619, indicating that focusing on long-term employment is considered a top priority within institutions, reflecting a clear strategy to ensure the continuity and stability of human resources.

The fourth paragraph, “Work areas are physically and psychologically comfortable and suitable for work,” recorded a high arithmetic mean of 3.688 with a standard deviation of 0.687, indicating that institutions are interested in creating comfortable and supportive work environments, both physically and psychologically.

In contrast, the first paragraph, “Employees are given regular trainings on their jobs,” recorded the lowest arithmetic mean of 3.484 with a standard deviation of 0.837, indicating that regular training for employees is considered of medium importance, which may reflect opportunities for improvement in this aspect. The fifth paragraph, “Flexible working hours (flexible working hours, part-time working hours, home office, tele-working) are applied,” recorded an arithmetic mean of 3.554 with a standard deviation of 0.812, indicating that flexibility of working hours is also considered of medium importance, which is a point that could be developed to improve employee satisfaction.

The second paragraph, “Employees are offered opportunities to improve their careers,” recorded an arithmetic mean of 3.535 with a standard deviation of 0.881, reflecting a medium interest in developing career paths for employees.

Overall, the overall mean for the Human resources management component was 3.606 with a standard deviation of 0.563, indicating a medium level of importance. These results reflect a balance in policies related to human resources management with opportunities for improvement in some respects such as vocational training and flexible working hours.

Table 4.11: Descriptive analysis results of Customer relationship management

No.	Questions	Rank	Mean	Standard Deviation	Level of importance
1	Employee collaboration has created customer relationships.	1	3.943	0.534	High
2	The firm tends to maintain loyal customer relationships.	5	3.758	0.746	High
3	The partnership relationship between customers and the company has increased satisfaction.	2	3.917	0.669	High
4	There is a good relationship between customers and firm's employment.	4	3.796	0.628	High
5	The firm concentrates on what consumers value instead of the products which are sold by the firm.	3	3.898	0.579	High
Customer relationship management			3.862	0.504	High

The descriptive analysis of Customer relationship management indicates that all paragraphs achieved a high level of importance, with little variation in arithmetic means and standard deviations between paragraphs.

The first paragraph "Employee collaboration has created customer relationships" recorded the highest arithmetic mean of 3.943 with a low standard deviation of 0.534, reflecting the importance of employee collaboration in building strong customer relationships and its pivotal role in enhancing the customer relationship management strategy.

The third paragraph, "The partnership relationship between customers and the company has increased satisfaction," came in second place with an arithmetic mean of 3.917 and a standard deviation of 0.669, indicating that the partnership relationship between customers and the company plays an important role in increasing customer satisfaction with the services provided.

As for the fifth paragraph, “The firm concentrates on what consumers value instead of the products which are sold by the firm,” it recorded an arithmetic mean of 3.898 with a standard deviation of 0.579, reflecting the company’s focus on meeting customers’ needs and interests instead of focusing on products only.

The fourth and second items, related to the quality of customer-employee relationships and maintaining customer loyalty, recorded arithmetic means of 3.796 and 3.758, respectively, with moderate standard deviations, indicating the role of these aspects in enhancing customer satisfaction and building long-term relationships.

The overall mean for the Customer relationship management element was 3.862 with a standard deviation of 0.504, reflecting a high level of importance in the overall ranking. These results indicate that customer relationship management is a strategic priority for the company, with an emphasis on the importance of improving some aspects to ensure greater customer satisfaction and enhance sustainable partnerships.

Table 4.12: Descriptive analysis results of Inventory management

No.	Questions	Rank	Mean	Standard Deviation	Level of importance
1	The firm pays maximum attention to those inventories whose value is highest.	2	4.299	0.487	High
2	The company uses Just-In-time (JIT)/lead time for purchasing system of inventory.	3	4.159	0.487	High
3	The company has computerized all inventory management systems.	4	4.140	0.582	High
4	The company uses Activity Based Costing analysis techniques.	5	4.038	0.517	High
5	The staff of the company well trained on the use of Information Technology applications in inventory management.	1	4.369	0.682	High
Inventory management			4.201	0.385	High

The descriptive analysis of Inventory management indicates that all paragraphs achieved a high level of importance, reflecting the company's focus on improving inventory management.

The most important paragraph was “The staff of the company well trained on the use of Information Technology applications in inventory management”, which it recorded the highest arithmetic mean of 4.369 with a standard deviation of 0.682, indicating that training employees on using technology applications in inventory management is a priority for the company.

In contrast, the least important paragraph was “The company uses Activity Based Costing analysis techniques” with an arithmetic mean of 4.038 and a standard deviation of 0.517, although it is within the high level of importance, However, it indicates that techniques for analysing associated costs may not receive the same focus compared to other aspects.

The overall result for the Inventory management component had an arithmetic mean of 4.201 with a standard deviation of 0.385, indicating a strong and integrated inventory management system reflecting the company’s great interest in achieving efficiency in managing its resources. These results reinforce the importance of investing in technology and training to ensure sustainable improvements in inventory management.

Table 4.13: Descriptive analysis results Product planning

No.	Questions	Rank	Mean	Standard Deviation	Level of importance
1	The goal of the firm is to create a promising design for its product.	1	3.834	0.815	High
2	The firm takes into consideration the enhancement of customer and user involvement.	4	3.796	0.790	High
3	The firm understands the requirements of its customers.	2	3.828	0.744	High
4	The firm looks for enhancing the procedure of decision making.	5	3.764	0.761	High
5	The firm follows higher innovative strength.	3	3.803	0.684	High
Product planning			3.805	0.591	High

The descriptive analysis of Product planning indicates that all paragraphs achieved a high level of importance, reflecting the company's focus on product planning in order to meet customer needs and enhance the quality of decisions and actions.

The most important paragraph was “The goal of the firm is to create a promising design for its product,” which recorded the highest arithmetic mean of 3.834 with a standard deviation of 0.815, indicating that designing innovative and attractive products is a top priority for the company.

In contrast, the least important item was “The firm looks for enhancing the procedure of decision making” with an arithmetic mean of 3.764 and a standard deviation of 0.761, indicating that improving the procedure of decision making is considered highly important, but may not receive the same emphasis as product design or understanding customer requirements.

The overall result for the Product planning component had an arithmetic mean of 3.805 with a standard deviation of 0.591, reflecting a high level of importance that enhances the role of product planning in achieving the company’s goals and improving

the customer experience, with an opportunity to improve some aspects such as supporting the procedure of decision making with more innovation and development.

Table 4.14: Comparison of descriptive analysis results ERP systems dimensions

No	Independent Variables	Mean	Standard Deviation	Rank	Level of importance
1	Financial system	3.572	0.930	5	Medum
2	Human resources management	3.606	0.563	4	Medum
3	Customer relationship management	3.862	0.504	2	High
4	Inventory management	4.201	0.385	1	High
5	Product planning	3.805	0.591	3	High

The table shows a comparison between the results of the descriptive analysis of the ERP systems dimensions in terms of arithmetic mean, standard deviation, ranking, and level of importance. The results indicate that the system dimensions are characterized by varying levels of importance, reflecting the different effect of each dimension on the participants.

The most important dimension was Inventory management, which recorded the highest arithmetic mean of 4.201 with a low standard deviation of 0.385, indicating a high awareness among participants of the importance of inventory management as a key factor in improving operational efficiency and supporting company operations. This dimension reflects the vital role it plays in reducing costs and enhancing operational continuity.

In contrast, financial system came in last with an arithmetic mean of 3.572 and a standard deviation of 0.930, indicating a medium level of importance. Although the financial system is the foundation of operations, participants' perception of its importance may be lower compared to other aspects such as inventory management or customer relationships.

As for Customer relationship management, it came in second place with an arithmetic mean of 3.862 and a standard deviation of 0.504, indicating a high focus on improving customer relationships and maintaining their satisfaction, which reflects the importance of the dimension in achieving a competitive advantage for the company.

Product planning recorded an arithmetic mean of 3.805 with a standard deviation of 0.591, reflecting the high importance of product planning and innovation to meet market needs. While Human resources management recorded an arithmetic mean of 3.606 with a standard deviation of 0.563, indicating participants' awareness of the role of human resources management in developing competencies and improving individual performance.

The results reflect the participants' awareness of the importance of ERP systems dimensions in enhancing operational efficiency and effectiveness. Inventory management tops the list of priorities due to its clear role in achieving direct operational improvements. Other dimensions such as Customer relationship management and Product planning also show high level of importance in supporting growth strategies and enhancing customer relationships. In contrast, Human Resource Management and the Financial System come in lower levels in terms of relative awareness of their importance, indicating an opportunity to enhance participants' understanding of the role of these dimensions in achieving organizational goals in an integrated manner.

Table 4.15: Results of descriptive analysis financial performance

No.	Questions	Rank	Mean	Standard Deviation	Level of importance
1	The profit of the company has increased in the last three years.	5	3.713	0.631	High
2	The number of the asset (property) of our company has increased in the last three years.	4	3.809	0.495	High

No.	Questions	Rank	Mean	Standard Deviation	Level of importance
3	The number of working capitals has increased in the last three years.	3	3.866	0.425	High
4	The number of sales growths has increased in the last three years.	2	3.936	0.527	High
5	The firm presents the association's financial wellbeing in general during a particular time period.	1	3.955	0.559	High
Financial performance			3.856	0.360	High

The table shows the results of the descriptive analysis of the financial performance variable, where all paragraphs indicate a high level of importance based on arithmetic means and standard deviations.

The most important paragraph was “The firm presents the association's financial wellbeing in general during a particular time period”, which recorded the highest arithmetic mean of 3.955 with a standard deviation of 0.559. This reflects the participants' awareness of the importance of providing a comprehensive picture of the institution's financial performance as a key factor in enhancing strategic decisions and achieving transparency.

The least important paragraph was “The profit of the company has increased in the last three years” with an arithmetic mean of 3.713 and a standard deviation of 0.631, indicating that profit growth is important but not as important as other indicators such as sales growth or working capital.

The remaining paragraphs, such as “The number of sales growths has increased in the last three years” and “The number of the asset (property) of our company has increased in the last three years,” recorded high arithmetic means ranging from 3.809 to

3.936**, indicating that growth in assets and sales is an important aspect that participants focus on to evaluate a company's financial performance.

The overall result of the financial performance variable recorded a high overall arithmetic mean of 3.856 with a standard deviation of 0.360, reflecting a general positive assessment of the financial performance of the companies in the sample, with a focus on the importance of growth in various financial aspects.

Based on the descriptive results of all previous dimensions (ERP systems dimensions) and the financial performance variable, the validity of the data and its suitability for statistical analysis were verified. All variables showed high and medium levels of significance, with achieving the conditions of normal distribution, absence of multicollinearity, and insignificant autocorrelation.

Linear regression analysis will be the next step to examine the relationship between the dimensions of ERP systems as independent variables and their effect on financial performance as a dependent variable. This analysis will allow determining the extent of the effect of each dimension separately, while providing a comprehensive model to explain the factors affecting the financial performance of companies.

4.5 Testing the study hypotheses

H01: There is no effect of ERP systems through its dimensions through the dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance.

The Sig F value was used to assess the suitability of the statistical model in explaining the relationship between the independent variables and the dependent variable. According to the statistical decision rules (Hair et al., 2022; Tabachnick & Fidell, 2021), the model

is accepted if the Sig F value is less than 0.05, indicating a statistically significant relationship between the independent variables and the dependent variable. Adjusted R-Square was also used to determine the explanatory power of the independent variables in explaining changes in the dependent variable. The explanatory power is classified into different levels: a value less than 0.15 is considered very weak and unreliable, while a value between 0.15 and 0.24 is considered weak but limitedly reliable. If the value is between 0.25 and 0.39, it is considered medium and reasonably reliable, while a value between 0.40 and 0.89 is considered strong and reliable in predicting with high accuracy. If the value exceeds 0.90, the model is almost perfect in explaining the changes in the dependent variable. Table (14) below shows the results of the multiple regression tests for the study model.

Table 4.16: Results of the multiple regression test for the study model

Variable	β	Coefficient	T-Statistic	Sig.
Constant	-0.455	-----	-0.604	0.547
FS	0.170	0.438	5.062	0.000
HRM	0.144	0.225	2.757	0.007
CRM	0.260	0.364	3.814	0.000
IM	0.384	0.410	3.339	0.001
PP	0.150	0.246	3.007	0.003
R		0.698		
R-squared		0.487		
Adjusted R-square		0.470		
S.E. of regression		0.262		
F-statistic		28.723		
Prob(F-statistic)		0.000		

Where FS: Financial system; HRM: Human resources management; CRM: Customer relationship management; IM: Inventory management; PP: Product planning

Based on the results of the multiple regression test shown in Table (14), the value of Sig. F indicates 0.000, which is less than 0.05, indicating that the statistical model is significant and suitable to explain the relationship between the independent variables and

the dependent variable. Therefore, the main hypothesis H01 is rejected, and the alternative hypothesis is accepted, which means that there is a significant effect of ERP systems dimensions on financial performance.

The Adjusted R-square value is 0.470, which means that the independent variables (ERP dimensions) explain about 47% of the changes in the financial performance of the companies. Based on the classifications mentioned above, this value falls in the range of 0.40–0.89, indicating that the explanatory power of the model is considered strong and can be relied upon to predict with high accuracy. This result indicates that the ERP dimensions represent essential factors that significantly affect financial performance, with 53% of the changes that can be attributed to other factors outside the model. In order to determine the effect of each ERP dimensions on financial performance based on the regression analysis outputs as follows:

H01.1: There is no effect of the financial system on the financial performance of commercial companies in Amman.

Sub-hypothesis H01.1 was rejected based on the Sig. value of 0.000, which indicates that there is a significant effect of the financial system on the financial performance of commercial companies in Amman. Therefore, the alternative hypothesis of "There is an effect of the financial system on the financial performance of commercial companies in Amman" is accepted. The Coefficient value of 0.438 shows that the effect is strong and significant. When comparing the effect of the financial system with the rest of the dimensions, it ranks first in terms of positive effect on financial performance.

H01.2: There is no effect of human resource management the on financial performance of commercial companies in Amman.

Sub-hypothesis H01.2 was rejected as the Sig. value was 0.007, indicating that there is a significant effect of human resources management on financial performance. Therefore, the alternative hypothesis of "There is an effect of human resources management on the financial performance of commercial companies in Amman" is accepted. The Coefficient value of 0.225 shows that the effect is medium. Compared to the rest of the ERP systems dimensions, human resources management ranks fifth in terms of its effect on financial performance, indicating its important but relatively less influential role compared to the other dimensions.

H01.3: There is no effect of customer relationship management on the financial performance of commercial companies in Amman.

Sub-hypothesis H01.3 was rejected based on the Sig. value of 0.000, indicating that there is a significant effect of customer relationship management on financial performance. Therefore, the alternative hypothesis of "There is an effect of customer relationship management on the financial performance of commercial companies in Amman" is accepted. The Coefficient value of 0.364 shows that the effect is strong. CRM ranks third in terms of its effect on financial performance, reflecting its important role in enhancing customer relationships as a key factor in improving financial results.

H01.4: There is no effect of inventory management on the financial performance of commercial companies in Amman.

Sub-hypothesis H01.4 was rejected as the Sig. value was 0.001, indicating that there is a significant effect of inventory management on financial performance. Therefore, the alternative hypothesis of "There is an effect of inventory management on the financial

performance of commercial companies in Amman" is accepted. The Coefficient value of 0.410 shows that the effect is strong and ranks second in importance among all dimensions of ERP systems. This highlights the significant role of inventory management in improving efficiency and reducing costs.

H01.5: There is no effect of product planning on the financial performance of commercial companies in Amman.

Sub-hypothesis H01.5 was rejected as the Sig. value was 0.003, indicating that there is a significant effect of product planning on financial performance. Therefore, the alternative hypothesis of "There is an effect of product planning on the financial performance of commercial companies in Amman" is accepted. The Coefficient value of 0.246 shows that the effect is medium. Product planning ranks fourth in terms of its effect on financial performance, reflecting its role in supporting innovation and enhancing product competitiveness.

The results indicate that all dimensions of ERP systems have significant effects on financial performance, with varying degrees of effect. These results highlight the importance of different dimensions in improving financial performance, with focus on the importance of inventory management and financial system as pivotal factors in achieving financial efficiency.

Chapter Five

Discussion and Conclusion

5.1 Preface

The main aim of this study is to find the effect of ERP systems on financial performance within commercial companies in Jordan. Where data was collected by distributing questionnaires among employees and managers of the accounting department, financial department, and general management department. Hypotheses were tested by performing multiple regression using SPSS software.

Furthermore, this chapter presents information related to results and discussion, conclusion, and recommendations.

5.2 Results and Discussion

The aim of this study is to find the effect of ERP systems on financial performance within commercial companies in Jordan. Moreover, based on the obtained outcomes in the last chapter. Listed below are the outcomes of this current study that are followed by a brief justification.

Based on the main hypothesis H01: There is no effect of ERP systems through its dimensions through the dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance. There is a positive effect of ERP systems on financial performance. That might be justified because ERP systems tend to decrease operational inefficiency, improve the accuracy of information, and enhance taking decisions. Where that causes to enhance allocating resources and control costs. Eventually, that will lead to enhance profitability that allows firms to take more strategic decisions and experience an inclusive enhancement in financial performance. This result is consistent with the studies

conducted by Subanidja and Legowo (2019) and Fauzi (2021) which concluded that there is a relation between ERP systems and financial performance:

- Based on the first sub-hypothesis → **H01.1: There is no effect of the financial system on the financial performance of commercial companies in Amman.** There is a positive effect of financial system on financial performance. That might be justified because financial system tends to facilitate financial management. Where it enhances accuracy and decreases errors. That permits firms to experience better decisions-making and allocation of resources. Therefore, that will lead to more efficient financial processes and higher financial transparency. Then eventually will enhance profitability and an inclusive enhancement of financial performance. This dimension ranked the first in having a positive effect among the other selected dimensions of ERP systems. This result is consistent with the study conducted by Fauzi (2021) which concluded that adopting financial system will lead to an increment in financial performance.
- Based on the second sub-hypothesis → **H01.2: There is no effect of human resource management the on financial performance of commercial companies in Amman.** There is a positive effect of human resource management on financial performance. That might be justified because experiencing effective human resource management will cause to enhance the productivity of employees and improve job satisfaction. Where that contribute in decreasing costs of operation and enhance efficiency. Keeping in mind that experiencing efficient human resource management aligns with the goals of firms. Where that eventually will cause to enhance profitability and experience an inclusive enhancement of financial performance. This dimension ranked the fifth in having a positive effect among the other selected dimensions of ERP systems. This result is consistent

with the study conducted by Fauzi (2021) which concluded that adopting human resource management will lead to an increment in financial performance.

- Based on the third sub-hypothesis → **H01.3: There is no effect of customer relationship management on the financial performance of commercial companies in Amman.** There is a positive effect of customer relationship management on financial performance. That might be justified because customer relationship management tends to improve customer loyalty and satisfaction. Where customer relationship management allows customizing marketing and enhancing the provided services or products. Which will lead to experience more efficient sales. Eventually that will increase profitability and participate in having an inclusive enhancement of financial performance. This dimension ranked the third in having a positive effect among the other selected dimensions of ERP systems. There researcher could not find any related previous study to this result.
- Based on the fourth sub-hypothesis → **H01.4: There is no effect of inventory management on the financial performance of commercial companies in Amman.** There is a positive effect of inventory management on financial performance. That might be justified because inventory management is useful in keeping the right quantity of stock in order to achieve the demand of consumers without having an over investment in inventory. That will cause to enhance cash flow and decrease operational expenses. Therefore, that will lead to enhance sales and profitability. Eventually that will participate in having better financial performance. This dimension ranked the second in having a positive effect among the other selected dimensions of ERP systems. This result is consistent with the study conducted by Fauzi (2021) which concluded that adopting inventory management will lead to an increment in financial performance.

- Based on the fifth sub-hypothesis → **H01.5: There is no effect of product planning on the financial performance of commercial companies in Amman.**

There is a positive effect of product planning on financial performance. That might be justified because adopting product planning is useful in guaranteeing that the right goods are positioned and promoted to achieve the demand of clients efficiently. Where aligning the offered goods along with market demand tends to enhance pricing and decrease costs of production. That will lead to enhance sales and improve competitiveness in the market. Eventually, that will cause to experience stronger financial outcomes. This dimension ranked the fourth in having a positive effect among the other selected dimensions of ERP systems. There researcher could not find any related previous study to this result.

5.3 Conclusion

The main aim of this study is to find the effect of ERP systems on financial performance within commercial companies in Jordan. Where data was collected by distributing 285 questionnaires among employees and managers of the accounting department, financial department, and general management department. Where 183 questionnaires were sent back and 157 were applicable for analysis. Hypotheses were tested by performing multiple regression by the use of SPSS software. The study resulted in that there is a positive effect of ERP systems through its dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance.

This study is going to be useful among commercial firms. Where ERP will enables firms to enhance their efficiency and speed financial procedures. Where ERP systems allow commercial companies to have a real-time access to necessary data, that is useful

in improving decision-making and guaranteeing better communication among different departments. Then, eventually that will lead to cope efficiently with market growth and changes. Also, it is useful to management by having compliance support, enhancing data security, and enhancing productivity. Where adopting ERP systems allows management to achieve an inclusive view about the operations performed within their companies. As well it is useful in enhancing decision-making as well enhancing strategic planning. Finally, this study is helpful to decision-makers who are responsible for making decisions strategically, allocating resources, and handling disturbances to enhance the operations of a certain business. Where ERP systems allow decision makers to have a real-time access to information and accurate information among all departments. Also, it is useful in making more effective and informed decisions.

According to the model of this current study, which was developed for the purpose of investigating the effect of ERP systems on financial performance within commercial companies in Jordan. Keeping in mind that the researcher depended on a group of related previous studies, such as the studies conducted by by Fauzi (2021), Sislian and Jaegler (2021), Shatat (2019), Subanidja and Legowo (2019), and Andries and Ungureanu (2022). The importance of this current study is that it will add to the literature by investigating the effect of ERP systems through the dimensions that are (financial system, human resources management, customer relationship management, inventory management, and product planning) on financial performance in Jordan. Interestingly, conducting this study will allow development and comparison among other studies. Furthermore, after reviewing previous literature there were different studies that took into consideration the effect of ERP systems on other variables than financial performance, such as: the study conducted by Owusu-Mainu et al., (2019) that studied the relation

between ERP systems and operational performance. Also, the study conducted by Aloqaily (2021) that studied the effect of ERP systems and organizational performance.

5.4 Recommendations

- Firms are recommended to improve incorporating data across the departments.
- Firms are recommended to benefit from modern analytics according to financial insight.
- Firms are recommended to keep up-grading the used system of ERP.
- Firms are recommended to benefit from investing in training their employees.
- Firms are recommended to enhance supply chain management to improve profitability.
- Other researchers are recommended to conduct further studies in the future by the inclusion of other dimensions of ERP systems.
- Other researchers are recommended to reconduct the study by the inclusion of other sectors for the purpose of development and comparison.

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Appendix

Appendix 1: List of Arbitrators

Academic Arbitrators		
Arbitrator's Name	Academic rank	University Name
Dr. Ahmed Yahya Bani Ahmed	Associate Professor	Middle East University
Dr. Nawaf Abdullah Al-Jundi	Assistant Professor	Middle East University
Prof. Nofan Hamed Al-Alimat	Professor	Al al-Bayt University
Dr. Osama Shaaban	Professor	Al-Zaytoonah University of Jordan
Dr. Anas Bani Atta	Assistant Professor	Middle East University
Dr. Asmaa Al-Amarneh	Professor	Middle East University
Dr. Ayman Khazaleh	Associate Professor	Middle East University
Dr. Hani Rawashdeh	Associate Professor	Jerash University
Dr. Hussam Haddad	Assistant Professor	Zarqa University

Appendix 2: Questionnaire

Dear

The researcher is conducting this study about “The effect of ERP systems on financial performance: "A study on commercial companies in Jordan"” this study is conducted for the purpose of meeting the requirements of my master’s degree and accomplishing its goal. It is essential to indicate that this questionnaire is developed in order to collect the required data to complete this study. Keeping in mind that the researcher is looking forward to collecting responses with the consideration of the time of respondents.

Best Regards

Part One: Demographic Questions**Personal And Job Variables****Gender:**

- Male
 Female

Academic level:

- High school
 Diploma
 Bachelor
 Higher diploma
 Masters
 PhD

Job level:

- Employee
 Manager

Department:

- Accounting department
 Financial department
 General management department

Experience:

- Less than 5 years
 5 - Less than 10 years
 10-15 years
 More than 15 years

Number of employees:

- 500 or fewer
 501-1000
 1001-2000
 2001-3000
 more than 3000

Which of the following categories present your personal income per month?

- Less than 350 JDs
 351-550 JDs
 551-750 JDS
 751-1000 JDs
 More than 1000 JDs

Part Two: Questions

Financial system	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The firm tends to well link investors with depositors.					
The firm performs several financial services within the community.					
Firm's financial system belongs to the existence of regulated and integrated financial markets.					
The financial system that is followed by the firm is useful for a business that is related to create capital.					
The firm is looking for minimizing risks.					
Human resources management					
Employees are given regular trainings on their jobs.					
Employees are offered opportunities to improve their careers.					
Long-term employment of employees at all levels is emphasis placed on.					
Work areas are physically and psychologically comfortable and suitable for work.					
Flexible working hours (flexible working hours, part-time working hours, home office, tele-working) are applied.					
Customer relationship management					
Employee collaboration has created customer relationships.					
The firm tends to maintain loyal customer relationships.					
The partnership relationship between customers and the company has increased satisfaction.					
There is a good relationship between customers and firm's employment.					

Financial system	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The firm concentrates on what consumers value instead of the products which are sold by the firm.					
Inventory management					
The firm pays maximum attention to those inventories whose value is highest.					
The company uses Just-In-time (JIT)/lead time for purchasing system of inventory.					
The company has computerized all inventory management systems.					
The company uses Activity Based Costing analysis techniques.					
The staff of the company well trained on the use of Information Technology applications in inventory management.					
Product planning					
The goal of the firm is to create a promising design for its product.					
The firm takes into consideration the enhancement of customer and user involvement.					
The firm understands the requirements of its customers.					
The firm looks for enhancing the procedure of decision making.					
The firm follows higher innovative strength.					
Financial performance					
The profit of the company has increased in the last three years.					
The number of the asset (property) of our company has increased in the last three years.					
The number of working capitals has increased in the last three years.					
The number of sales growths has increased in the last three years.					
The firm presents the association's financial wellbeing in general during a particular time period.					

Dimension		Source
Financial systems	Independent variable	Babu (2018)
Human resources management		Esen & Ozer (2020)
Customer relationship management		Ridwan et al., (2021)
Inventory management		Anshur et al., (2018)
Product planning		Maurice et al., (2021)
Financial performance	Dependent variable	Nguyen et al., (2021) & Anshur et al., (2018)