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The Impact of Technological Innovation on the Development of Digital Entrepreneurship: An Analytical Study on a Sample of Employees at Asia Cell Telecommunications Company

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Abstract : This study aims to analyze the impact of technological innovation on the development of digital entrepreneurship through an applied investigation conducted at Asia Cell Telecommunications Company, one of the leading organizations operating in the telecommunications and information technology sector in Iraq. The company represents a fertile environment for implementing concepts of innovation and digital entrepreneurship, particularly in light of the accelerated digital transformation. The significance of this study stems from the increasing need for companies to enhance their competitive capabilities by investing in technological innovation as a strategic tool to support the transition toward sustainable digital entrepreneurship.The research employed the descriptive–analytical approach and utilized a field survey distributed to a sample of Asia Cell employees working in both technical and administrative departments. The instrument was designed to measure the dimensions of technological innovation—namely service innovation, process innovation, research and development expenditures, and patents—and to assess their impact on the development of digital entrepreneurship dimensions, which include digital knowledge, digital business environment, digital financing, and digital leadership.

The statistical analysis, conducted using SPSS, revealed a strong and significant correlation and impact between technological innovation in its various dimensions and the development of digital entrepreneurship. This indicates that innovative practices in services and processes, along with an emphasis on research and development, represent fundamental pillars in supporting the digital business environment at Asia Cell. The results further showed that fostering digital knowledge and digital leadership within the organization contributes to transforming technological innovation into tangible entrepreneurial outcomes, thereby enhancing the company's ability to innovate and respond to market changes. The study concludes with several recommendations, most notably the need to strengthen a culture of innovation within the work environment at Asia Cell, increase investment in research and development and patent activities, and empower digital leaders capable of directing work teams toward achieving excellence in digital services. Such efforts are essential for ensuring the sustainability of the company's competitive advantage within the Iraqi telecommunications sector.

Keywords: Technological Innovation, Digital Entrepreneurship, Asia Cell Telecommunications Company.

Introduction: Over the past two decades, the world has witnessed profound transformations driven by rapid technological advancements, which have reshaped business environments and given rise to new models of digital entrepreneurship. Organizations of all sizes increasingly rely on technological innovation to enhance their competitive capabilities, improve operational efficiency, and develop products and services based on digital knowledge. In this context, technological creativity represents one of the main drivers that contribute to building entrepreneurial environments capable of responding swiftly to digital transformations and meeting the demands of dynamic markets.

Recent literature emphasizes that the integration of advanced technologies—such as artificial intelligence, big data analytics, the Internet of Things, and cloud computing—is a critical factor in supporting entrepreneurs, enabling them to design innovative solutions and develop digital business models with added value. Technological creativity also enhances decision-making effectiveness, improves service quality, and creates new entrepreneurial opportunities, highlighting its pivotal role in the development of digital entrepreneurship ecosystems at both the local and global levels. Amid intense competition in digital markets, organizations are increasingly required to develop innovative technological capabilities that allow them to adapt to rapid changes in the business environment and to establish entrepreneurial mechanisms characterized by flexibility and sustainability. Based on this premise, the present study aims to analyze the role of technological creativity in fostering digital entrepreneurship through an exploratory study

in the telecommunications sector, which represents a fertile environment for digital transformations and a distinctive arena for adopting technological innovation and developing entrepreneurial practices. Regarding the research structure, the study is organized into four interconnected chapters. The first chapter addresses the methodological framework by defining the research problem, formulating its objectives, and clarifying its rationale, in addition to constructing the hypothetical model and deriving the research hypotheses, as well as outlining the study boundaries, data collection methods, and analytical tools. The second chapter focuses on the theoretical framework of the studied variables by discussing their fundamental concepts, dimensions, and significance. The third chapter is devoted to the practical aspect, including data analysis, hypothesis testing, and the presentation of results. Finally, the fourth chapter summarizes the key conclusions drawn from the study and provides a set of recommendations based on the research findings.

Chapter One: Research Methodology

First: Research Problem

Despite the rapid advancement in adopting digital technologies within business organizations, many institutions still face significant challenges in effectively implementing technological creativity in a way that directly contributes to the development of their entrepreneurial activities. This challenge is particularly pronounced in the telecommunications sector, which is characterized by a high pace of development and intensifying competition, requiring organizations to possess innovative capabilities that enhance their orientation toward digital entrepreneurship.

Accordingly, the research problem emerges from the lack of a clear understanding of the level of technological creativity at Asia Cell Company and its impact on fostering digital entrepreneurship, especially given the limited local studies addressing this topic in the research context. To identify solutions capable of addressing the research problem, the following questions were formulated:

1. Does Asia Cell Company possess the necessary components to promote technological creativity within its operational and entrepreneurial activities?
2. Do the employees of the company have sufficient awareness of the importance of technological creativity and its role in supporting the shift toward digital entrepreneurship?
3. Does technological creativity, including its tools and digital methods, contribute to the development of digital entrepreneurship outputs within the company?
4. To what extent can the adoption of technological creativity be considered a fundamental and essential factor in enhancing and developing digital entrepreneurship?
5. Is there a statistically significant correlation and effect between technological creativity and the development of digital entrepreneurship at Asia Cell Company?

Secondly: The Importance of the Research

1. The importance stems from addressing a fundamental issue in the contemporary business environment: the growing role of technological innovation in supporting digital transformation and enhancing entrepreneurial initiatives within business organizations. This is particularly significant given the accelerating pace of technological developments and intensifying competition in the telecommunications sector.
2. There is a growing need for a deeper understanding of how to employ technological innovation as a strategic factor that contributes to building sustainable competitive advantages.
3. The study examines the relationship between technological innovation and digital entrepreneurship within the context of a leading telecommunications company such as AsiaCell, an environment that has not received sufficient academic research, especially in Iraq. The research also provides an analytical framework to help managers and decision-makers leverage technical capabilities and innovations to develop more efficient digital services, thereby contributing to sustainable growth and enhancing competitive presence in the market.
4. **Theoretical/Cognitive Importance**: Through exploring the concept of technological innovation and its dimensions, as well as identifying entrepreneurship and its dimensions by reviewing the perspectives of scholars in this field. This helps establish a theoretical foundation that can be utilized for academic purposes.
5. **Practical/Scientific Importance**: By taking a sample of individuals—the study subjects from AsiaCell company—to measure the extent of awareness among AsiaCell employees regarding the importance of technological innovation and its impact on improving services provided to users.

Thirdly: Research Objectives

This research aims to analyze the role played by technological innovation in enhancing digital entrepreneurship within AsiaCell company. The main objectives can be summarized as follows:

1. Determine the level of technological innovation at AsiaCell and diagnose the technical and innovative capabilities the organization possesses in the context of digital transformation.
2. Reveal the reality of digital entrepreneurship within the company, and clarify the extent of its adoption of technology-based entrepreneurial practices and digital platforms.
3. Analyze the impact of technological innovation on developing digital entrepreneurship within the organization, and determine the nature of the relationship between them in terms of correlation and influence.
4. Investigate the extent to which technological innovation can support entrepreneurial initiatives in the company by enhancing organizational flexibility, improving customer experience, and developing new digital services.
5. Provide a set of practical recommendations based on the study's findings, aimed at enhancing innovative practices and supporting digital entrepreneurship pathways at AsiaCell, thereby contributing to improving its competitiveness and sustaining its performance.

Fifthly: Research Hypotheses

Research hypotheses represent the fundamental building block and backbone of any systematic study. They are not mere guesses, but rather temporary answers based on theoretical foundations to the research questions. To study the complex relationship between two pivotal variables in the modern business world, such as "Technological Innovation" and "Digital Entrepreneurship," there is a pressing need to formulate clear and precise hypotheses. In this research focusing on "AsiaCell," to understand the nature of the mutual influence between the company's capacity for technological innovation (the independent variable) and its ability to develop digital entrepreneurial projects (the dependent variable), the following two main hypotheses are proposed:

1. **First Main Hypothesis:** There is a statistically significant correlation between the first variable, technological innovation and its dimensions, and the second variable, digital entrepreneurship and its dimensions, within AsiaCell company. The following sub-hypotheses stem from this main hypothesis:
   - There is a statistically significant correlation between service innovation and digital entrepreneurship within AsiaCell company.
   - There is a statistically significant correlation between process innovation and digital entrepreneurship within AsiaCell company.
   - There is a statistically significant correlation between Research & Development (R&D) expenditures and digital entrepreneurship within AsiaCell company.
   - There is a statistically significant correlation between patents and digital entrepreneurship within AsiaCell company.
2. **Second Main Hypothesis:** There is a statistically significant effect (impact) relationship between the first variable, technological innovation and its dimensions, and the second variable, digital entrepreneurship and its dimensions, within AsiaCell company. The following sub-hypotheses stem from this main hypothesis:
   - There is a statistically significant effect of service innovation on digital entrepreneurship within AsiaCell company.
   - There is a statistically significant effect of process innovation on digital entrepreneurship within AsiaCell company.
   - There is a statistically significant effect of Research & Development (R&D) expenditures on digital entrepreneurship within AsiaCell company.
   - There is a statistically significant effect of patents on digital entrepreneurship within AsiaCell company.

Sixthly: Research Boundaries/Limitations

1. **Spatial Boundaries:** The spatial boundaries of this research are represented by AsiaCell Telecommunications Company, as the organizational environment in which the field study component was conducted. The company was selected because it is one of the most important institutions in Iraq's telecommunications sector, making AsiaCell a suitable model for studying the relationship between technological innovation and digital entrepreneurship in a work environment fundamentally reliant on technical and knowledge development.

2. **Temporal Boundaries:** The temporal boundaries of the research encompass the period from (**25/10/2025 to 23/11/2025**). This is the duration during which field data collection, personal interviews, and analysis related to the variables of technological innovation and digital entrepreneurship within AsiaCell company were carried out.
3. **Human/Population Boundaries:** These were represented by the research sample selected from employees working at AsiaCell company. The sample size consisted of **(54)** individuals from various categories and administrative levels.

Seventhly: Research Tools

The following tools were used to achieve the research objectives:

1. **Theoretical/Conceptual Tools:** Included academic books, research published in globally peer-reviewed journals, university theses and dissertations, as well as recent reports and studies related to the variables of technological innovation and digital entrepreneurship. These sources contributed to building the theoretical framework, defining basic concepts and variable dimensions, and formulating the hypotheses.
2. **Field Study Tools:** The field study relied on two main tools for data collection within AsiaCell company:
   - **Personal Interview:** Aimed at clarifying the research variables and inquiring about their opinions related to technological innovation and digital entrepreneurship.
   - **Questionnaire/Survey Form:** Adopted as the primary tool for data collection. It was designed based on a five-point Likert scale to measure the sample's opinions regarding the dimensions of technological innovation and digital entrepreneurship.

Eighthly: Statistical Analysis Tools

1. **Simple Correlation Coefficient:** Used to measure the level of the relationship between technological innovation and digital entrepreneurship.
2. **Simple Linear Regression Coefficient:** Used to reveal the effect of the independent variable on the dependent variable.
3. **Coefficient of Determination (R^2):** Used to indicate the proportion of variance in the dependent variable explained by the independent variable(s).
4. **t-test:** Used to verify the statistical significance of correlation relationships.
5. **F-test:** Used to measure the significance of effect relationships within the regression model.
6. **Statistical Software (SPSS):** Was employed for data processing and executing the statistical analyses related to the research variables.

Chapter Two / Theoretical Framework

The First Variable: Technological Innovation

First – The Concept of Technological Innovation:

The term 'Technological Innovation' is used to denote the process of developing or inventing something new in the technical field. It is considered one of the pivotal elements that successful organizations continuously invest in to enhance their competitive capabilities. These organizations strive for continuous innovation to keep pace with rapid market changes and meet the evolving needs of consumers. In this context, Slater et al. (2010: 553) define it as the strategic ability to design and develop products and services that align with changing market requirements, thereby enhancing the organization's ability to adapt to a dynamic business environment. Sihvonen et al. (2014: 137) indicate that technological innovation represents an organization's ability to transform ideas and knowledge into innovative systems, processes, and products, with a focus on continuous improvement that serves the organization and its stakeholders. In the same vein, Lahsen & Sarraj (2023: 373) affirm that various schools of thought have presented multiple frameworks for defining technological innovation, given that it is one of the key processes adopted by economic institutions to confront rapid developments in the global economy and the accompanying competition and fluctuations that require enhancing competitiveness and achieving sustainable added value. Technological innovation is also viewed as the ability of an individual or organization to transcend traditional thinking patterns and adopt new methods, a point emphasized by multiple definitions that consider it a change in the technological content of goods or an improvement in the ways they are used. Awaadi & Bouzid (2021: 382) see it as encompassing the introduction of new or improved goods or services in terms of their characteristics and functions. Stundziene et al. (2024: 7) add that technological innovation is associated with developing new products and processes or introducing substantial improvements to existing products and processes, which opens wide opportunities for profit generation and necessitates reorganizing production processes to enhance efficiency and reduce costs. Technological innovation also

represents companies' ability to generate innovative ideas and new solutions to problems through technological transformation processes that contribute to creating new knowledge adopted by companies to foster their development. Al-Amri (2005: 147) posits that technological innovation includes developing new ideas or improving business practices through the use of modern technologies that elevate performance levels, emphasizing that continuous innovation requires investing in updating technologies and equipment to improve productivity and enhance efficiency. Literature clarifies that quality in the global economy relies on innovation as a pillar for sustainable growth, prompting companies to adopt technological innovation to be able to keep pace with rapid changes (Kadri & Basidi, 2021: 16). Launching new products based on innovative technologies is a fundamental element in improving quality and efficiency, thereby strengthening competitiveness in global markets. Many researchers, including Al-Tayeb (2010: 73), point out that technological innovation is a critical element in enhancing product effectiveness and ensuring their successful market entry. Gokhberg & Meisser (2020: 199) explain that technological innovation is an essential activity involving continuous research and development aimed at innovating new technologies and improving products, which contributes to increasing productivity and reducing costs. Wang & Luo (2020: 2) affirm that research and development is a key tool in manufacturing processes through product development, improvement, and market expansion. Technological innovation also supports organizations' competitive capabilities by adopting innovative methods to improve performance and raise production efficiency (Ferreira et al., 2021: 1). In another definition, Akinwale et al. (2017: 78) indicate that technological innovation involves introducing or developing new products or using modern technologies that combine innovative applications and advanced knowledge. In light of the preceding concepts of technological innovation, a comprehensive definition can be provided: Technological Innovation is the ability to develop various ideas and modern technologies to improve services and products or solve complex problems, or to develop innovative technologies and enhance effectiveness and efficiency in areas such as manufacturing, communications, and programming.

Secondly: The Importance of Technological Innovation

The importance of technological innovation is closely linked to the significant pressures organizations face due to market competition. This pressure drives organizations to offer innovative products and services that distinguish them from their competitors, thereby aiding their survival in the markets. Innovation also helps organizations improve their processes, contributing to higher profits and supporting investment in new areas with broad profitability horizons, as this leads to improved organizational efficiency (Schilling, 2017: 1). Additionally, technological innovation contributes to reducing costs and enhancing customer satisfaction, leading to better performance organization and achieving outstanding results. Technological innovation also contributes to defining growth strategies within a company's organizational structure, as it helps enhance competitive capability (Subrahmanya, 2015: 24). Daki (2006:29) clarifies that the importance of technological innovation lies significantly in its reliance on creative and imaginative capacities. Society always needs creative and imaginative individuals, meaning people capable of devising innovative solutions to problems, who work with broad imagination to connect and unify previously scattered skills. Creative and imaginative experiences provide a great opportunity for achieving progress and development in various fields. With continuous technological development, technological innovation has become a fundamental and necessary factor for achieving institutional success. Creativity is considered the cornerstone of companies' ability to grow and adapt in the modern business environment, as it is closely linked to the ability to renew methods and work techniques. Currently, the evaluation of organizational performance heavily depends on the extent of their ability to effectively apply technological innovation. The concept of technological innovation is linked to rapid developments in the field of economic development, which is crucial in improving institutions' ability to keep pace with accelerating changes across various sectors (Hannawi, 2015: 12). Improving consumer service contributes to offering new products with high quality and competitive prices that meet their growing needs. Amid rapid technological developments, industrial organizations rely on innovations and technological creativity to enhance their competitiveness. This helps improve market strategies and expand the demand for new products and services (Al-Samarrai, 2007, 7). Increasing global competition has imposed significant challenges on organizations, necessitating their rapid adaptation to a complex work environment. This requires continuous creativity and finding effective solutions to keep pace with rapid market changes, such as reducing prices and introducing new products that keep up with competition (Al-Akhdar, 2011: 10). Technological innovation significantly impacts the axes of economic growth in economic organizations, as it fundamentally relies on research and development activities that contribute to improving services and products. These activities can contribute to changing organizations' directions towards continuous improvement and

development of products, helping to correct errors and provide additions that contribute to production renewal (Zawawi, 2018: 94). Organizations' ability to adapt to environmental changes depends on improving their performance and exploiting available opportunities through creativity and innovation, which helps them attract new customers and achieve their goals. The ability for creativity and modern technology is also considered one of the main factors that help organizations confront challenges and enhance their ability to transform ideas into products that meet customer needs (Abdul Raouf, 2016: 327). Achieving strategic objectives within the organization is important for achieving distinction and growth, including reducing costs and increasing revenues through process improvement and sales enhancement. This is done by improving the organization's image internally and externally using various methods that ensure long-term success (Al-Rawi, 2007:7). Developing human capital through qualification and training in the field of technology, in addition to broad participation in research and development processes, contributes to this, as many organizations focus on allocating a portion of their resources to stimulate creativity. Some organizations have shown notable success in this field, becoming leaders in innovation, while only a few have managed to sustain due to the challenges and risks associated with innovation. The sustainable value of innovation processes, especially in advanced stages, remains a fundamental incentive for successful institutions.

Third: The Objectives of Technological Innovation

Technological innovation refers to the process of developing modern or improved technologies that enhance the way we live, interact, and work. The main objectives of technological innovation revolve around enhancing effectiveness and efficiency, finding solutions to problems, and creating new opportunities for prosperity. Both (Brynjolfsson & McAfee, 2014, 67; Davenport & Westerman, 2018, 45) add that the objectives of technological innovation lie in the following points: -

A. Increasing Efficiency: Technological innovation often aims to automate tasks, reduce human error, and increase productivity. This objective helps companies and individuals save time, reduce costs, and boost production.

B. Solving Complex Problems: New technologies can address global challenges such as climate change, health crises, and energy shortages by providing sustainable solutions that were previously unavailable.

C. Improving Quality of Life: By developing new devices, applications, and systems, technological innovations can improve people's daily lives, making them safer, more enjoyable, and more connected.

D. Promoting Economic Growth: Technological innovation often leads to new markets, job creation, and the development of new industries, contributing to overall economic growth.

(Wang et al., 2022: 3) indicates that the primary objective of technological innovation is to improve product specifications using technology, which requires providing features and advantages that suit market needs. This requires effective specification management to provide the optimal product that contributes to project success. Furthermore, today's competition relies on improving these specifications and offering a product that aligns with customer needs.

Fourth: The Dimensions of Technological Innovatio

There are many dimensions of technological innovation according to the views of researchers and authors, attributed to the differing objectives that researchers seek to achieve. In this research, four fundamental dimensions were identified and adopted by the researcher because they are the closest to the study sample. These dimensions can be referred to as follows (Mohammed, 2021, 37):

Service Innovation: - Innovation in service delivery involves making several changes to the characteristics of the service or introducing new services that meet needs through improved methods. This concept is defined as the process of continuous development and modification of existing services, aiming to meet the changing desires and needs of customers. Continuous improvement procedures for the current service are a fundamental necessity; organizations strive to exceed those expectations and provide services that surpass what is expected by competitors (Ali et al., 2023: 255). Essentially,

service innovation is changing the specifications and characteristics of the product, whether goods or services, to better meet the needs and desires of customers. This dimension is considered one of the best and most important dimensions of technological innovation, as one of the main objectives of service innovation is to improve and modify products to satisfy customer needs (Mohammed & Al-Ta'i, 2022: 48). In general, improving or developing current products or services may involve making continuous modifications in response to customer needs and desires. The goal is not only to improve the current product or service but also to ensure the continuation of permanent improvements (Hassan, Obaid: 2018, 63).

Process Innovation: - Process innovation is one of the main dimensions of technological innovation, focusing on developing and improving methods of production and operation within the institution. In this context, (Omran, 2020: 18) indicates that the process of innovation and production fundamentally depends on developing the offensive capabilities of organizations; the secret of innovation's success lies in empowering organizations with strong competitive capabilities, relying on developing internal research and development departments, as these departments are responsible for preparing new products and improving their marketing methods.

Research and Development (R&D) Expenditures: - Research and development expenditures are among the most prominent indicators widely used to measure the level of organizations' investment in the fields of creativity and innovation. Many organizations that allocate large budgets for research and development include these expenditures in their annual budgets, contributing to the provision of extended time-series databases containing valuable information about the extent of institutions' interest in innovation (Hayat, 2021: 200). Careful investigation and the scientific use of information are considered fundamental bases of organizational knowledge, due to their effective role in discovering new facts and developing products or services in a way that serves the profit objectives of the institution. This requires allocating sufficient resources to the research and development process as the main driver of creativity and innovation within the organization (Abdul Wahab, 2017, 105).

Patents: - A patent is an official certificate issued by competent authorities, granting the inventor exclusive rights to exploit their invention for a specified period, during which others are prevented from manufacturing, using, or selling the invention without their permission.

Second Variable: Digital Entrepreneurship

1- The Concept of Digital Entrepreneurship:

Digital entrepreneurship is considered one of the modern concepts that emerged with the widespread digital transformation in business environments. A number of researchers have addressed it with definitions that are convergent in content and meaning. The term digital entrepreneurship is a new concept that has become widely used in the field of corporate governance. It is typically used to describe the process of creating a new internet-based service, tool, function, or product, reflecting the growing role of technology in developing modern business models. (Bandera, 2026:2) indicated that digital entrepreneurship is the extensive use of digital cloud technologies, mobile devices, big data, and social media in the practice of entrepreneurial activities. This highlights that technology is not merely a supportive tool but a fundamental element in the structure of modern entrepreneurial projects. Furthermore, (Li et al., 2017:4) added that digital entrepreneurship focuses on seizing opportunities based on digital technologies, while other types of entrepreneurship pursue opportunities based on knowledge, organizations, or capital. In other words, it relies on digital infrastructure as the foundation for innovation and competitive advantage. (Dinh le et al., 2028:1) added that digital entrepreneurship represents the reconciliation between traditional entrepreneurship and the new methods of creating and practicing business in the digital age. It does not negate the classical principles of entrepreneurship but rather reshapes them to fit the digital economy environment. (Abdullah, 2024:754) also added that digital entrepreneurship encompasses all electronic technologies and software used via the internet, which enable the execution and management of commercial activities through information exchange and remote service delivery, emphasizing the virtual and flexible nature that distinguishes this type of entrepreneurship. By reviewing the preceding definitions, the rapid advancement of internet-based information and communication technologies has contributed to a qualitative shift in the concept of entrepreneurship. These developments have given rise to what is known as digital entrepreneurship, which relies on leveraging modern technologies to develop innovative, more efficient, and profitable products and services, granting it a sustainable competitive advantage. With the accelerating digital transformation, the focus in modern entrepreneurship has shifted from tangible physical assets to intangible knowledge assets, such as skills, experiences, and knowledge. This contributes to building a sustainable knowledge-based economy capable of renewal and continuous competitiveness (Singh, 2024:13). The researcher can deduce a comprehensive and integrated definition for the concept of digital entrepreneurship as follows: It is a modern form of entrepreneurship, based on employing advanced digital technologies – such as the internet, cloud computing, social media, and big data – with the aim of creating new projects or developing existing ones, through digital business models that enable the delivery of value in an innovative and effective manner.

Secondly: The Importance of Digital Entrepreneurship

Modern digital technologies have contributed to reshaping the business environment and communication methods by enabling innovative approaches centered on new digital technologies characterized by flexibility and dynamism. This

has brought about a transformation in the nature of markets and redefined stability in the economic sphere. This transformation has also paved the way for institutions to discover new opportunities and enhance their operational and commercial efficiency by employing digital technology across various activities. In this context, digitalization has become a fundamental factor enabling institutions to develop more innovative and robust business models and deliver distinguished and unique customer experiences, thereby enhancing their competitive advantage and sustainability in a changing and fast-paced business environment (Upadhyay et al., 2022, p. 84).

Digital transformations also contribute to expanding the scope of entrepreneurial operations by opening new avenues for growth and diversification, enhancing institutions' ability to expand into multiple markets and adopt more flexible business models. Furthermore, adopting digital technologies contributes to enhancing institutional innovation by providing tools that support collaboration among internal teams and increase their flexibility in dealing with environmental and technological changes, positively impacting their capacity for creativity and continuous adaptation. In addition, digital platforms facilitate building accessible innovation systems more effectively, supporting the formation of an interactive digital environment that contributes to entrenching a culture of innovation and entrepreneurship within institutions (Hut & Teuton, 2021:116). Entrepreneurship is considered a pivotal element in driving economic growth and enhancing societies' developmental capabilities, as it empowers generations to invest in available opportunities and embrace the spirit of initiative and innovation, leading to the creation of sustainable projects capable of achieving profitability and growth (Al-Sheikh et al., 2009: 497). From another perspective, modern literature emphasizes the importance of the role played by entrepreneurship in contemporary societies due to its broad positive impact on comprehensive development (Al-Ani et al., 2019:28). The impact of entrepreneurship is evident through its ability to effect change and transformation within institutions, as creativity is one of the essential characteristics of entrepreneurship, supporting entrepreneurial systems in leading change by adopting innovative practices and activities that contribute to generating new projects. These projects represent a fundamental resource for supporting and developing economic growth and provide long-term employment opportunities that contribute to enhancing economic and social stability. They also work to raise levels of efficiency and productivity by enhancing competitiveness in markets, in addition to their role in changing market structure and stimulating the adoption of organizational and technological innovation. This supports the transformation of economies towards more flexible and effective models. Digitalization has contributed to redefining traditional business models by developing products and services in innovative ways that go beyond core entrepreneurial activities to include support activities related to the business value chain. This occurs through creating digital structures that enable the transformation of traditional companies into more adaptable and flexible digital businesses in facing market variables. Digitalization contributes to enhancing institutions' capacity for expansion and sustainable growth through rapid response to market needs. This is achieved by developing a range of new products and services or redesigning existing products in innovative ways that add higher economic and social value, in addition to reducing operational costs and enhancing efficiency (Naude, 2024:7).

Thirdly: Dimensions of Digital Entrepreneurship

The current research relies on the following four dimensions (Digital Knowledge, Digital Business Environment, Digital Finance, and Digital Leadership) as they are the most consistent with the nature and objectives of the study field. The selection of these dimensions is due to their ability to explain the role of digital transformation in enhancing digital entrepreneurship, especially given their connection to influential factors such as digital finance and digital leadership, which aligns with the research hypotheses and theoretical framework. (Al-Jabri, 2020:9).

1. Digital Knowledge:

Digital knowledge is a fundamental pillar in building entrepreneurial capabilities within institutions, as it contributes to developing organizational knowledge and transforming it into innovative solutions that support competitive organizations. It is not merely individual efforts, but rather a collaborative process among various parties and stakeholders. Utilizing digital knowledge enables the production, storage, application, and sharing of information, developing digital platforms and new services that enhance an institution's ability to meet market needs and deliver innovative products. (Goyal, 2023:23).

The literature indicates that the spread of digital technology, the availability of big data, and seamless access to information have helped create a dynamic environment that stimulates technological innovation and contributes to elevating entrepreneurial performance by enhancing interaction and collaborative knowledge both inside and outside the institution. Studies have also shown that developing digital knowledge is an essential driver for increasing

productivity, expanding innovation opportunities, and empowering companies to develop new digital applications that enhance their ability to compete and respond to market changes. This supports the development of entrepreneurship and enhances a company's survival in the rapidly accelerating digital business environment. (Koklet et al., :49).

2. Digital Business Environment:

The digital business environment plays a pivotal role in enhancing the entrepreneurial capability of institutions by bringing about fundamental changes in customer behavior and expectations, and in the nature of interactions with partners and suppliers. This environment contributes to creating a more intelligent competitive ecosystem through reliance on advanced web technologies, big data analytics, information systems, and cloud computing, which enable institutions to monitor market activities and develop innovative strategies in response to rapid changes. (Nayyar, 2020:113).

The digital environment also allows for building collaborative relationships among employees, companies, and technologies, and encourages the generation of shared value through digital platforms that provide innovative solutions and specialized applications meeting the needs of customers and various industries. Recent studies indicate that the platform-based digital environment and interactive technological structures represent an important source of technological innovation, due to the advanced digital tools and services they provide. These help actors design innovations that contribute to improving entrepreneurial performance and expanding companies' competitive capabilities in the markets. (Senyo et al., 2019:53).

3. Digital Finance:

Digital finance represents one of the main drivers for enhancing technological innovation in entrepreneurship, as it contributes to expanding funding sources for entrepreneurial companies and reducing constraints associated with traditional financing processes. Digital financial technologies provide innovative financing channels based on advanced technological solutions and intelligent platforms, enabling companies to access funding with higher efficiency and lower cost. This supports their ability to adopt innovation and develop products and services that align with changing market requirements. (Fan et al., 2022:3).

Digital finance also provides new models based on advanced analytics, communication technologies, and cloud computing, which enhances companies' competitiveness and enables them to respond to entrepreneurial opportunities with greater speed and flexibility. These models offer digital financial solutions that companies can benefit from anytime and anywhere, contributing to accelerating their growth and improving their ability to make investment decisions based on accurate data. (Gomber et al., 2017:538).

Modern literature confirms that digital finance has become a strategic factor in supporting entrepreneurial innovation pathways by encouraging companies to invest in modern technologies and adopt innovative practices in finance, management, and production, leading to the delivery of high-quality products and services that meet the changing needs of customers. Therefore, digital finance forms a supportive framework for technological innovation, due to the flexibility, speed of response, and ability to create a more dynamic environment it provides for entrepreneurial companies in contemporary markets. (Wang, 2024:407).

4. Digital Leadership:

Digital leadership in the current era is a fundamental pillar for enhancing technological innovation within entrepreneurial institutions, due to its pivotal role in managing human resources and developing organizational capabilities. It represents a strategic resource that contributes to raising companies' efficiency and improving their performance by supporting digital transformation initiatives, adopting modern technologies, and directing resources towards value-added activities that enhance competitiveness and growth.The digital leader effectively influences the institution's ability to adapt to rapid changes through possessing a strategic vision and the ability to integrate digital technologies into various operational processes, which enhances decision-making speed and improves the work environment. Digital leadership is also based on a methodology centered on continuous learning, empowering employees to acquire necessary digital skills, and building an internal culture of innovation that allows for developing new technological solutions suited to changing market needs.In the context of entrepreneurship, digital leadership emerges as a pivotal factor in directing technological innovation strategies and supporting entrepreneurial projects by employing digital knowledge, leveraging big data, and developing intelligent digital platforms that contribute to creating a sustainable competitive environment. This leadership enables entrepreneurial companies to face the challenges of the digital environment by possessing advanced skills in change management and motivating work teams to adopt innovative working methods. Consequently, digital leadership has become one of the central pillars in

developing technological innovation within entrepreneurial institutions, as it contributes to building effective organizational capabilities and enhancing sustainability in a dynamic business environment reliant on continuous innovation and development. It also provides an integrative framework that enables developing employee skills, entrenching a culture of self-learning, and directing efforts towards investing in modern technologies to formulate entrepreneurial strategies capable of achieving growth and adapting to market challenges.

Chapter Three: The Practical Aspect

First: Description and Analysis of the Study Sample's Opinions on the Two Variables

The current chapter aims to study and diagnose the opinions of the research sample regarding the two variables adopted by the researchers: the independent variable (Technological Innovation and its four dimensions: Service Innovation, Process Innovation, Research and Development Expenditures, and Patents) and the dependent variable (Digital Entrepreneurship and its four dimensions: Digital Knowledge, Digital Business Environment, Digital Finance, and Digital Leadership). The following table describes the opinions of the study sample.

Table (1): Analysis of the Correlation Relationship Between Technological Innovation and Daily Business Entrepreneurship

Dimensions	Mean	Std. Dev.	Coefficient of Variation	Response Intensity %	t-test
Service Innovation	3.787	0.365	9.75%	74.85%	75.23
Process Innovation	3.782	0.414	10.22%	75.75%	67.28
Research & Development Activities	3.860	0.427	11.07%	77.21%	66.68
Innovation Leadership	3.80	0.388	10.94%	76.03%	72.02
Technological Innovation	3.798	0.320	8.45%	75.96%	86.06
Knowledge Awareness	3.621	0.474	13.10%	72.42%	55.7
Digital Business Environment	3.583	0.446	12.15%	73.62%	60.30
Digital Financing	3.562	0.511	12.43%	71.80%	58.70
Digital Leadership	3.526	0.442	14.35%	71.24%	50.77
Digital Entrepreneurship	3.687	0.442	11.75%	72.28%	62.18

Source: SPSS Outputs

1— Description and Diagnosis of Technological Innovation Dimensions

A— Service Innovation:

In Table (1), the weighted arithmetic mean for the Service Innovation dimension reached (3.787), which is higher than the hypothetical arithmetic mean of (3). The standard deviation for this dimension was (0.365), indicating homogeneity in the data. Meanwhile, the coefficient of variation for this dimension reached (9.75%), and the response intensity was (74.85%). This indicates that the opinions of the study sample showed great interest in this dimension (**Service Innovation**), which had a significant role in influencing the responses of the sample under study. This dimension is considered one of the clearest in terms of concept and receives substantial attention from the individuals in the study sample, as the company primarily seeks to provide the best possible services to customers. In addition, the results were confirmed through the t-test, which reached (75.23), a value higher than the tabulated value.

B— Process Innovation:

In Table (1) above, the results show that the arithmetic mean for the**(Process Innovation**)dimension reached (3.782), and the coefficient of variation was (10.22%), while the standard deviation was (0.414). The weighted arithmetic mean showed values higher than the hypothetical mean of (3) for the measurement tool.The response intensity for the individuals in the sample reached (75.75%), which indicates that this dimension (**Process Innovation**) is the second clearest in terms of conceptual understanding among the study sample. The individuals in the sample also recognize the importance of process innovation through research and development, and by granting full authority to accomplish tasks.This is further supported by the t-test, where the calculated value reached (67.28), which is considered higher than the tabulated value.

C— Research and Development Expenditures:

In Table (1), the weighted arithmetic mean for this dimension (**Research and Development Expenditures)** reached (3.860), while the standard deviation was (0.427). The coefficient of variation reached (11.07%), and the weighted arithmetic mean was higher than the hypothetical mean of the measurement tool.The response intensity for this dimension among the sample members reached (77.21%), which indicates that the Research and Development Expenditures dimension was one of the most important dimensions for the study sample, as reflected in their responses. This is also confirmed by the calculated t-value, which reached (66.68) and is considered higher than the tabulated value. This indicates that Asiacell Company pays significant attention to research and development expenditures and allocates funds accordingly to achieve advancement and progress.

D— Patent:

In Table (1), the results showed that the arithmetic mean for the(**Patent**) dimension reached (3.80), with a standard deviation of (0.388) and a coefficient of variation of (10.94%). The results indicated that the arithmetic mean of the Patent dimension was higher than the hypothetical mean of the measurement tool, which is (3). This indicates that this dimension is one of the important dimensions for the study sample. The results also showed that the calculated value was greater than the tabulated value, as the calculated value reached (72.02).

E — Technological Innovation:

From the previous table, Table (1), it is observed that the independent variable **(Technological Innovation**) recorded an arithmetic mean of (3.798), with a standard deviation of (0.320), while the coefficient of variation reached (8.45%). The response intensity percentage from the study sample amounted to (75.96%). The weighted arithmetic mean showed results higher than the hypothetical mean of the measurement tool, which is (3).Based on the above, it is evident that the dimension (Service Innovation) is considered one of the most important dimensions within the Technological Innovation variable. This is reflected through the responses of the study sample, as the participants recognized that service innovation provided to customers is the primary objective that Asiacell strives to achieve.

Ranking the Importance of Technological Innovation Dimensions

Based on Table (1), the Service Innovation dimension ranked first according to the results obtained and based on the coefficient of variation, as it is the most accurate indicator for determining the dispersion of the sample's responses. It was followed by Patent in the second rank, then Process Innovation ranked third, while Research and Development Expenditures came in the fourth and final rank.

2— Description and Diagnosis of Digital Entrepreneurship Dimensions

A— Digital Knowledge:

The weighted arithmetic mean for the (Digital Knowledge) dimension reached (3.521), which is higher than the hypothetical mean value of (3). The standard deviation for this dimension was (0.574), indicating homogeneity of the data. The coefficient of variation amounted to (13.9%), while the response intensity reached (72.32%). This indicates that the study sample gave considerable attention to this dimension **(Digital Knowledge**), which had a significant influence on the respondents' answers. In addition, the results were confirmed through the t-test, where the calculated value (55.5) was higher than the tabulated value.

B— Digital Business Environment:

According to Table (1), the results show that the arithmetic mean for the Digital Business Environment dimension was (3.583), with a coefficient of variation of (12.13%) and a standard deviation of (0.347). The weighted arithmetic mean recorded values higher than the hypothetical mean of the measurement tool (3). The response intensity among the individuals in the sample reached (73.56%), indicating that this dimension **(Digital Business Environment)** is one of the clearest dimensions for the respondents in the study sample. The respondents also recognize the importance of this dimension in responding to interactions occurring within the business environment. This is further confirmed by the t-test, where the calculated value (60.20) exceeded the tabulated value.

C — Digital Finance:

The results in Table (1) show that the weighted arithmetic mean for the Digital Finance dimension reached (3.48), with a standard deviation of (0.346) and a coefficient of variation of (12.33%). The weighted mean was higher than the arithmetic mean of the measurement tool. The response intensity for this dimension among the sample individuals reached (71.70%), indicating that the (**Digital Finance**) dimension received considerable importance from the study sample through their responses. This is also confirmed by the calculated t-value, which amounted to (58.60),

exceeding the tabulated value. This indicates that Asiacell Company relies on digital finance and considers it a fundamental basis for innovation growth.

D— Digital Leadership:

According to Table (1), the results show that the weighted arithmetic mean for the Digital Leadership dimension reached (3.461), with a standard deviation of (0.411) and a coefficient of variation of (14.25%). The weighted mean was higher than the arithmetic mean of the measurement tool. The response intensity for this dimension among the sample individuals reached (71.23%), which is also confirmed by the calculated t-value of (50.67%), exceeding the tabulated value. This indicates that Asiacell Company places great importance on this dimension.

Importance Ranking of the Dependent Variable – Digital Entrepreneurship

Based on the results shown in Table (1) and illustrated in Figure (1), the relative importance of the dependent variable, digital entrepreneurship, as perceived by the study sample, is as follows: The digital business environment ranked first in importance according to the results and the coefficient of variation, as it is considered the most precise in determining the dispersion of the sample's opinions. This was followed by digital finance, which ranked second, then digital knowledge in third place, and finally, digital leadership, which came fourth and last.

Second: Testing the Correlation and Impact Relationship Between the Two Variables

A — Testing the Correlation Relationship:

Based on Table (2), which presents the results of the correlation relationship between the study variables (Technological Innovation — Digital Entrepreneurship) and their respective dimensions, the findings of the correlation analysis are shown in the following table.

Table (2): Impact Relationship between Technological Innovation and Digital Entrepreneurship

Digital Entrepreneurship Dimensions	Service Innovation	Process Innovation	R&D Expenditures	Patents	Technological Innovation	Statistic
Digital Knowledge	.370(**)	.332(**)	.381(**)	.451(**)	.478(**)	Pearson Correlation
Sig. (2-tailed)	.000	.043	.000	.000	.000	
Digital Business Environment	.368(**)	.458(**)	.271(*)	.534(**)	.507(**)	Pearson Correlation
Sig. (2-tailed)	.000	.001	.015	.000	.000	
Digital Financing	.526(**)	.489(**)	.387(**)	.473(**)	.580(**)	Pearson Correlation
Sig. (2-tailed)	.000	.107	.000	.000	.000	
Digital Leadership	.513(**)	.384(**)	.355(**)	.384(**)	.507(**)	Pearson Correlation
Sig. (2-tailed)	.000	.025	.000	.000	.000	
Digital Entrepreneurship	.504(**)	.456(**)	.388(**)	.508(**)	.573(**)	Pearson Correlation
Sig. (2-tailed)	.000	.050	.000	.000	.000	

Source: Prepared by the researchers based on SPSS outputs

The table demonstrates the following:

A— The table above indicates the existence of a positive and statistically significant correlation at the 1% significance level between the dimensions of technological innovation, as independent variables, and the dimensions of digital entrepreneurship, as dependent variables. The correlation coefficients show positive and significant values across all relationships, indicating the strength and consistency of the association between the two variables. The table reveals that the dimensions of technological innovation**(service innovation, process innovation, research and development, and patenting**) are significantly correlated with the dimensions of digital entrepreneurship, namely: (**digital knowledge, digital business environment, digital financing, digital leadership, and digital entrepreneurship**). The correlation coefficients between technological innovation as the main variable and the dimensions of digital entrepreneurship were (0.478, 0.507, 0.580, 0.507, 0.573), reflecting varying degrees of strong correlations, all significant at the 1% level. Therefore, the main hypotheses (H1), which assert the existence of a statistically significant correlation between the two variables, must be accepted. This implies that higher levels of technological innovation within Asia Cell contribute clearly to enhancing its digital entrepreneurial capabilities—whether through improving digital knowledge, supporting the digital business environment, strengthening digital

financing, or advancing digital leadership. Consequently, investment in technological innovation represents a key factor in supporting the development of digital entrepreneurship and achieving sustainable competitive advantage within Asia Cel.

B — The table above indicates the presence of a positive and statistically significant correlation at the 1% significance level between technological innovation as the main independent variable, and digital entrepreneurship as the main dependent variable. The correlation coefficient between service innovation—being one of the dimensions of the independent variable—and digital entrepreneurship as the dependent variable reached (0.405), which indicates a strong relationship between (**service innovation and digital entrepreneurship)**. The correlation coefficients between service innovation, as one of the dimensions of the independent variable, and each of the dimensions of the dependent variable—digital knowledge, digital business environment, digital financing, and digital leadership—being the sub-variables adopted in the study, were reported as (0.370, 0.368, 0.526, 0.513, 0.504), respectively. This provides clear evidence of a positive and statistically significant correlation at the 1% significance level. This result supports the acceptance of the study hypothesis (H1), which asserts the existence of a statistically significant relationship. It further confirms that service innovation directly contributes to improving digital entrepreneurship, with a confidence level of 99%.

C — The table above indicates the presence of a positive and statistically significant correlation at the 1% significance level between technological innovation as the main independent variable and digital entrepreneurship as the main dependent variable. The correlation coefficient between process innovation (0.456)—being one of the dimensions of the independent variable—and digital entrepreneurship as the dependent variable indicates the existence of a strong relationship between (**process innovation and digital entrepreneurship**). The correlation coefficients between process innovation, as one of the dimensions of the independent variable, and each of the dimensions of the dependent variable—digital knowledge, digital business environment, digital financing, and digital leadership—which represent the sub-variables adopted in the study, were reported as (0.332, 0.458, 0.489, 384513, 0.456), respectively. This provides strong evidence of a positive and statistically significant correlation at the 1% significance level. These results support the acceptance of the research hypothesis (H1), which asserts the existence of a statistically significant relationship. This clearly demonstrates that process innovation contributes directly to enhancing digital entrepreneurship, with a confidence level of 99%.

E— The table above indicates the presence of a positive and statistically significant correlation at the 1% significance level between technological innovation as the main independent variable and digital entrepreneurship as the main dependent variable. The correlation coefficient between patent innovation (0.508)—as one of the dimensions of the independent variable—and digital entrepreneurship as the dependent variable indicates the existence of a strong relationship between patent innovation and digital entrepreneurship. The correlation coefficients between patent innovation, as one of the dimensions of the independent variable, and each of the dimensions of the dependent variable—digital knowledge, digital business environment, digital financing, and digital leadership—which represent the sub-variables adopted in the study, were reported as (0.451, 0.534, 0.473, 0.384), respectively. This provides strong evidence of a positive and statistically significant correlation at the 1% significance level. These results support the acceptance of the research hypothesis (H1), which asserts the existence of a statistically significant relationship. This clearly demonstrates that patent innovation contributes directly to enhancing digital entrepreneurship, with a confidence level of 99%.

2 Testing the Impact Relationship Between Technological Innovation and Digital Entrepreneurship

A— The second main hypothesis, which states that "there is a statistically significant impact relationship between technological innovation and digital entrepreneurship within Asia Cell Company," is tested. The results are presented in Table (3), which displays the estimates of the simple linear regression coefficients used to measure the effect of technological innovation on digital entrepreneurship.

Table (3): Simple Linear Regression Coefficients

Model	R		R Square	Adjusted R Square	Std. Error of the Estimate
1	.575(a)		.241	.231	.24748

Model			Sum of Squares	df	Mean Square	F	Sig.
1		Regression	4.268	1	4.368	35.177	.000(a)
		Residual	8.352	69	.121		
		Total	12.720	70			

Model			Unstandardized Coefficients		Standardized Coefficients	T	Sig.
			B	Std. Error	Beta		
1		(Constant)	.584	.389		1.298	.166
		X	.772	.128	.484	5.015	.000

Source: SPSS Outputs

It is evident from the table that the value of (b) reached (0.772), which represents the marginal slope of the regression coefficient. This indicates that any one-unit change in the independent variable (X) leads to a positive change in the dependent variable (Y) by (0.772) units .Moreover, the calculated value of (F) for the simple linear regression model amounted to (35.177), which is greater than the tabulated (F) value at the significance level of (1%). This provides statistical evidence to accept the research hypothesis, which states that there is a significant impact relationship between the study variables, namely technological innovation (X) and digital entrepreneurship (Y).In addition, the value of the coefficient of determination (R^2) reached (0.241), indicating that technological innovation (X) explains (0.241) of the variance in digital entrepreneurship (Y). The remaining proportion of variance is attributed to the influence of other variables that were not addressed in the current study.

B – Testing the First Sub-Hypothesis Derived from the Second Main HypothesisThis sub-hypothesis states that **(there is a statistically significant impact relationship of service innovation on digital entrepreneurship within Asiacell Company**). The following table presents the results of the simple linear regression analysis, which measures the strength and magnitude of the impact relationship between service innovation and digital entrepreneurship, as shown in the table below:

Table (4): Regression Coefficients for the Service Innovation Variable

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.504(a)	.244	.233	.36936

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.370	1	3.170	22.972	.000(a)
	Residual	9.450	69	.130		
	Total	12.720	70			

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.318	.351		3.046	.002
	X1	.487	.110	.504	4.796	.000

Source: SPSS Outputs

The results presented in the above table indicate the following:
The value of (b) amounted to (0.487), representing the marginal slope of the regression coefficient. This implies that any one-unit change in the independent variable (x) leads to a positive change in the dependent variable (y) by (0.487). Furthermore, the calculated (F) value for the simple linear regression model reached (22.972), which exceeds the tabulated (F) value at the (1%) significance level. This provides strong evidence for accepting the research hypothesis, which states that (there is a statistically significant impact relationship between service innovation and digital entrepreneurship). The statistical significance of the linear regression at this level indicates that service innovation (X1) exerts a clear and significant effect on digital entrepreneurship (y). In addition, the coefficient of determination (R^2) reached (0.244), indicating that service innovation (X1) explains (24.4%) of the variance in digital entrepreneurship (y). The remaining proportion of variance is attributed to the influence of other variables not addressed in the current study.

Table (5): Simple Linear Regression Coefficient for the Process Innovation Dimension

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.367(a)	220.	.107	.27844

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	2.695	1	2.695	18.515	.000(a)
	Residual	10.015	69	.133		
	Total	12.720	70			

		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta		
	(Constant)	1.702	.313		4.266	.000
	X2	.378	.108	.367	4.318	.000

Source: SPSS Outputs
The value of (b) amounted to (0.378), which represents the marginal slope of the regression coefficient. This indicates that any one-unit change in the independent variable (x) results in a positive change in the dependent variable (y) by (0.378). Moreover, the calculated (F) value for the simple linear regression model reached (18.515), which exceeds the tabulated (F) value at the (1%) significance level. This provides clear evidence supporting the acceptance of the research hypothesis, which states that there is a statistically significant impact relationship between process innovation and digital entrepreneurship.The statistical significance of the linear regression at this level indicates that process innovation (X2) has a clear and significant effect on digital entrepreneurship (y). In addition, the coefficient of determination (R^2) reached (0.220), indicating that process innovation (X2) explains (22%) of the variance in digital entrepreneurship (y). The remaining proportion of variance is attributed to the influence of other variables not examined in the current study.
D – Testing the Third Sub-Hypothesis Derived from the Second Main Hypothesis This sub-hypothesis states that (**there is a statistically significant impact relationship of research and development on digital entrepreneurship within Asiacell Company)**. Table (6) presents the results of the simple linear regression analysis, which measures the strength and magnitude of the impact relationship between research and development and digital entrepreneurship, as shown in the following table:

Table (6): Simple Linear Regression Coefficient for the Process Innovation Dimension

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.389(a)	.149	.137	.38245

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.029	1	2.029	13.139	.001(a)
	Residual	10.681	69	.144		
	Total	12.720	70			

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	2.075	.413		4.828	.000
	X3	.386	.109	.389	3.539	.001

Source: SPSS Outputs

The results presented in the above table indicate the following:

The value of (b) amounted to (0.386), which represents the marginal slope of the regression coefficient. This implies that any one-unit change in the independent variable (x) leads to a positive change in the dependent variable (y) by (0.386). Furthermore, the calculated (F) value for the simple linear regression model reached (13.139), which exceeds the tabulated (F) value at the (1%) significance level. This provides strong evidence for accepting the research hypothesis stating that there is a statistically significant impact relationship between the research and development dimension and digital entrepreneurship. The statistical significance of the linear regression at this level indicates that research and development (X3) has a clear and significant effect on digital entrepreneurship (y). In addition, the coefficient of determination (R^2) reached (0.149), indicating that research and development (X3) explains (14.9%) of the variance in digital entrepreneurship (y). The remaining proportion of variance is attributed to the influence of other variables that were not addressed in the current study.

E – Testing the Fourth Sub-Hypothesis Derived from the Second Main Hypothesis This sub-hypothesis states that (there is a statistically significant impact relationship of patent innovation on digital entrepreneurship within Asiacell Company). Table (7) presents the estimates of the simple linear regression coefficients used to measure the strength of the impact relationship between patent innovation and digital entrepreneurship, as illustrated in the following table:

Table (7): Simple Linear Regression Coefficient for the Process Patent Dimension

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.319(a)	.169	.219	.35591

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.348	1	3.348	25.752	.000(a)
	Residual	9.272	69	.124		
	Total	12.720	70			

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.361	.327		3.323	.001
	X4	.467	.102	.529	4.075	.000

Source: SPSS Outputs

The results shown in the above table indicate the following:

The value of (b) was (0.467), which represents the marginal slope of the regression coefficient. This means that any change in the value of the independent variable (X) by one unit will lead to a positive change in the value of the dependent variable (Y) by (0.467). In addition, the calculated (F) value for the simple linear regression model reached (25.752), which is greater than the tabulated (F) value at a significance level of (1%). This provides evidence for accepting the research hypothesis, which states that there is an effect relationship between the patent dimension and digital entrepreneurship.The significance of the linear regression at this level indicates that the patent dimension (X4) has a clear and statistically significant effect on digital entrepreneurship (Y). The value of the coefficient of determination (R^2) reached (0.319), indicating that patents (X4) explain (31.9%) of the variance in digital entrepreneurship (Y). The remaining percentage of the variance is attributed to the influence of other variables that were not addressed by the

Chapter Four: Conclusions and Recommendations

First: Conclusions

1–The results indicate that strengthening the technological infrastructure within the organization contributes to enhancing employees' efficiency and empowering them to develop innovative digital solutions, which positively reflects on the level of entrepreneurial performance.

2 –The analysis shows that telecommunications companies, including Asiacell, increasingly rely on adopting technological innovations as a key mechanism to enhance their entrepreneurial capabilities and to transition toward a competitive digital economy.

3 –The findings of the current study reveal that the technological innovation variable contributed to enriching the dependent variable, digital entrepreneurship, through the sub-dimensions of both variables examined in the study.

4 –Technological innovation exerts a statistically significant effect in strengthening digital entrepreneurship within Asiacell, as evidenced by the empirical results obtained in the practical aspect of the study.

5 –The study data indicate that the dimensions of the independent variable, technological innovation (service innovation, process innovation, research and development, and patents), are positively and strongly associated with indicators of digital entrepreneurship in Asiacell, leading to the confirmation of the first main research hypothesis.

6 –The study results also demonstrate the existence of a significant impact relationship between the dimensions of the dependent variable, digital entrepreneurship (digital knowledge, digital business environment, digital financing, and digital leadership), and the dimensions of technological innovation, highlighting the interdependence between these variables within the company.

Second: Recommendations

1 –Enhancing investment in technological innovation tools such as artificial intelligence, cloud computing, and big data applications, due to their direct role in strengthening digital entrepreneurial activities.

2 –Adopting continuous training programs for Asiacell employees to develop their digital and creative skills, thereby increasing their ability to innovate new products and services.

3 –Formulating a clear technological innovation strategy within the company that includes future plans for developing digital products and improving customer experience through advanced electronic channels.

4 –Promoting a work environment that supports innovation by providing incentives and fostering an entrepreneurial culture within the organization that encourages employees to propose new ideas and implement digital initiatives.

5 –Strengthening cooperation with digital startups, universities, and innovation centers to benefit from modern entrepreneurial ideas and facilitate knowledge transfer.

6 –Conducting future studies that incorporate additional variables which may influence digital entrepreneurship, such as digital transformation, organizational knowledge, intellectual capital, and innovative capabilities.

7 –Expanding the company's digital infrastructure to meet the growing demands of the Iraqi market, particularly in the fields of smart applications and advanced digital services.

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