Arab American University
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Understanding the Impact of EFQM and Risk Management on Organizational Resilience in Pharmaceutical Industry: The Role of Absorptive Capacity

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Thesis Approval

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Declaration

I, the undersigned, hereby declare that the thesis titled:

“Understanding the Impact of EFQM and Risk Management on Organizational Resilience in the Pharmaceutical Industry: The Role of Absorptive Capacity”

is my original work, except where references are clearly provided? This thesis has not been submitted elsewhere, in whole or in part, for any other degree or qualification.

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Dedication

This thesis is dedicated to the soul of my beloved father, whose wisdom and guidance instilled in me the determination to pursue my ambitions and never waver in the face of challenges.

To my mother, whose unwavering love, prayers, and endless support have been the foundation of my journey.

To my devoted wife, Amani, whose belief in my abilities, unwavering support, and encouragement have been my greatest strength. She stood by my side through every challenge, inspiring me to fulfill my dreams.

To my cherished daughters, Sulaf, Sarah, and Naba', whose innocence, love, and bright smiles have been a source of motivation and joy throughout this journey.

To my dear son, Aladdin, whose presence fills my life with hope and endless possibilities for the future.

To my brothers, sisters, friends, and all my loved ones who have stood beside me, offering their encouragement and support every step of the way.

Thank you all for being the most beautiful part of my life.

Muath M. Daraghmeh

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I extend sincere thanks to my thesis supervisor, Dr. Ayham Jaaron, for his invaluable guidance, insightful advice, and constant support throughout this research. His competence, support, and patience have dramatically enhanced my academic experience and facilitated the effective completion of this assignment.

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Muath M. Daraghmeh

Abstract

This research examines the incorporation of European Foundation for Quality Management (EFQM) principles, risk management strategies, and absorptive capacity to improve organizational resilience within the Palestinian pharmaceutical industry. Despite the industry's susceptibility to regulatory constraints, financial limitations, and supply chain disruptions, there is a lack of research investigating the interactions of these factors in emerging economies. This research proposes a structured framework designed to address the unique challenges faced by the industry.

A mixed-methods approach was utilized, integrating qualitative interviews with quantitative analysis. Data collection involved 10 in-depth interviews and 128 survey responses, which were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that the implementation of EFQM, especially in the areas of leadership, strategy, and process management, greatly improves resilience. Risk management strategies are essential for the proactive identification and mitigation of disruptions. Absorptive capacity, although anticipated to influence these relationships, demonstrated a limited effect, indicating that external knowledge acquisition alone may not adequately improve resilience in the absence of robust internal integration mechanisms.

The research highlights the importance of regulatory harmonization and collaboration among stakeholders to conform to international standards, including Good Manufacturing Practices (GMP) and Good Distribution Practices (GDP). This study addresses a significant research gap, thereby enhancing the existing knowledge on resilience within emerging economies, specifically in the pharmaceutical industry. The proposed

framework offers valuable insights for policymakers, industry leaders, and stakeholders to enhance resilience and competitiveness in a volatile global market.

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List of Abbreviations

ACAP	Absorptive Capacity
AI	Artificial Intelligence
AVE	Average Variance Extracted
BCI	Bootstrapped Confidence Interval
BSC	Balanced Scorecard
CR	Composite Reliability
DOA	Degree of Adoption
EFQM	European Foundation for Quality Management
FMEA	Failure Mode and Effects Analysis
GDP	Good Manufacturing Practices
GMP	Good Manufacturing Practices
HR	Human Resources
HTMT	Heterotrait-Monotrait Ratio
IM	Instant Messaging
IoT	Internet of Things
IPR	Intellectual Property Rights
ISO	International Organization for Standardization
KPI	Key Performance Indicators
OR	Organizational Resilience
PAC	Potential Absorptive Capacity
PLS-SEM	Partial Least Squares Structural Equation Modeling
RAC	Realized Absorptive Capacity

R&D	Research and Development
RM	Risk Management
SCM	Supply Chain Management
SD	Standard Deviation
SDGs	Sustainable Development Goals
SMEs	Small and Medium-sized Enterprises
TQM	Total Quality Management
WHO	World Health Organization

Chapter One

Introduction

1.1 General Background

In the modern and evolving pharmaceutical industry, organizational resilience has become a critical focal point (Khrais & Amirah, 2023). Organizational resilience denotes an organization's capacity to foresee, react to, and recover from disturbances while sustaining critical operations and services (Rodríguez-González et al., 2019). This resilience entails adjusting to evolving settings, deriving lessons from disruptive occurrences, and formulating robust strategies for enduring development and viability (Miao et al., 2021). Moreover, organizational resilience directly influences the reputation of the firm or organization, as highlighted by Sadeghi et al. (2020).

The pharmaceutical industry has many difficulties that endanger its organizational resilience, including the effects of COVID-19 and an increased number of disruptions. These involve supply chain disruptions, regulatory improvements, disasters, and unexpected crises, all of which can significantly affect the production, distribution, and development required in this industry (Bastani et al., 2021; Roh et al., 2022).

Supply chain disruptions frequently arise from geopolitical conflicts, shortages of raw materials, and logistical delays, all of which are vital for ensuring a continuous supply of crucial pharmaceuticals (Jaberidoost et al., 2015; Bastani et al., 2021). Regulatory modifications, including revised medication approval protocols and environmental sustainability criteria, necessitate ongoing adjustments to ensure compliance and operational performance, frequently depleting substantial resources (Alghababsheh et al., 2023). In addition to the pandemic, unforeseen emergencies such as natural disasters and

cyber-attacks underscore the necessity for comprehensive resilience plans that cover both physical infrastructure and data security to ensure the continuity of medicine supply (Chege et al., 2023).

Moreover, technological improvements, like AI and digital transformation, are crucial for competitiveness but pose challenges since they involve the necessity for qualified individuals, large investments, and potential disruptions to established processes. This requires a robust absorptive capacity (ACAP) to successfully absorb new knowledge (Chatterjee et al., 2022). The complex issues highlight the essential role of organizational resilience in the pharmaceutical industry, stressing the necessity for proactive measures that allow companies to adapt, maintain operations, and innovate in an uncertain environment (Bastani et al., 2021).

The COVID-19 pandemic has underscored the susceptibility of pharmaceutical corporations to global shocks, highlighting the necessity for robust resilience plans (Hillmann & Guenther, 2021). Research on supply chain resilience highlights the need of predicting and addressing issues, informed by insights gained from many scenarios such as pandemic planning, response, and recovery (Nguyen et al., 2021).

In the pharmaceutical industry's high-stakes environment and strict regulatory frameworks, establishing organizational resilience is essential for protecting public health and sustaining operational efficiency (Darouich & Dhiba, 2020). The incorporation of European Foundation for Quality Management (EFQM) principles with risk management procedures is a very advantageous strategy (Darouich & Dhiba, 2020). EFQM offers a thorough framework for attaining organizational excellence, emphasizing key domains such as leadership, strategy, personnel, partnerships, processes, and outcomes (Bolboli & Reiche, 2015). Recent research indicates that EFQM can bolster organizational resilience

by enhancing overall quality and operational performance. Nenadál (2020) discovered that the EFQM model substantially enhances procurement performance, which is essential for sustaining supply chain resilience. A research by Rodríguez-González et al. (2019) indicated that the use of the EFQM model in hospital pharmacy performance resulted in improved operational stability and service continuity, underscoring its significance in highly regulated industries such as pharmaceuticals. Furthermore, Baines (2022) indicated that EFQM principles enhanced organizational adaptability to market fluctuations and disturbances, hence strengthening resilience.

The influence of EFQM on risk management is significant. Asadzadeh et al., (2019) acknowledged that the use of EFQM in hospital environments enhanced risk identification and mitigation procedures, hence directly fostering increased organizational resilience. Likewise, Buckė et al., (2022) observed that the amalgamation of quality management concepts, such as EFQM, with risk management methods in healthcare yielded more effective risk control measures and improved organizational stability.

Furthermore, the relationship between risk management and resilience is crucial. Torabi et al. (2016) assert that risk management frameworks facilitate firms in successfully preparing for and responding to disruptions, hence assuring operational continuity. Effective risk management enables firms to proactively detect, evaluate, and mitigate possible risks to their operations and supply chains, hence improving their resilience (Torabi et al., 2016). This proactive strategy not only reduces risks but also enhances the organization's adaptability, hence fostering increased resilience (Chatterjee et al., 2022). Moreover, Darouich and Dhiba (2020) discovered that Moroccan pharmaceutical companies employing extensive risk management strategies were more adept at managing

supply chain disruptions and regulatory alterations, thereby illustrating a definitive correlation between risk management and organizational resilience.

The combination of recognized frameworks and approaches offers a strong basis for tackling organizational resilience in sophisticated settings. Table 1.1 delineates essential models and their characteristics, demonstrating their role in formulating a complete resilience strategy specific to the pharmaceutical industry in this study.

Table 1.1: Frameworks and Methodologies for Resilience

Framework	Key Features	Contribution to Study
EFQM Excellence Model (Bolboli & Reiche, 2015)	Leadership, strategy, stakeholder engagement, and continuous improvement.	Serves as the primary structure for integrating resilience strategies.
Resilience Engineering (Asadzadeh et al., 2019)	Safety, adaptability, and response systems focused on mitigating operational risks.	Offers complementary insights into enhancing resilience alongside EFQM principles.

The relationship between risk management and organizational resilience is essential. Risk management methods enable businesses to anticipate and address possible disruptions, hence improving their capacity for sustained operations (Darouich & Dhiba, 2020). This proactive strategy not only reduces risks but also enhances the organization’s adaptability, leading to increased resilience.

Absorptive capacity is essential for improving organizational resilience (Roh et al., 2022). It pertains to an organization's capacity to efficiently acquire, integrate, and utilize new knowledge and information (Melkas et al., 2010). Absorptive capacity enables businesses

to learn from experiences, adapt to changing conditions, and formulate resilient strategies for sustainability and growth (Miao et al., 2021). Moreover, research conducted by Miao et al. (2021) and Roh et al. (2022) has shown that absorptive capacity substantially improves an organization's resilience and recovery from shocks.

Recent studies highlight the importance of absorptive capacity in improving organizational resilience. Alghababsheh (2023) emphasizes that absorptive capacity, along with effective information acquisition, is crucial for the assimilation of new knowledge. This integration enhances adaptive abilities and cultivates innovation in response to emergencies. Stentoft et al. (2023) demonstrate that firms with more absorptive capacity are more proficient in handling supply chain disruptions, as they effectively absorb external knowledge to formulate robust contingency plans and adaptive tactics.

Chatterjee et al. (2022) say that absorptive capability enhances immediate crisis management and promotes long-term organizational learning and resilience by consistently expanding the knowledge accumulation and operational flexibility. The continuous learning process is crucial for maintaining a competitive edge in the pharmaceutical industry, which is marked by swift changes and uncertainty (Nguyen et al., 2021).

Multiple researches together confirm the essential function of absorptive capacity in improving organizational resilience. Absorptive capacity, defined as a firm's capability to identify, integrate, and efficiently utilize relevant external information, is essential for adaptation, recovery, and success in the face of disruptions (Hillmann & Guenther, 2021; Miao et al., 2021; Roh et al., 2022). Examining the role of absorptive capacity within the EFQM framework and risk management is essential for this research (Nguyen et al.,

2021). This emphasis offers substantial insights into how pharmaceutical companies may enhance their resilience via good knowledge management and innovation strategies (Stentoft et al., 2023). This study seeks to demonstrate how these organizations might enhance their capacity to manage risks and maintain operational continuity (Nguyen et al., 2021; Stentoft et al., 2023).

Although ACAP is increasingly recognized as a vital facilitator of organizational resilience, there exists a considerable research absence regarding its comprehensive integration into resilience frameworks tailored for the pharmaceutical industry. Current research highlights the significance of ACAP in industries necessitating quick adaptation, underscoring its function in obtaining, integrating, and utilizing information to promote continuous organizational learning and agility (Chatterjee et al., 2022). Stentoft et al. (2023) discovered that AC improves supply chain resilience by promoting information integration, essential for developing adaptable approaches, but their research mostly addresses supply chain disruptions rather than specifically targeting pharmaceuticals. Furthermore, Roh et al. (2022) emphasize the difficulties encountered by dynamic businesses, asserting that adaptive capacity (AC) facilitates swifter adjustments to external changes, particularly pertinent to the pharmaceutical industry, which is defined by strict regulatory and quality requirements.

However, a thorough framework connecting ACAP with recognized resilience models, like the EFQM model and risk management methods, is still inadequately examined in the pharmaceutical industry. It is crucial to address this gap in order to create strong, industry-specific frameworks that utilize ACAP to improve immediate resilience and foster long-term sustainability and performance within a highly regulated context. This study seeks to address the existing research gap, therefore enhancing both theoretical and

practical knowledge to assist pharmaceutical firms in achieving operational resilience and adaptation in unanticipated circumstances.

Recognizing the historical context and particular challenges of organizational resilience in the pharmaceutical industry, particularly through the perspectives of the EFQM model and risk management frameworks, is crucial for navigating the complexities of this industry (Hillmann & Guenther, 2021; Nguyen et al., 2021; Roh et al., 2022). This study seeks to examine the contributions of EFQM principles, risk management methods, and absorptive capacity to enhancing resilience in Palestinian pharmaceutical companies. This investigation yielded a comprehensive managerial framework aimed at bolstering resilience and sustainability, equipping pharmaceutical organizations with pragmatic strategies to maneuver through dynamic and complex environments (Bastani et al., 2021; Stentoft et al., 2023).

1.2 Problem Statement

The pharmaceutical industry has major challenges in sustaining operational efficiency and enhancing resilience to disturbances (Nguyen et al., 2021). The issues involve supply chain vulnerabilities, legislative modifications and socio-economic volatility, which significantly affect the industry (Vann Yaroson, 2019). Despite extensive research on Quality Management (QM) frameworks, such as the European Foundation for Quality Management (EFQM) model that prioritizes continuous improvement and stakeholder-centric strategies, and on Risk Management as distinct fields (Sharma et al., 2023), there is a shortage of studies exploring their combined application in the pharmaceutical industry (Jabnoun, 2020). The absence of such integration is especially crucial in

scenarios necessitating significant resilience to disturbances, represented as the pharmaceutical industry in developing countries (Bastani et al., 2021).

Pharmaceutical companies in Palestine encounter distinct obstacles, such as inadequate infrastructure, political volatility, and restricted access to modern technology (Nguyen et al., 2021). These variables intensify existing vulnerabilities and stress the necessity for a comprehensive framework to improve organizational resilience (Vann Yaroson, 2019). Combining EFQM concepts with Risk Management approaches provide a viable strategy to tackle these difficulties. By means of this integration, pharmaceutical businesses may proactively discover, evaluate, and mitigate interruptions (Darouich & Dhiba, 2020). EFQM offers a structured framework highlighting critical elements such as leadership, strategy, partnerships, and results, which are crucial in accomplishing organizational excellence (Alkalha et al., 2019). Considering these advantages, there is limited study examining the particular use of EFQM and Risk Management in the pharmaceutical industry (Bastani et al., 2021).

Absorptive capacity, reflecting an organization's capability to absorb, integrate, and employ external information, is a critical component in enhancing organizational resilience. It allows companies to adjust to changes, formulate novel strategies, and guarantee sustainability (Chatterjee et al., 2022; Stentoft et al., 2023). This study aims to fill the current gap by creating a customized Organizational Resilience Framework specifically designed for the pharmaceutical industry, incorporating EFQM, Risk Management, and absorptive capacity. This innovative methodology offers a thorough method for risk management, ensuring operational continuity and maintaining resilience, particularly for pharmaceutical companies in Palestine. The study provides practical insights into knowledge management and creative approaches aimed at improving

resilience and sustainability (Stentoft et al., 2023; Chatterjee et al., 2022; Roh et al., 2022).

1.3 Research Questions and Objectives

This study is guided by the following research questions:

1. What is the impact of EFQM principles and risk management strategies on organizational resilience within the pharmaceutical industry?
2. What is the moderating role of absorptive capacity in the relationship between EFQM principles, risk management strategies, and organizational resilience, particularly during disruptive events?
3. How can a managerial framework be developed to integrate EFQM principles, risk management strategies, and absorptive capacity for enhancing organizational resilience?

The precise objectives of this study are summarized as follows:

1. To examine the impact of EFQM principles and risk management strategies on organizational resilience within the pharmaceutical industry.
2. To investigate the moderating effect of absorptive capacity on the relationship between EFQM principles, risk management strategies, and organizational resilience, particularly during disruptive events.
3. To develop a managerial framework that integrates EFQM principles, risk management strategies, and absorptive capacity to enhance organizational resilience.

1.4 Conceptual Model and Hypotheses

Conceptual Model:

This research's conceptual model integrates EFQM concepts, risk management methods, and absorptive capacity to improve organizational resilience in the pharmaceutical industry. Please refer to Figure 1.1 below.

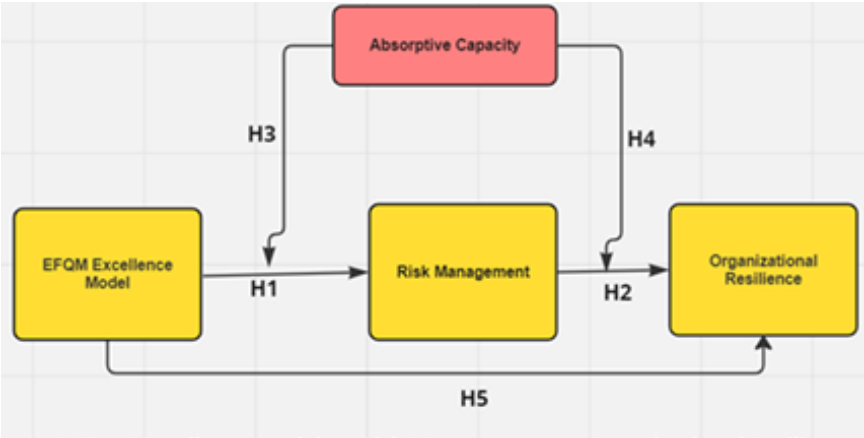

Figure1.1: Research Conceptual Model

Hypotheses:

H1: Absorptive capacity moderates the relationship between EFQM principles and organizational resilience in pharmaceutical companies.

H2: Effective risk management strategies positively impact organizational resilience in pharmaceutical companies.

H3: Absorptive capacity moderates the relationship between EFQM principles and risk management effectiveness, enhancing their synergistic impact on organizational resilience, particularly during disruptive events.

H4: Absorptive capacity moderates the relationship between risk management strategies and organizational resilience.

H5: EFQM principles positively impact organizational resilience in pharmaceutical companies.

1.5 Significance of the Research

This research is significant not just for filling important gaps in the literature. This study seeks to provide practical insights and best practices for enhancing organizational resilience in the pharmaceutical industry by integrating EFQM principles with risk management methods, applicable across diverse organizational settings (Rodríguez-González et al., 2019). This research is pertinent due to the growing complexity and volatility within the pharmaceutical industry, where disruptions can significantly affect public health and organizational sustainability.

This work enhances the dialogue on organizational resilience and quality management by demonstrating how EFQM principles integrate with risk management methods to foster resilience, especially in highly regulated industries (Darouich & Dhiba, 2020). This research seeks to offer critical insights for decision-making in pharmaceutical organizations, promoting the advancement of best practices in business continuity management through empirical validation (Haloub et al., 2022).

This research highlights the significance of EFQM techniques and organizational resilience in the pharmaceutical industry. It presents and directs the pharmaceutical industry towards a managerial framework that clarifies its importance and anticipated results. The paper highlights critical practices necessary for pharmaceutical businesses, calling for their investment in EFQM to enhance risk management and strengthen organizational resilience. This study provides pharmaceutical businesses and other organizations with absorptive capacity techniques, facilitating better data and information management, therefore enhancing risk management initiatives and promoting organizational resilience.

1.6 Thesis Structure

Building upon Chapter 1; the Introduction, Chapter 2 presents the Literature Review. This chapter provides an in-depth examination of existing research on EFQM, risk management, organizational resilience, and absorptive capacity. It critically analyzes the methodologies, findings, and contributions of these studies, offering a comprehensive understanding of the research landscape in these domains.

Chapter 3 examines the methodology employed in this study. A mixed-method approach integrating qualitative and quantitative studies is utilized. This chapter clarifies the justification for this methodological selection, the specific techniques employed, and the tools employed for data collection and analysis. The text also addresses the research design, sample selection, data collection methods, and ethical issues.

Chapter 4: Data Analysis and Results, it displays the analyzed data and their interpretations. It defines the analytical methodologies employed, the outcomes achieved, and their significance within the frameworks of EFQM, risk management, organizational resilience, and absorptive capacity. This chapter provides a systematic overview of the empirical evidence collected from the research project.

Chapter 5: Discussion; it thoroughly evaluates and analyzes the results defined in Chapter 4. It examines the implications of the findings, compares them with current literature, addresses any inconsistencies or congruities, and provides insights on the theoretical and practical consequences of the study's results. This chapter discusses the constraints identified throughout the study process and proposes areas for additional exploration.

Chapter 6: Conclusions and Recommendations, it consolidates the principal findings derived from the research. It emphasizes the verified or rejected hypotheses, outlines the principal results, and offers practical advice for businesses seeking to improve their

excellence and organizational resilience. This chapter also addresses the theoretical contributions of the research and suggests directions for further inquiry, including possible comparisons across other locations and organizational attributes such as age and size.

Chapter Two

Literature Review

2.0 Introduction

This chapter offers an extensive examination of the current research about organizational resilience within the pharmaceutical industry, emphasizing the significance of EFQM concepts, risk management measures, and absorptive capacity. The review outlines the theoretical framework of the study by analyzing prior research on these fundamental ideas and their interrelations.

The chapter commences with an examination of the EFQM model, detailing its foundations, principles, and applications in the pharmaceutical industry. It subsequently analyzes risk management as a pivotal element in bolstering resilience, especially inside industries that function in highly regulated and unstable contexts. The analysis examines the significance of absorptive capacity as a moderating factor, highlighting the impact of knowledge acquisition and integration on the efficacy of EFQM and risk management techniques in enhancing resilience.

This chapter creates lessons from previous studies, identifies the existing research gap, and establishes the necessity for the current investigation. The results of this review will facilitate the formulation of the research framework and hypotheses, establishing a robust theoretical foundation for examining the roles of EFQM, risk management, and absorptive capacity in enhancing resilience within the Palestinian pharmaceutical industry.

2.1 The EFQM Model: Foundations and Application in the Pharmaceutical Industry

Quality management has significantly evolved, originally concentrating on compliance and standardization in manufacturing, and subsequently advancing into holistic management methods that prioritize continuous improvement and customer satisfaction (Van Schoten et al., 2016). As industries became increasingly complicated innovators such as Juran and Deming transformed this viewpoint by presenting concepts like "fitness for use" and continuous improvement, highlighting the importance of customer satisfaction and value generation (Juran, 1999; Paraschivescu, 2016). These concepts established the basis for current quality frameworks such as the European Foundation for Quality Management (EFQM) Excellence Model, which adopts a comprehensive approach to enhancing organizational performance (Rodríguez-González et al., 2019).

The EFQM model, created in 1992, aims to assist firms in attaining excellence by covering every aspect of their operations (Gómez Gómez et al., 2011). In contrast to conventional compliance-oriented approaches, EFQM prioritizes leadership, strategy, personnel, relationships, and processes as essential elements for fostering enhancement (Bolboli & Reiche, 2015). This is enhanced by an emphasis on outcomes—specifically on customer satisfaction and overall organizational efficacy (Menezes et al., 2022). The EFQM model promotes a comprehensive approach for enterprises to consider their objectives while matching their processes for optimal achievement (Menezes et al., 2022). Figure 2.1 below provides an obvious illustration of the EFQM Model, demonstrating the interconnection between enablers and outcomes in fostering organizational excellence and performance.

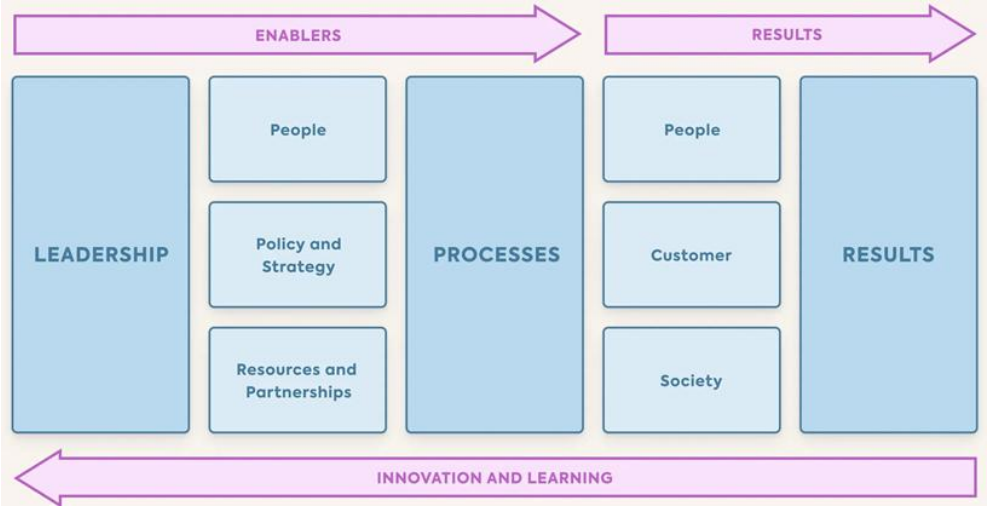

Figure 2.1: The EFQM Model with its Nine Dimensions. Derived from Donabedian, A., Wensing, M., & Grol, R. (2000). The EFQM excellence model: European and Dutch experiences with the EFQM model. International Journal for Quality in Health Care, 12*(3), 191–202. Retrieved from* https://academic.oup.com/intqhc/article/12/3/191/1827607

The EFQM model provides a flexible framework that has demonstrated substantial effectiveness in managing the issues encountered by sophisticated businesses like pharmaceuticals (Fonseca, 2021). Fonseca (2021) states that this model promotes the alignment of strategic objectives with operational processes, equipping businesses with tools to improve decision-making and reduce industry-specific risks. In the pharmaceutical industry, characterized by strict rules and regulations, complex supply chains, and ongoing innovation, the EFQM model shows its adaptability by promoting agility and resilience (Mehralian et al., 2017).

The EFQM model has developed into a flexible framework that allows firms to synchronize strategic goals with operational flexibility, rendering it especially pertinent in intricate and regulated industries like pharmaceuticals. Its organized yet adaptable approach promotes ongoing enhancement and resilience, assisting organizations in

managing tough regulatory obligations, fluctuating market needs, and an appetite for innovation.

The model's primary strength is its capacity to include sophisticated quality management systems to tackle issues with compliance, operational efficiency, and innovation. Scholars have emphasized its ability to foster a culture of organizational excellence through the integration of strategic focus and operational integrity (Mehralian et al., 2017; Gómez Gómez et al., 2011). This alignment improves responsiveness and competitiveness, which are crucial for sustaining a robust position in swiftly changing markets.

An important benefit of the EFQM framework is its comprehensive character, which includes leadership, strategy, processes, and customer results. These interrelated characteristics function as a robust self-assessment instrument, allowing firms to recognize strengths, prioritize development areas, and augment stakeholder value creation (Rodríguez-González et al., 2019). This methodology is especially pertinent in the pharmaceutical industry, where resilience and adaptation are essential for risk management and maintaining operational continuity.

The model's adaptability is also demonstrated by its capacity to enhance both immediate performance and enduring strategic objectives. The EFQM paradigm fosters the creation of resilient supply chains and enhances disruption mitigation capabilities during crises by aligning leadership with process integration (Favaretti et al., 2015; Akyuz, 2014). The simultaneous emphasis on operational efficiency and strategic adaptation has been essential for achieving sustained success in competitive marketplaces.

Furthermore, the recent modifications to the EFQM model have enhanced its significance by integrating sustainability and technology innovations. The use of artificial intelligence and predictive analytics has improved decision-making processes, allowing firms to

proactively mitigate risks and optimize resource allocation (Fonseca, 2021; Rahmati & Jalilvand, 2024). These technical advancements correspond with global sustainability efforts, strengthening the framework's relevance in contemporary corporate settings.

The EFQM methodology, although sometimes compared with Total Quality Management (TQM), provides a more dynamic and holistic method for tackling industry-specific difficulties. In contrast to conventional TQM methods that often prioritize uniformity, the EFQM framework highlights continual improvement via methodical and quantifiable processes (Gómez Gómez et al., 2017). This versatility renders it especially successful in industries marked by frequent innovation and regulatory constraints.

The approach promotes cooperation and stakeholder participation, which are vital for executing effective risk management methods. Organizations should enhance their risk assessment processes and develop comprehensive contingency plans to mitigate possible vulnerabilities by engaging both internal and external stakeholders (Favaretti et al., 2015; Samani et al., 2017). However, obstacles such as hesitation to change and resource constraints may impede its adoption, especially in smaller enterprises or those with inadequate technology infrastructure (Chomiak-Orsa & Martusewicz, 2023).

In summary, the EFQM model offers a thorough and flexible framework that connects strategic vision with operational implementation. The EFQM approach facilitates pharmaceutical businesses in tackling current difficulties and developing capacities for enduring growth and excellence by supporting resilience, encouraging innovation, and adhering to sustainability standards. Consequently, the EFQM model serves as a key instrument, especially in industries like pharmaceuticals, where flexibility, compliance, and innovation are crucial. By incorporating these ideas, companies effectively address industry-specific difficulties while attaining long-term resilience and sustainability.

The EFQM framework is renowned for its adaptability, putting it suitable for several industries, including pharmaceuticals (Fonseca, 2021). Para-González et al. (2021) state that this adaptability allows the EFQM framework to face the unique issues of many industries by including leadership, strategy, and human resource management to improve organizational performance. In the pharmaceutical industry, characterized by rapid innovation and stringent regulatory adherence, EFQM is distinguished by its flexibility. Leadership and collaboration within the EFQM framework cultivate a creative culture, enabling firms to address growing market demands while maintaining regulatory compliance (Khrais & Amirah, 2023).

The results of empirical research underscore the effectiveness of EFQM in similar domains, especially in healthcare (Rodríguez-González et al., 2019; Van Schoten et al., 2016). Rodríguez-González et al. (2019) reported its implementation in hospital pharmacy departments, leading to notable enhancements in patient safety and operational efficiency. Asadi et al. (2018) similarly shown its effectiveness in a public hospital context, revealing quantifiable improvements in leadership, strategy, and resource management. These cases highlight the EFQM framework's ability to address operational difficulties while fostering continual improvement.

Technological breakthroughs, including artificial intelligence (AI) and predictive analytics, have considerably enhanced the effectiveness of the EFQM framework in industries like as pharmaceuticals (Martusewicz et al., 2024; Hassan et al., 2024). Bastani et al. (2021) highlighted that artificial intelligence and big data analytics are crucial for risk management, enabling real-time monitoring and the early detection of possible disturbances. This skill has demonstrated significant value in the management of

pharmaceutical supply chains, where AI-driven solutions have improved resilience and mitigated operational risks (Swarnkar et al., 2024).

Moreover, the EFQM Model 2025 illustrates the incorporation of advanced technology (Martusewicz et al., 2024; Fonseca, 2021). Martusewicz et al. (2024) emphasized that this revised methodology integrates AI and big data analytics to deliver predicted insights and real-time feedback, hence minimizing the time and expenses often linked to EFQM evaluations. By integrating strategic objectives with operational procedures, such developments empower firms to sustain competitive advantages in fluctuating marketplaces. Hassan et al. (2024) presented an AI-driven EFQM system that forecasts scores, shows areas for enhancement, and refines decision-making. This system employs machine learning methods, including k-means clustering, to improve operational efficiency and resilience in competitive markets.

The integration of sophisticated technology in EFQM highlights the necessity for thorough upgrades to comply with regulatory standards while leveraging innovation (Fonseca, 2021). Chatterjee et al. (2021) and Kamal (2023) emphasized that this alignment guarantees organizational adaptability and competitiveness in unstable situations, effectively merging traditional quality management concepts with changing industrial requirements.

The EFQM model has progressed to the EFQM Model 2025, incorporating sustainability, innovation, and stakeholder participation (Martusewicz et al., 2024). The most recent version corresponds with international efforts, such as the United Nations Sustainable Development Goals (SDGs), emphasizing resilience and adaptation as vital organizational competences (Martusewicz et al., 2024).

The EFQM framework is recognized as a quality management system and a strategic instrument that bolsters resilience and fosters sustainable performance. The framework integrates operational processes with strategic objectives, enabling firms to adapt to complicated regulatory contexts while promoting continuous development and operational efficiency (Rodríguez-González et al., 2019). This dual emphasis guarantees that companies not only adhere to rigorous standards but also cultivate a culture of innovation and flexibility, essential for maintaining a competitive advantage in rapidly changing markets.

The EFQM framework's primary strength is its capacity to manage immediate operational needs with broader strategic objectives. The integration of strategy and operations is especially advantageous in industries such as pharmaceuticals, where success relies on aligning innovation with regulatory compliance (Salah et al., 2019). Through the integration of a culture of adaptability and ongoing enhancement, EFQM empowers businesses to tackle industry-specific difficulties, including compliance management and innovation advancement.

These studies together illustrate the EFQM model's critical function in promoting resilience and sustained performance in competitive and turbulent markets. Its capacity to match operational procedures with strategic objectives enables organizations to address present demands while also adapting to potential disruptions, so assuring continuous development and excellence.

2.1.1 Fundamental Components and Practices of EFQM

The EFQM Model functions as a comprehensive framework for attaining organizational excellence, offering a systematic methodology for continuous improvement via its seven

enabling criteria: leadership, strategy, people, partnerships and resources, processes, customer results, and societal results (Nabitz, Klazinga, & Walburg, 2000; Martusewicz, Wierzbic, & Łukaszewicz, 2024). Its adaptability allows for successful use across several industries, including the pharmaceutical industry, where strict regulatory compliance, continuous innovation, and sustainability are essential elements. In his 2013 research on the steel industry, Mahalli illustrated how the EFQM Model assists firms in recognizing operational strengths and addressing areas for development, specifically in the optimization of human resources and processes. This technique is particularly pertinent for industries such as pharmaceuticals, where operational resilience and excellence are crucial for maintaining competitive advantage.

Research further emphasizes the efficacy of the EFQM Model in equivalent domains such as in healthcare. Rodríguez-González et al. (2019) illustrated its implementation in hospital pharmacy departments, resulting in measured enhancements in patient safety and operational efficiency. The model's non-prescriptive form promotes self-evaluation and benchmarking, allowing businesses to adjust to new problems and continue progress (Nabitz, Klazinga, & Walburg, 2000). Furthermore, the use of advanced technologies like artificial intelligence (AI) and predictive analytics enhances the efficiency of the EFQM Model. Bastani et al. (2021) demonstrated how AI enhances supply chain resilience in the pharmaceutical industry by proactively lowering risks and facilitating real-time decision-making.

The EFQM Model 2025 signifies an advancement of this framework, emphasizing sustainability, innovation, and stakeholder involvement. The approach demonstrates its ability to adapt to contemporary issues, including legislative changes and market

dynamics, by linking organizational plans with global efforts like the United Nations Sustainable Development Goals (SDGs) (Martusewicz, Wierzbic, & Łukaszewicz, 2024). This alignment enables businesses to address industry-specific requirements, especially in the pharmaceutical industry, while promoting a culture of excellence and ongoing enhancement.

The EFQM Model aligns strategic objectives with operational processes, enabling firms to comply with industry standards while fostering innovation and excellence in competitive marketplaces. The organized yet adaptable framework enables organizations to confidently handle difficulties, establishing themselves as leaders in their domains.

Fundamental components of the EFQM Model are:

1. **Leadership**: Effective leadership serves as the foundation of the EFQM Model, driving vision, strategic direction, and fostering a resilient company culture. Leaders play a pivotal role in aligning organizational objectives with stakeholder expectations and ethical standards, thus promoting adaptability and proactive responses to change (Bolboli & Reiche, 2015; Deming, 1986).

2. **Strategy**: A clear and well-defined strategy is essential for navigating unpredictable business environments. The EFQM Model emphasizes the integration of sustainability and innovation into strategic planning to achieve long-term success while addressing societal and environmental obligations (Jabnoun, 2020).

3. **People**: Employee engagement and development are central to the EFQM Model. Organizations are encouraged to provide resources and opportunities for their workforce, fostering a culture of creativity, excellence, and flexibility. Empowered employees are vital in driving customer satisfaction and organizational resilience (Para-González et al., 2021).

4. **Partnerships and Resources**: Establishing strong partnerships and efficiently managing resources are essential for operational excellence and innovation. The EFQM Model promotes utilizing collaboration to get critical skills, technologies, and information that improve business competitiveness (Nenadál, 2020).

5. **Processes, Products, and Services**: Continuous improvement of processes and offerings is a cornerstone of the EFQM Model. By refining processes and delivering high-quality products and services, organizations can achieve greater customer satisfaction and maintain a competitive edge in their markets (Nenadál, 2020).

6. **Customer Results**: The model emphasizes understanding and exceeding customer expectations as a pathway to building lasting relationships and achieving business success. Assessing and improving customer satisfaction and loyalty is fundamental to organizational growth (Rodríguez-González et al., 2019).

7. **Key Results**: The EFQM Model underscores the importance of measurable outcomes, including financial performance, operational efficiency, and societal impact. These metrics enable organizations to evaluate progress, identify areas for improvement, and demonstrate value to stakeholders (Salah et al., 2019).

The EFQM model is widely acknowledged as a fundamental element of quality management, providing businesses with a systematic framework to enhance resilience, adaptation, and sustained performance (Moeller, 2001). The core principles stress the alignment of operational processes with strategic objectives, allowing businesses to move through complex environments while promoting a culture of continuous improvement (Rodríguez-González et al., 2019; Salah et al., 2019). Stewart (2003) emphasized the model's holistic approach, especially its efficacy in regulated industries like healthcare

and pharmaceuticals, where it is essential to balance regulatory compliance with operational efficiency.

Moeller (2001) further illustrated the adaptability of the EFQM framework by illustrating its effectiveness in the German healthcare industry, enabling ongoing quality enhancements and maximizing organizational results. Likewise, Stewart (2003) demonstrated its versatility inside NHS Trusts, where it improved the efficacy of pharmaceutical departments. These findings validate the EFQM model's applicability in many organizational contexts, especially in tackling industry-specific difficulties.

The EFQM methodology promotes a culture of excellence by combining essential enablers—such as leadership, strategy, and personnel management—with quantifiable outcomes, including customer satisfaction and social impact (Belvedere, Grando, & Legenvre, 2016). This strategic alignment guarantees that firms achieve immediate operational objectives while also creating a basis for enduring competitiveness in innovation-centric marketplaces (Salah et al., 2019).

The EFQM Approach is essential for fostering resilience and ongoing enhancement in unstable contexts. Periañez-Cristobal et al. (2020) highlighted its capacity to align strategic goals with operational efficiency, therefore markedly improving overall organizational performance. Rahmati and Jalilvand (2024) observed that the incorporation of new methods inside the EFQM framework responds to changing market needs, promoting sustainability and flexibility in competitive environments. In highly regulated industries like pharmaceuticals, Farhadi Mahalli (2013) characterized the model as an effective instrument for evaluating performance and exposing opportunities for enhancement, especially via its enabler criteria like as leadership and resource

management. These components guarantee ongoing enhancement and robustness in intricate marketplaces.

The EFQM framework underscores the necessity of adaptable organizational structures that can swiftly react to external disruptions (Nenadál, 2020). This adaptability is essential for enhancing resilience and facilitating effective responses to disruptions, especially in dynamic industries like pharmaceuticals, where operational flexibility and regulatory adherence are crucial (Martusewicz et al., 2024). Advanced technologies like artificial intelligence (AI) and data analytics augment this flexibility by enhancing operational efficiency and enabling proactive risk management. AI-driven predictive analytics empower organizations to foresee and alleviate future disruptions, enhance decision-making processes, and sustain competitiveness in rapidly evolving settings (Rahmati & Jalilvand, 2024).

A fundamental component of the EFQM framework is its alignment with overall societal and environmental objectives, including the United Nations Sustainable Development Goals (SDGs) (Martusewicz et al., 2024; Rahmati & Jalilvand, 2024). Organizations may tackle urgent environmental and societal issues and enhance their reputations and stakeholder confidence by including sustainability and social responsibility into their long-term objectives (Martusewicz et al., 2024). Nenadál (2020) underscored the significance of sustainable practices in improving stakeholder involvement and fortifying market positioning, hence accentuating the model's pertinence in contemporary corporate environments.

Although its numerous benefits, the execution of the EFQM model poses difficulties (Nenadál, 2020; Rahmati & Jalilvand, 2024). The adoption process frequently necessitates significant resource allocation, encompassing time, financial commitment,

and organizational emphasis, which might burden smaller enterprises with constrained resources (Nenadál, 2020). Moreover, opposition to change, coupled with the necessity for extensive training and capacity building, may impede its implementation (Nenadál, 2020). The model's complexity may provide challenges for businesses that lack the necessary skills or infrastructure to apply its components efficiently (Rahmati & Jalilvand, 2024). The incorporation of sophisticated technologies, like AI, may require large investments in technology and personnel development, hence establishing extra obstacles to acceptance (Para-González et al., 2021).

However, empirical data highlights the model's efficacy in promoting resilience and creativity. Para-González et al. (2021) shown that the alignment of leadership and strategy within the EFQM framework markedly improves organizational flexibility and operational efficiency. In heavily regulated industries such as pharmaceuticals, this alignment is essential for adhering to rigorous regulatory requirements while maintaining a competitive advantage (Stewart, 2003; Farhadi Mahalli, 2013). The concept emphasizes cultivating an innovative culture, enabling firms to tackle growing difficulties with sophisticated solutions, hence promoting sustainable development and enduring success (Martusewicz et al., 2024).

The EFQM model, with its complete framework and versatility, enables enterprises to attain excellence in several areas. By incorporating concepts of sustainability, innovation, and resilience, it empowers firms with the competencies required to address contemporary issues while aligning with long-term strategic objectives. Despite requiring substantial resources for implementation, its demonstrated potential to improve flexibility, operational efficiency, and sustainable development makes it essential for

firms aiming to stay competitive and inventive in a constantly changing global environment.

The examined literature highlights the essential function of the EFQM model in enhancing organizational resilience, mitigating risks, and facilitating strategic flexibility, especially within regulated sectors like pharmaceuticals. Research has shown that EFQM principles—leadership, strategic alignment, process optimization, and stakeholder engagement—enhance decision-making, operational efficiency, and regulatory compliance. The incorporation of emerging technologies, including AI and predictive analytics, into EFQM frameworks has improved companies' capacity to foresee hazards and maintain long-term competitiveness.

Based on these observations, Table 2.1 highlights the principal research that have investigated the correlation among EFQM, risk management, absorptive capacity, and organizational resilience, emphasizing its consequences for dynamic and heavily regulated business contexts.

Table 2.1: Key Studies on EFQM, Risk Management, and Resilience in Regulated Industries

Key Study	**Findings**	**Relevance to Study Constructs**
Fonseca (2021)	EFQM fosters strategic alignment and operational efficiency, assisting organizations in enhancing decision-making and risk management.	EFQM & RM – Quality management as a risk reduction tool.
Mehralian et al. (2017)	EFQM bolsters resilience in pharmaceutical companies by promoting adaptability and adherence to stringent rules.	EFQM & OR – Compliance and adaptability for resilience.

Rodríguez-González et al. (2019)	The use of EFQM in hospital pharmacy departments resulted in substantial enhancements in patient safety and operational efficiency.	EFQM & OR – EFQM's role in healthcare resilience.
Favaretti et al. (2015); Akyuz (2014)	EFQM enhances supply chain resilience and augments disruption response capabilities.	EFQM & OR – Aligning leadership with supply chain resilience.
Bastani et al. (2021)	Artificial intelligence and big data inside EFQM frameworks enhance decision-making, risk reduction, and operational efficiency.	EFQM & RM – Technological integration for proactive risk management.
Martusewicz et al. (2024)	The EFQM Model 2025 integrates sustainability with AI-driven decision-making to improve competitiveness.	EFQM & ACAP – Leveraging advanced technology for resilience.
Khrais & Amirah (2023)	Leadership and collaboration within EFQM foster an innovative culture, enhancing regulatory compliance.	EFQM & OR – Leadership-driven resilience in pharmaceuticals.
Stewart (2003); Farhadi Mahalli (2013)	EFQM enhances compliance with regulations while promoting enduring adaptation in heavily regulated industries.	EFQM & RM – Ensuring compliance and strategic flexibility.

2.2 The Role of EFQM in Enhancing Risk Management Practices: Exploring the Relationship and Contributions

The EFQM model is recognized as a crucial foundation for improving organizational resilience and promoting excellence (Favaretti et al., 2015). Akyuz (2014) stated that the EFQM approach, through the integration of comprehensive quality management concepts, assists businesses in identifying, assessing, and mitigating risks, thereby improving their ability to adapt to dynamic business environments. The systematic method connects operational and strategic processes, allowing organizations to manage risk efficiently while upholding operational excellence (Akyuz, 2014; Favaretti et al., 2015).

According to Samani et al. (2017) and Williams et al. (2006), a significant advantage of the EFQM approach lies in its ability to cultivate a culture of risk awareness across all organizational levels. They further explain that this is accomplished by integrating risk management methods into everyday operations and long-term plans, ensuring that risk mitigation is not limited to unique departments. Leadership and strategy—two fundamental enabling characteristics of the EFQM model—underscore proactive decision-making and the anticipation of possible disruptions, essential for managing uncertainties in highly regulated industries such as healthcare and pharmaceuticals (Samani et al., 2017; Williams et al., 2006). Studies in hospital governance indicate that the use of EFQM principles improves risk management methods, resulting in enhanced patient safety and operational efficiency (Favaretti et al., 2015).

Favaretti et al. (2015) and Caballero and Krishnamurthy (2008) assert that the merging of risk management techniques with strategic goals is fundamental to the EFQM framework, allowing firms to identify activities that provide both short-term and enduring

outcomes. Their research illustrates the advantages of the EFQM framework in healthcare, demonstrating that the alignment of risk mitigation strategies with strategic goals has considerably enhanced resource allocation and overall performance. Akyuz (2014) and Zwikael and Sadeh (2007) also underscore the significance of this alignment in the supply chain domain, especially in mitigating uncertainties and disruptions within intricate systems. Their observation emphasizes that the amalgamation of adaptability and strategy coherence is essential for guaranteeing resilience and sustaining operational continuity in unpredictable conditions.

Rahmati and Jalilvand (2024) and Chomiak-Orsa and Martusewicz (2023) highlight the EFQM model's adaptability in relation to technology advancement, emphasizing its significance in proficient risk management. They believe that firms may utilize artificial intelligence (AI) and data analytics to anticipate possible hazards, improve decision-making processes, and sustain competitiveness in unstable conditions. This application is particularly significant in industries like pharmaceuticals, where Khinvasara et al. (2023) and Akyuz (2014) underscore the significance of AI-driven predictive analytics and risk assessment tools in proactively managing disruptions, minimizing operational costs, and ensuring regulatory compliance. Moreover, Periañez-Cristobal et al. (2020) assert that the incorporation of digital technology into EFQM-based risk management frameworks signifies a substantial advancement, facilitating real-time decision-making and offering strategic insights that enhance organizational resilience.

Favaretti et al. (2015) and Caballero and Krishnamurthy (2008) reinforce stakeholder engagement as a crucial element of the EFQM framework, highlighting its significance in promoting cooperation and transparent communication. This interaction allows firms to recognize weaknesses and build effective contingency plans. Samani et al. (2017) state

that stakeholder engagement, including both internal and external stakeholders, greatly improves risk assessment procedures and guarantees the effective execution of mitigation approaches. This collaborative method is especially beneficial in integrated healthcare governance, as the input from many stakeholders' aids in the creation of robust and flexible systems.

However, even though its benefits, the implementation of the EFQM model encounters certain challenges. Organizations often encounter resistance to change, the requirement for extensive training, and the complexity of integrating new technology into existing operations. The challenges are of particular importance for smaller firms that may not possess the resources to implement the plan effectively (Chomiak-Orsa & Martusewicz, 2023). Moreover, the model's sophisticated framework and its requirement for significant resource allocation—both financial and human—can stress organizations without adequate competencies (Periañez-Cristobal et al., 2020). Yet, these limitations present opportunities for innovation, as organizations may leverage the EFQM framework to explore novel solutions and improve their adaptive capabilities (Rahmati & Jalilvand, 2024).

Akyuz (2014), Favaretti et al. (2015), and Samani et al. (2017) jointly claim that the EFQM model offers a comprehensive framework for risk management in dynamic and competitive contexts. The approach accomplishes this by promoting a culture of risk awareness, matching strategic and operational goals, and integrating innovative technology. The authors assert that the EFQM model's focus on cooperation and innovation enables firms to well manage uncertainty, hence assuring sustained success across diverse industries.

2.3 EFQM and Organizational Resilience

2.3.1 The Role of EFQM in Developing Resilient Organizations

The EFQM Model is recognized as an essential framework for promoting organizational resilience, adaptation, and sustained performance (Bolboli & Reiche, 2015; Cavaco & Machado, 2014). The emphasis on continuous improvement and proactive quality management enables businesses to foster resilience-enhancing components that reinforce operational stability and sustainability (Bolboli & Reiche, 2015). The EFQM model integrates sustainability and excellence principles, aligning corporate objectives with social and environmental requirements, particularly pertinent in the pharmaceutical industry, where resilience and compliance are crucial (Jabnoun, 2020; Đorđević et al., 2021).

Empirical study highlights the success of the EFQM framework in bolstering resilience in regulated industries such as healthcare, providing significant insights for its implementation in the pharmaceutical business. Rodríguez-González et al. (2019) emphasized significant improvements in patient safety and operational efficiency resulting from EFQM-driven reforms in hospital pharmacy departments. These enhancements illustrate the model's capacity to steadily tackle intricate difficulties and enhance performance in critical settings.

Asadi et al. (2018) similarly noted substantial improvements in leadership practices and resource management in public healthcare institutions, demonstrating the EFQM model's capacity to foster systemic excellence in high-risk environments. These findings highlight the framework's effectiveness in promoting a culture of ongoing enhancement and readiness, essential in industries where regulatory adherence and operational accuracy are essential.

Cavaco and Machado (2014) reinforce these results, highlighting that the EFQM model's systematic approach to improvement is well-suited to the specific requirements of the pharmaceutical industry. The approach facilitates firms in managing regulatory challenges, enhancing resource allocation, and sustaining operational excellence through the integration of leadership principles, strategy alignment, and risk management.

These findings together illustrate the EFQM framework's appropriateness for the pharmaceutical industry, where resilience, innovation, and compliance are critical for enduring success. Its capacity to promote systematic enhancement and flexibility renders it an effective instrument for tackling the industry's dynamic and heavily regulated characteristics.

Essential components of the EFQM methodology, including leadership, process optimization, and stakeholder involvement, are crucial for fostering resilience (Rodríguez-González et al., 2019; Cavaco & Machado, 2014). Leadership cultivates a proactive culture that empowers firms to foresee risks and professionally manage uncertainty (Chege et al., 2023; Segovia, 2017). Process optimization, a fundamental aspect of the EFQM framework, facilitates the development of resilient operational systems that reduce interruptions and accelerate recovery during crises (Vlachos, 2018). Moreover, EFQM's focus on stakeholder cooperation cultivates networks that supply vital resources and insights, hence augmenting the total capability for organizational crisis management (Khrais & Amirah, 2023).

Jabnoun (2020) and Karmaker and Ahmed (2020) assert that the amalgamation of EFQM concepts with effective risk management tactics considerably improves organizational resilience. Integrating proactive risk management within the EFQM framework enables firms to promote innovation and sustainability while proactively addressing possible

disruptions. This proactive strategy enables companies to mitigate risks prior to their escalation, so maintaining continuity of operations.

Samani et al. (2017) asserts that this alignment fosters a culture of risk awareness throughout organizational processes, enabling organizations to skillfully address both anticipated and unexpected difficulties. Jabnoun (2020) and Đorđević et al. (2021) emphasize the EFQM model's potential to align operational goals with wider social expectations, hence reinforcing public trust and improving organizational adaptation in unstable contexts. The EFQM framework facilitates operational excellence while enabling firms to adapt to evolving market and social demands with resilience and flexibility.

Absorptive capacity—the capability to recognize, integrate, and utilize external knowledge—functions as a vital moderating element in the correlation between EFQM and risk management (Para-González et al., 2021; Sadeghi et al., 2020; Cavaco & Machado, 2014). This skill enhances resilience by fostering innovation, operational efficiency, and adaptation to disturbances (Para-González et al., 2021). The incorporation of absorptive capacity into the EFQM framework enables firms to adjust to regulatory modifications and technological progress while preserving stability (Turisova et al., 2020). This alignment is essential in pharmaceuticals for assuring adherence to rigorous rules and navigating the complexities of global supply chains (Williams et al., 2006).

Darouich and Dhiba (2020) emphasize the implementation of EFQM concepts into pharmaceutical operations as an essential component in developing a robust resilience plan. They underscore the imperative for dual preparation, which encompasses both anticipated changes, such as escalating regulatory requirements, and unexpected disruptions, such as supply chain outages. This method is especially crucial in the

developing world, where infrastructural and economic constraints increase operational hazards.

Chomiak-Orsa and Martusewicz (2023) claim that EFQM's emphasis on adaptation enables firms to address these difficulties proficiently. They assert that integrating adaptive methods into operations guarantees ongoing competitiveness and improved stakeholder trust and satisfaction. This dual approach highlights the EFQM framework's capacity to enhance operational stability and facilitate sustained success in volatile and high-risk settings.

Karmaker and Ahmed (2020) assert that the combination of EFQM, risk management, and absorptive capacity provides substantial benefits, while also posing significant obstacles. Resource limitations, opposition to change, and the necessity for comprehensive capacity-building activities might impede the efficient execution of such systems. The authors advocate for the implementation of customized solutions that integrate the EFQM structured excellence model with robust risk management measures to tackle these difficulties. This strategy allows firms to manage risks thoroughly while improving their resilience, especially in dynamic and heavily regulated environments.

Torabi et al. (2016) and Favaretti et al. (2015) emphasize that the integration of the EFQM model with proactive risk management and absorptive capacity establishes an impressive framework for improving resilience and adaptation. According to Ben Amara et al. (2022), this integrated strategy guarantees operational reliability, allowing firms to prosper in unstable worldwide environments. Moreover, Torabi et al. (2016) suggest that by integrating EFQM concepts into their operations, businesses may maintain long-term success while confronting growing challenges. Favaretti et al. (2015) and Ben Amara et

al. (2022) claim that this integrated strategy enables enterprises to get an edge over their competitors, especially in dynamic and quickly evolving industries.

2.3.2 Frameworks for Organizational Resilience

Organizational resilience, defined as the ability to withstand, adapt to, and recover from disruptions, has become an essential characteristic for organizations in today's dynamic and unpredictable conditions (Hillmann & Guenther, 2021; Barasa et al., 2018). This resilience includes survival, adaptability, imagination, and ongoing learning, which empower businesses to manage uncertainty and emerge more robust (Hillmann & Guenther, 2021; Costella et al., 2023). Essential to cultivating resilience are frameworks that combine business continuity and risk management concepts, so maintaining operational stability and protecting value creation during crises (Ben Amara et al., 2022; Burnard et al., 2018).

Bolboli and Reiche (2015) and Jabnoun (2020) assert that the EFQM Excellence Model serves as a crucial basis for enhancing organizational resilience. Leadership, a fundamental component of the EFQM system, is critical in fostering a culture of preparedness. Segovia (2017) and Chege et al. (2023) believe that proactive leadership empowers firms to recognize and mitigate risks efficiently, hence assuring operational continuity in the face of obstacles.

Process optimization, a vital component of the EFQM framework, promotes the establishment of robust systems. Vlachos (2018) and Tasic et al. (2019) emphasize that these solutions are crucial for reducing downtime and maintaining critical operations during interruptions. This competence enables businesses to recover rapidly, preserving stability and operating efficiency during periods of uncertainty. Bolboli and Reiche

(2015), in conjunction with Costella et al. (2023), emphasize the significance of resilience-enhancing processes for ensuring sustained organizational performance.

Torabi et al. (2016), Suresh et al. (2020), and Karmaker and Ahmed (2020) emphasize that business continuity frameworks are fundamentally associated with resilience, since they focus on maintaining essential operations during and following interruptions. These frameworks are essential for minimizing operational downtime, safeguarding company value, and guaranteeing continuous service delivery despite substantial restrictions (Torabi et al., 2016; Suresh et al., 2020).

Karmaker and Ahmed (2020) assert that a well-structured business continuity strategy alleviates the operational and economic impacts of crises. These plans not only improve organizational resilience but also guarantee ongoing stakeholder confidence and foster long-term sustainability. Barasa et al. (2018) state that strong continuity frameworks are essential for sustaining operational stability, hence enhancing an organization's ability to endure and heal from disruptions efficiently.

Mishra et al. (2018) and Burnard et al. (2018) highlight that risk management is essential for bolstering resilience through the systematic identification, assessment, and mitigation of possible hazards. Their study emphasizes that proactive risk management assessments, coupled with planned resource allocation, enhance organizational stability and adaptation, particularly in unstable circumstances. Chege et al. (2023) and Tasic et al. (2019) state that the integration of risk management with resilience frameworks allows firms to predict, prepare for, and efficiently recover from disruptions. This alignment facilitates a comprehensive strategy for preserving operational excellence, enabling organizations to retain performance and competitiveness despite unexpected failures.

A crucial element of resilience frameworks is their ability to link strategic objectives with proactive planning and adaptation (Burnard et al., 2018; Tasic et al., 2019; Su & Junge, 2023). The integration of EFQM concepts with risk management methods enables firms to improve their preparedness for both anticipated and unexpected situations. This integration promotes a culture of risk awareness, facilitating continuous improvement and assuring long-term sustainability (Jabnoun, 2020). EFQM's emphasis on sustainability links business goals with social and environmental obligations, which is especially vital for industries such as pharmaceuticals, where compliance and adaptation are essential (Đorđević et al., 2021; Rahi, 2019).

Absorptive capacity, characterized as the capability to identify, integrate, and utilize external knowledge, functions as a crucial moderating variable in the association between EFQM and risk management (Cohen & Levinthal, 1990). Enhancing absorptive capacity enables businesses to promote innovation and adapt to changing regulatory and technical environments, so bolstering their resilience (Para-González et al., 2021; Akpinar & Özer-Çaylan, 2022). This dynamic competence facilitates ongoing learning and operational adaptability, allowing organizations to sustain stability while adopting novel ideas.

In heavily regulated industries like pharmaceuticals, resilience frameworks are especially beneficial for managing strict compliance obligations while preserving competitive advantage (Van der Vegt et al., 2015. Research indicates that the combination of EFQM with risk management and business continuity frameworks equips firms with a solid basis to successfully tackle regulatory alterations, supply chain interruptions, and market fluctuations (Darouich & Dhiba, 2020; Turisova et al., 2020). The pharmaceutical industry's dependence on continuous manufacturing and delivery requires frameworks that guarantee operational continuity and risk mitigation (Rahi, 2019; Su & Junge, 2023).

In conclusion, frameworks for organizational resilience, including EFQM, business continuity, and risk management, constitute a holistic strategy to protect against disruptions. Incorporating adaptability, proactive risk management, and absorptive capacity, these frameworks empower organizations to foresee and address challenges efficiently, thereby ensuring continuous performance and value generation in dynamic contexts (Hillmann & Guenther, 2021; Tasic et al., 2019). Their use illustrates how resilience acts as a fundamental element for sustained success in sophisticated and uncertain global marketplaces.

The research emphasizes multiple frameworks that bolster organizational resilience, specifically via the incorporation of EFQM, risk management, business continuity, and absorptive capacity. These frameworks assist firms in anticipating hazards, ensuring operational continuity, and promoting adaptation in unpredictable circumstances.

Table 2.2 includes important studies that investigate these resilience-enhancing frameworks, illustrating their significance in securing long-term stability, strategic adaptability, and regulatory adherence in dynamic industries.

Table 2.2: Key Studies on Organizational Resilience Frameworks

Key Study	Findings	Relevance to Study Constructs
Hillmann & Guenther (2021); Barasa et al. (2018)	Organizational resilience includes survival, adaptability, learning, and proactive crisis management.	OR – Core resilience components for dynamic environments.
Bolboli & Reiche (2015); Jabnoun (2020)	EFQM promotes resilience via leadership, strategy alignment, and process optimization.	EFQM & OR – Leadership-driven resilience strategies.
Vlachos (2018); Tasic et al. (2019)	Process optimization under EFQM improves operational efficiency and minimizes downtime during disruptions.	EFQM & RM – Improving business continuity through structured processes.
Torabi et al. (2016); Suresh et al. (2020); Karmaker & Ahmed (2020)	Business continuity frameworks reduce operational interruptions and safeguard corporate value.	RM & OR – Ensuring stability and continuity during crises.
Mishra et al. (2018); Burnard et al. (2018)	Risk management improves resilience by systematically identifying and mitigating hazards.	RM & OR – Proactive risk management improves adaptability.
Chege et al. (2023); Tasic et al. (2019)	Integrating risk management with resilience frameworks improves preparedness and recovery.	RM & EFQM – Structured risk mitigation ensures business stability.

Jabnoun (2020); Đorđević et al. (2021); Rahi (2019)	EFQM associates resilience with sustainability, adherence to regulations, and environmental accountability.	EFQM & OR – Resilience through sustainability and compliance.
Cohen & Levinthal (1990); Para-González et al. (2021); Akpinar & Özer-Çaylan (2022)	Absorptive capacity fosters innovation and resilience through the integration of information.	ACAP & OR – External knowledge absorption strengthens resilience.
Darouich & Dhiba (2020); Turisova et al. (2020); Su & Junge (2023)	The integration of EFQM, risk management, and business continuity frameworks enhances regulatory compliance.	EFQM, RM & OR – Integrated resilience strategies in regulated industries.

2.3.3 The EFQM Model: Enhancing Organizational Excellence through Integrated Risk Management and Resilience Strategies

Bolboli and Reiche (2015) assert that the EFQM approach, initially designed to foster organizational excellence, has shown considerable efficiency when combined with risk management measures, especially in highly regulated industries like pharmaceuticals. The authors assert that the EFQM framework's systematic quality management principles facilitate firms in effectively aligning their operational and strategic objectives. Jabnoun (2020) emphasizes that integrating EFQM with proactive risk management methods enables organizations to systematically detect, assess, and reduce risks related to compliance, supply chain vulnerabilities, and the requirements of ongoing innovation. This integration guarantees that firms may sustain operational stability while adjusting to the complex nature of their industry.

Samani et al. (2017) assert that incorporating risk-based thinking into the EFQM framework strongly improves its capacity to manage uncertainties in pharmaceutical operations. By integrating EFQM components, including leadership, strategy, and processes, with risk management concepts, the model enhances its capability to navigate complex and dynamic situations. Torabi et al. (2016) claim that the combination of EFQM with risk-oriented approaches enhances the resilience of organizational processes, especially in times of crisis. This method guarantees compliance with regulatory standards while promoting the flexibility necessary to address unexpected obstacles, therefore preserving operational continuity and enhancing innovation.

Khrais and Amirah (2023) emphasize the crucial importance of leadership in the successful execution of EFQM and risk management frameworks. Leadership fosters a culture of adaptation and continuous improvement, promoting staff involvement and skill acquisition to address the operational requirements of dynamic markets. Bastani et al. (2021) and Karmaker and Ahmed (2020) underscore the necessity of integrating organizational strategy with market demands to promote agility and sustain competitiveness in complex, highly regulated contexts.

Lawal (2024) emphasizes the transformational influence of technical achievements, including artificial intelligence (AI), blockchain, and data analytics, in improving the integration of EFQM with risk management. Artificial intelligence and data analytics offer real-time insights, facilitating predictive analytics and process optimization to mitigate operational risks and enhance decision-making. Moreover, blockchain technology improves traceability and transparency in supply chains, tackling significant issues such as counterfeit drugs and regulatory non-compliance. These developments

jointly enhance the operational resilience and tactical flexibility of firms in regulated industries.

In conclusion, the integration of EFQM with proficient risk management strategies and technology innovations establishes a powerful framework that enables pharmaceutical enterprises to successfully control risks while upholding excellence in quality and performance. This holistic strategy integrates organizational operations with global standards, guaranteeing sustained performance and enhanced healthcare results in regulated industries (Favaretti et al., 2015; Karmaker & Ahmed, 2020; Lawal, 2024).

2.4 Risk Management as a Contributor to Organizational Resilience

Risk management is crucial for improving organizational resilience, enabling firms to maintain continuity and adaptation in the face of unforeseen challenges (Hillmann & Guenther, 2021). Effective risk management entails the systematic identification, assessment, and mitigation of risks, therefore substantially decreasing the impact of disruptions and enhancing an organization’s recovery capability (Torabi et al., 2016). Resilience, characterized as an organization's capacity to endure, adjust to, and recover from disruptions, is increasingly recognized as essential in the contemporary volatile business environment (Hillmann & Guenther, 2021). Organizations that use comprehensive risk management methods exhibit enhanced resilience by predicting possible risks and alleviating their impacts (Suresh et al., 2020).

Proactive risk management is essential for improving organizational resilience by recognizing vulnerabilities and mitigating them before they develop into major disruptions. Research highlights the significance of systematic risk assessment in allowing businesses to formulate tailored contingency plans and efficient response methods, hence preserving operational continuity during emergencies (Torabi et al.,

2016; Mishra et al., 2018). By emphasizing proactive strategies, organizations may expedite recovery, protect essential operations, and mitigate the effects of interruptions.

A common subject in the literature is the combination of risk management with business continuity planning, which enhances resilience by equipping businesses with the means to foresee and respond to unforeseen issues. Torabi et al. (2016) emphasize the importance of ongoing surveillance of risk variables, asserting that it allows organizations to swiftly adjust to unexpected situations while preserving stability and adaptability. Suresh et al. (2020) assert that resource optimization is fundamental to efficient risk management, especially in high-risk domains. Their findings indicate that allocating resources to important activities guarantees the continuance of essential services, mitigates financial losses, and safeguards corporate reputation during crises.

Researchers agree that risk management solutions enhance operational continuity and promote a culture of preparedness and ongoing development within businesses. Mishra et al. (2018) assert that this culture promotes employee involvement in resilience-enhancing initiatives, hence fortifying the organization's overall flexibility. This supports Iyer and Bandyopadhyay's (2000) claim that proactive risk management bolsters stakeholder confidence, cultivating trust among investors, regulators, and customers. This trust is essential for sustaining robust connections and ensuring enduring support, especially in times of uncertainty.

However, although there is consensus on the advantages of proactive and integrated risk management methodologies, opinions vary about particular implementation tactics. Torabi et al. (2016) underscore the necessity of aligning risk management strategies with strategic goals to attain long-term resilience, whereas Suresh et al. (2020) and Mishra et al. (2018) concentrate on the tactical distribution of resources to minimize immediate

threats. The opposing viewpoints underscore the complex nature of risk management, wherein strategic foresight and tactical agility are both crucial for fostering resilience.

In summary, the literature highlights the relationship between risk management and resilience, demonstrating how proactive measures, resource efficiency, and stakeholder involvement collectively improve an organization's ability to handle disturbances. By employing an integrated strategy, companies may maintain operational continuity and support strategic objectives, even among unforeseen problems.

In conclusion, effective risk management practices are essential for enhancing organizational resilience. Risk management guarantees continuity and flexibility during disruptions by proactive risk reduction, efficient resource allocation, stakeholder trust-building, and strategy alignment (Torabi et al., 2016; Mishra et al., 2018; Suresh et al., 2020).

The examined literature highlights the essential function of risk management in enhancing organizational resilience, specifically via proactive risk detection, resource optimization, and stakeholder involvement. Research repeatedly indicates that businesses with strong risk management systems are more adept at anticipating, mitigating, and recovering from disruptions, thereby assuring operational continuity and long-term stability.

Table 2.3 highlights the principal studies investigating the correlation between risk management and organizational resilience, highlighting their contributions to business continuity, crisis readiness, and strategic risk mitigation in volatile situations.

Table 2.3: Key Studies on Risk Management and Organizational Resilience

Key Study	Findings	Relevance to Study Constructs
Hillmann & Guenther (2021)	Risk management is crucial for resilience, allowing organizations to maintain operations during disruptions.	RM & OR – Risk mitigation ensures business continuity.
Torabi et al. (2016)	Proactive risk management tactics improve an organization's capacity to recover from catastrophes.	RM & OR – Risk identification and contingency planning.
Suresh et al. (2020)	Resource optimization is essential for risk management in high-risk industries.	RM & OR – Efficient resource allocation for resilience.
Mishra et al. (2018)	Risk management cultivates a culture of preparedness, enhancing employee involvement.	RM & OR – Employee involvement enhances organizational flexibility.
Iyer & Bandyopadhyay (2000)	Proactive risk management fosters stakeholder confidence, securing enduring support amid uncertainty.	RM & OR – Trust-based resilience and investor confidence.

2.5 Absorptive Capacity (ACAP) as a Moderator

2.5.1 Definition and Strategic Importance of ACAP

Absorptive capacity (ACAP), as stated by Zahra and George (2002), indicates an organization's capability to recognize, acquire, adapt, and employ external knowledge. It consists of two main components: Potential Absorptive Capacity (PAC), which pertains

to the identification and acquisition of external information, and Realized Absorptive Capacity (RAC), which concentrates on the integration and application of this knowledge within the organization. This approach promotes continuous learning, flexibility, and organizational resilience, allowing companies to respond successfully to changing market demands and disruptions (Melkas et al., 2010; Alkalha et al., 2019).

ACAP is crucial for enhancing resilience, adaptation, and innovation in regulated industries like pharmaceuticals. It allows companies to successfully operate through intricate regulatory environments while maintaining competitiveness in evolving markets. The capacity to receive, integrate, convert, and implement external information grants enterprises a substantial advantage, facilitating compliance and innovation in highly regulated contexts (Chatterjee et al., 2022; Alkalha et al., 2019).

A prevalent subject in the literature is ACAP's function in enabling swift adaptability to regulatory modifications and technological progressions. Chatterjee et al. (2022) emphasize that by utilizing external information, pharmaceutical companies may incorporate new technologies and procedures into their operations, hence improving operational resilience and market competitiveness. This corresponds with Alkalha et al. (2019), who assert that ACAP allows enterprises to proactively address changing industry requirements while sustaining operational excellence. Collectively, these studies emphasize ACAP's dual function in fostering innovation and maintaining compliance in unstable markets.

Para-González et al. (2021) further substantiate ACAP’s significance by linking its principles to the EFQM framework, especially in fostering continuous improvement and operational excellence. They contend that ACAP promotes an equilibrium between the exploration of novel knowledge and its successful application, hence fostering prolonged

development and resilience. This integration boosts an organization's learning flexibility and facilitates the smooth implementation of novel approaches into core activities.

Besides its contributions to innovation, ACAP is essential for supply chain resilience. Roh et al. (2022) assert that ACAP enhances an organization’s capacity to cope with external disruptions, hence maintaining operational stability and adaptation in unstable environments. This viewpoint aligns with Chatterjee et al.'s (2022) claim that the dual emphasis of ACAP—on both potential and realized capacities—enables organizations to adeptly navigate intricate issues while ensuring compliance and competitiveness.

Leadership and corporate culture serve as critical facilitators of ACAP. Stentoft et al. (2023) emphasize that leadership promoting continuous learning and cooperation substantially improves the organization's ability to identify and utilize external knowledge. They emphasize the significance of structural components, including effective knowledge management systems and interdisciplinary teams, in integrating ACAP into operational processes. This comprehensive integration guarantees that resilience becomes a natural organizational characteristic, allowing companies to prosper in highly regulated and competitive industries.

These studies collectively illustrate that ACAP is not just a means of regulatory compliance but a strategic resource for enhancing resilience, innovation, and sustained competitiveness. By utilizing external information, integrating it with internal procedures, and incorporating it into a conducive organizational culture, companies may attain enduring operational excellence and respond efficiently to changing industry requirements.

Although its several benefits, absorptive capacity encounters obstacles, especially in regulated industries such as pharmaceuticals. Alkalha et al. (2019) assert that tight legal

obligations may hinder the efficient utilization of external information, presenting challenges for firms seeking to incorporate ACAP into their operations. They emphasize the necessity for rigorous adherence to regulatory compliance and intellectual property matters to guarantee the secure and effective incorporation of external perspectives. Melkas et al. (2010) present empirical evidence indicating that ACAP enhances resilience by fostering improved flexibility and sustained growth, even in restrictive conditions.

Sadeghi et al. (2020) and Stentoft et al. (2023) examine the incorporation of absorptive capacity into known frameworks such as EFQM and risk management, recognizing it as a strategic pathway for enhancing resilience. They claim that integrating innovation with operational efficiency and risk mitigation strategies produces a holistic resilience framework. However, Sadeghi et al. (2020) highlight that the actual application of this integration is yet inadequately examined, especially in heavily regulated industries, indicating a necessity for more study to enhance ACAP alongside other resilience frameworks.

In summary, Zahra and George (2002), Melkas et al. (2010), and Alkalha et al. (2019) all illustrate that absorptive capacity is essential for improving organizational resilience. ACAP promotes creativity, flexibility, and adaptation by enabling the incorporation of external knowledge. In any case, its execution, especially when integrated with frameworks such as EFQM and risk management, need further examination to completely capture its capacity for guaranteeing operational continuity and achievement in difficult highly regulated settings.

2.5.2 Impact of Absorptive Capacity on the Relationship between EFQM and Risk Management

Sadeghi et al. (2020) assert that ACAP substantially improves the synergy between the EFQM Excellence Model and risk management frameworks. They claim that ACAP enhances an organization's capacity to assimilate external knowledge into fundamental resilience tactics, providing a proactive method for recognizing and reducing risks and vulnerabilities. This integration promotes a culture of ongoing learning and growth, matching effectively with the goals of the EFQM framework.

Zahra and George (2002) present a comprehensive examination of the two aspects of absorptive capacity: Potential Absorptive Capacity (PAC) and Realized Absorptive Capacity (RAC). They claim that these elements correspond perfectly with the basic principles of the EFQM Excellence Model, including leadership, strategy, and process enhancement. This alignment allows firms to efficiently integrate external knowledge, improving their readiness to address risks and adjust to shocks.

Hillmann and Guenther (2021) reinforce this viewpoint by emphasizing that the combination of ACAP with EFQM concepts enhances the formulation of effective risk management methods. Integrating ACAP into frameworks like as EFQM enables firms to bolster operational resilience and retain strategy alignment, so assuring long-term sustainability and the capacity to grow in changing contexts, as emphasized by Hillmann and Guenther (2021).

Segovia (2017) asserts that ACAP cultivates a proactive risk management culture within the EFQM framework by facilitating the identification and integration of external information pertinent to possible hazards. This capacity enables firms to build specialized contingency plans and reaction tactics informed by current and pertinent external

information. The incorporation of ACAP within EFQM augments an organization's ability for swift recovery and continuity during interruptions, in accordance with EFQM's fundamental principles of resilience via leadership, process optimization, and cooperation. Moreover, Ben Amara et al. (2022) emphasize that ACAP fosters proactive interaction with new information, considerably enhancing an organization's agility in foreseeing and tackling unforeseen issues. This agility is essential for enhancing both risk management and EFQM's primary goals of resilience and adaptation.

Alkalha et al. (2019) highlight that the partnership between ACAP and the EFQM framework is especially beneficial in regulated industries, where firms encounter sophisticated compliance obligations. ACAP facilitates the seamless integration of new regulatory information into enterprises, ensuring that risk management systems conform to developing requirements and regulations. This integration enhances risk mitigation measures and promotes a strong culture of corporate performance in accordance with EFQM's principles. Chatterjee et al. (2022) assert that integrating ACAP into EFQM facilitates ongoing adaptation and operational agility, essential for sustaining resilience in high-pressure contexts.

Ismail Gölgeci (2019) believes that enhancing ACAP inside EFQM and risk management frameworks dramatically bolsters organizational resilience by cultivating a culture of continual learning, innovation, and adaptation. Advanced ACAP allows enterprises to quickly identify pertinent knowledge sources, combine insights across departments, and refine processes accordingly. Bolboli and Reiche (2015) underscore that the interaction between EFQM and risk management, enabled by ACAP, guarantees that resilience-building initiatives are adaptable to new threats and changes in the external environment.

According to Segovia (2017), leadership within the EFQM model fosters a culture of preparation by integrating ACAP practices into risk management and continuous improvement efforts. This leadership-oriented integration promotes a proactive approach to resilience, ensuring that businesses are well prepared to tackle both expected and unexpected challenges.

Chege et al. (2023) and Sadeghi et al. (2020) emphasize that ACAP facilitates the amalgamation of EFQM and risk management by utilizing external knowledge for risk reduction, process enhancement, and ongoing development. This alignment cultivates resilience and adaptability, allowing firms to manage and prosper under changing difficulties. Torabi et al. (2016) and Para-González et al. (2021) believe that the integrated implementation of ACAP, EFQM, and risk management formulates a unified approach that enhances resilience and fosters enduring organizational performance in more dynamic contexts.

2.5.3 Impact of Absorptive Capacity (ACAP) on the Relationship Between Risk Management and Organizational Resilience

ACAP is essential for connecting risk management with organizational resilience. By facilitating the effective acquisition, integration, and use of external knowledge, ACAP improves the adaptability and responsiveness of risk management frameworks. This skill enables companies to proactively tackle emerging risks and disruptions, hence strengthening their resilience strategies (Cohen & Levinthal, 1990; Sadeghi et al., 2020). A common pattern in the literature is the beneficial interaction between ACAP and risk management, especially in the anticipatory recognition and alleviation of vulnerabilities. Hillmann and Guenther (2021) emphasize that ACAP facilitates the formulation of

customized continuity strategies by enabling organizations to recognize hazards and anticipate future interruptions. This proactive strategy not only reduces immediate hazards but also guarantees long-term operational stability, a view supported by Mishra et al. (2018). Incorporating ACAP into risk management frameworks enhances scenario planning, allowing organizations to simulate shocks and develop tailored resilience measures (Al-Hakimi et al., 2021).

The planned distribution of resources is another crucial domain in which ACAP enhances resilience. Suresh et al. (2020) assert that ACAP enables firms to allocate resources to essential activities by pinpointing high-risk regions and forecasting potential risks. This strategic resource allocation improves operational efficiency while reducing financial and reputational risks during crises. Hillmann and Guenther (2021) suggest that strategic decision-making enhances organizational resilience by integrating current recovery requirements with long-term goals.

A fundamental factor influencing the interplay of ACAP, risk management, and resilience is the culture of persistent learning and enhancement. Organizations with strong adaptive capacity systematically integrate insights from previous shocks into their future resilience frameworks (Roh et al., 2022; Stentoft et al., 2023). This recurrent learning process enables organizations to enhance their reaction strategies and adjust to emerging threats, so fortifying their defenses against future crises. Hillmann and Guenther (2021) also assert that adaptive learning processes, enabled by ACAP, are essential for sustaining resilience in variable settings.

Furthermore, the combination of ACAP with technology and human resources significantly enhances resilience. Miao et al. (2021) claim that firms utilizing ACAP to implement virtual solutions and analytics augment their ability for ongoing innovation

and resilience throughout disturbances. The efficacy of these technological applications depends on proficient knowledge management, underscoring the significance of ACAP in facilitating enduring adaptation and operational continuity in fluctuating environments. These approaches together highlight the complex function of ACAP in enhancing organizational resilience. ACAP supports companies in sustaining stability under uncertainty by endorsing proactive risk assessment, resource optimization, scenario planning, and adaptive learning. Its incorporation of current technology and strategy frameworks guarantees that enterprises stay adaptable and equipped to confront future problems, enhancing their capacity to succeed in intricate and swiftly evolving environment.

Recent studies have extensively recognized the significance of absorptive capacity in bolstering resilience, especially in dynamic and high-risk industries such as pharmaceuticals.

Table 2.4 summarizes essential research findings, highlighting the relationship between knowledge absorption, innovation, and organizational resilience, and their significance to the aims of this study.

Table 2.4: Absorptive Capacity in Resilience Enhancement

Key Study	**Findings**	**Relevance**
Para-González et al. (2021)	EFQM facilitates learning and innovation, linking absorptive capacity to organizational development.	Highlights the role of knowledge assimilation in fostering continuous improvement.

Sadeghi et al. (2020)	Absorptive capacity mediates disaster resilience through information quality and change management.	Demonstrates absorptive capacity's role in crisis resilience in pharmaceutical supply chains.

In summary, absorptive capacity functions as a crucial moderator in the interplay between risk management and resilience. Through the improvement of risk assessment, resource allocation, scenario planning, and iterative learning, ACAP facilitates the development of a resilient organization adept at managing disturbances and maintaining long-term stability. The strategic alignment of ACAP, risk management, and resilience allows businesses to stay adaptable, maintaining continuity and competitive advantage in the face of uncertainty (Sadeghi et al., 2020; Cohen & Levinthal, 1990; Hillmann & Guenther, 2021).

2.6 The Palestinian Pharmaceutical Industry

The pharmaceutical industry in Palestine is vital to the healthcare system and economic progress, greatly enhancing the accessibility of crucial pharmaceuticals within a complex socio-economic and geopolitical setting. The Palestinian pharmaceutical companies, like many in developing countries, encounters significant obstacles such as inadequate regulatory frameworks, financial limitations, and supply chain vulnerabilities. Addressing these difficulties necessitates strategic interventions and the adoption of modern technologies in order to guarantee fair access to pharmaceuticals and sustainable healthcare results (Bastani et al., 2021; Darouich & Dhiba, 2020).

The regulatory environment in Palestine, like to that of other developing countries, encounters constraints that impede the industry's growth and resilience. Insufficient enforcement of safety, quality, and efficacy criteria increases the possibility of counterfeit medications into the market, risking public health (Jaberidoost et al., 2015). These regulatory deficiencies hinder local drug manufacturers from competing successfully in global markets. Furthermore, the dependence on intellectual property rights (IPR) regulations, although crucial for safeguarding innovation, frequently hinders access to inexpensive generic medications in resource-constrained settings, hence intensifying healthcare inequalities (Nguyen et al., 2021).

The economic issues intensify the difficulties encountered by the Palestinian pharmaceutical industry. The elevated expenses of pharmaceutical manufacturing and restricted access to financial resources hinder enterprises' capacity to fulfill the demand for vital pharmaceuticals. Global economic shocks, such the COVID-19 pandemic, have intensified these limitations, hindering access to raw materials and elevating manufacturing prices (Darouich & Dhiba, 2020). Financial pressures frequently result in elevated medicine prices, rendering them unaffordable for numerous patients in low-income regions, hence worsening health care gaps.

Vulnerabilities in the supply chain are a substantial barrier. Palestinian pharmaceutical industries are significantly dependent on imported raw materials and equipment because of constrained native manufacturing capacities. This dependence renders the business exceedingly vulnerable to geopolitical instability, trade barriers, and border closures. Infrastructure obstacles and limitations on the transportation of supplies enhance supply chain disruptions, resulting in delays in production and distribution (Nguyen et al., 2021).

Technological innovation provides viable solutions to these difficulties. The adoption of technologies like artificial intelligence (AI) and Blockchain can improve supply chain resilience and regulatory adherence. AI-driven predictive analytics enhance resource allocation by forecasting disruptions, while Blockchain guarantees transparency and trust via immutable transaction records, hence minimizing the possibility of counterfeit items and regulatory infractions (Lawal, 2024). Likewise, Internet of Things (IoT) technologies facilitate real-time surveillance of industrial operations, ensuring compliance with Good Manufacturing Practices (GMP) and promoting proactive quality control (Ullagaddi, 2024). Successful implementation of these technological advancements necessitates effective collaboration among pharmaceutical companies, technology providers, and regulatory authorities. This coordination promotes innovation and guarantees adherence to stringent regulatory standards, allowing companies to enhance resilience and compete in global markets (Khrais & Amirah, 2023).

The EFQM framework provides a methodical strategy for addressing these difficulties. EFQM integrates quality management concepts with risk management approaches to enhance operational efficiency and resilience in pharmaceutical organizations. Leadership and employee engagement, essential to EFQM, augment flexibility and creativity, allowing organizations to address industry-specific challenges successfully (Khrais & Amirah, 2023). The alignment of strategic objectives with market demands enhances the implementation of EFQM. The use of digital technologies like blockchain and big data analytics into EFQM procedures improves transparency, reduces risks, and guarantees continuity in healthcare services. These initiatives enhance operational flexibility and foster sustainability, as highlighted by Bastani et al. (2021) and Nguyen et al. (2021).

Absorptive Capacity (ACAP) serves as a vital connection between EFQM concepts and organizational resilience. Absorptive capacity improves a firm's capability to absorb, integrate, and utilize new information, facilitating adaptation to external problems and the search of possibilities (Stentoft et al., 2023). By incorporating absorptive capacity into strategic and operational frameworks, Palestinian pharmaceutical companies may enhance resilience, guarantee access to important medications, and bolster the stability of healthcare systems in resource-constrained settings.

Numerous studies have investigated how EFQM, risk management strategies, absorptive capacity, and organizational resilience aid in passing the challenges confronting the Palestinian pharmaceutical industry, including regulatory constraints, financial limitations, and supply chain vulnerabilities. The studies emphasize the significance of regulatory enforcement, technological innovation, leadership, and the integration of external knowledge in enhancing resilience and promoting sustainable industrial growth.

Table 2.5 encapsulates these essential studies, synthesizing their findings on resilience-enhancing measures in the pharmaceutical industry, especially within volatile and regulated contexts.

Table 2.5: Key Studies on Challenges and Resilience in the Palestinian Pharmaceutical Industry

Key Study	Findings	Relevance to Study Constructs
Bastani et al. (2021)	Strategic interventions and current technology enhance access to pharmaceuticals and healthcare sustainability in emerging economies.	OR – Strengthening resilience in pharmaceutical supply chains.

Darouich & Dhiba (2020)	Economic and regulatory restrictions impede the growth of the pharmaceutical industry; financial constraints elevate production expenses.	RM – Financial risk impacts supply chain and production resilience.
Jaberidoost et al. (2015)	Inadequate regulatory enforcement permits counterfeit pharmaceuticals to get into the market, endangering public health and undermining corporate reputation.	EFQM & RM – Regulatory compliance as a risk mitigation tool.
Nguyen et al. (2021)	Geopolitical volatility and reliance on imported raw materials create risks in the supply chain, affecting production continuity.	RM & OR – Risk management to enhance supply chain resilience.
Lawal (2024)	AI and Blockchain enhance supply chain resilience by providing transparency, traceability, and mitigating counterfeit pharmaceuticals.	EFQM & RM – Technological integration in quality and risk management.
Ullagaddi (2024)	The IoT enables real-time oversight of pharmaceutical manufacturing to guarantee adherence to Good Manufacturing Practices and proactive quality assurance.	EFQM & OR – Enhancing operational efficiency through digital transformation.
Khrais & Amirah (2023)	The principles of EFQM, leadership, and employee involvement foster resilience and creativity within pharmaceutical companies.	EFQM & OR – Quality management as a resilience enabler.

Stentoft et al. (2023)	Absorptive capacity improves a firm's capability to assimilate external knowledge, hence enhancing adaptation and resilience.	ACAP & OR – Absorptive capacity as a driver of resilience in pharmaceutical firms.

The findings from these key researches highlight the relationship among organized excellence models, absorptive capacity, and risk management measures in bolstering organizational resilience. Although current research offers significant insights into these characteristics, a thorough, tailored framework designed for the distinct problems of dynamic and regulated contexts is yet inadequately examined.

The contributions are encapsulated in Table 2.6, emphasizing a combination of structured excellence models, absorptive capacity, and customized resilience frameworks designed for dynamic and regulated contexts.

Table 2.6: Novel Contributions of the Current Study

Key Areas of Contribution	**Description**
Integration of EFQM and Risk Management	Combines structured excellence frameworks with proactive risk mitigation to enhance resilience.
Role of Absorptive Capacity	Highlights how external knowledge assimilation improves responsiveness and innovation in pharmaceutical supply chains.
Development of a Customized Framework	Proposes a novel model integrating EFQM, risk management, and absorptive capacity for pharmaceutical resilience.

The EFQM framework provides a methodical strategy for addressing these difficulties. EFQM integrates quality management concepts with risk management approaches to enhance operational efficiency and resilience in pharmaceutical companies. Leadership and employee engagement, essential to EFQM, augment flexibility and creativity, allowing organizations to

address industry-specific challenges successfully (Khrais & Amirah, 2023). The integration of strategic objectives with market demands enhances the implementation of EFQM. The use of digital technologies like Blockchain and big data analytics into EFQM procedures improves transparency, reduces risks, and guarantees continuity in healthcare services. These initiatives enhance operational flexibility and encourage sustainability, as highlighted by Bastani et al. (2021) and Nguyen et al. (2021).

ACAP serves as a vital connection between EFQM concepts and organizational resilience. Absorptive capacity improves a firm's capability to absorb, integrate, and utilize new information, facilitating adaptation to external problems and the search of possibilities (Stentoft et al., 2023). By incorporating absorptive capacity into strategic and operational frameworks, Palestinian pharmaceutical companies may enhance resilience, guarantee access to important medications, and bolster the stability of healthcare systems in environments with limited resources.

Chapter Three

Research Methodology

3.1 Overview

This chapter outlines the methodological approach for this research and provides a thorough plan for data collection. This plan employs an exploratory research methodology to address specific research questions by testing designated hypotheses. Further examines the approaches for gathering the necessary data, as well as the methodologies and techniques employed in data analysis. This section discusses the research population and presents the research methodology diagram. It also addresses reliability and validity, as well as the ethical considerations relevant to this study.

3.2 Research Type

According to Sekaran (2003), research is characterized as "a systematic, organized, and objective process of investigating specific issues or problems with the aim of finding answers or solutions." The goals of research encompass identifying appropriate data collection methods, outlining the data analysis process, and structuring the framework for its implementation. Opie (2019) and Bhattacherjee (2012) typically classify research into three categories based on its objectives: Descriptive research emphasizes the identification of patterns, ideas, or characteristics instead of testing specific hypotheses (Zhang, 2019). Exploratory research aims to investigate unclear or inadequately understood issues, frequently analyzing phenomena without prior assumptions. This approach is especially beneficial for developing research questions and hypotheses (Saunders et al., 2009; Algozzine & Hancock, 2016).

Explanatory research seeks to establish causal relationships and identify best practices across different industries. This method offers a clear and corrective framework for comprehending current realities (Snead & Wright, 2014). This study employs an exploratory research approach, considering its distinctive context as the inaugural investigation of its nature. A thorough examination of the current literature, as outlined in Chapter Two, reveals a total lack of previous research on this topic. The purpose of exploratory research is to address subjects that have received little or no prior examination (Shankardass et al., 2018). This methodology provides flexibility, addresses a wide range of questions, and establishes a basis for generating hypotheses and defining new concepts (Pérez-López et al., 2019). Additionally, exploratory studies play a crucial role in setting research priorities and generally utilize smaller sample sizes, which are consistent with the goals of this research (Hunter et al., 2018).

3.3 Research Approach

The research approach functions as the essential framework that directs the researcher's plan and strategy (Creswell, 2017). The research process includes organized steps and detailed plans, starting with coming up with hypotheses and assumptions and continuing with the exact ways to collect data, analyze it, and come to a final conclusion about what it all means (Creswell, 2017). The choice of research approach is dictated by the characteristics and aims of the study, ensuring consistency with the research questions and objectives (Huang et al., 2019).

There are three main categories of research approaches:

1. Quantitative research involves the use of numerical data and statistical analysis to evaluate hypotheses and uncover patterns or relationships (Gliner et al., 2016; Mohajan,

2020)(Gliner et al., 2016). Researchers frequently use this approach to determine quantifiable results or causal connections.

2. Qualitative research focuses on comprehending phenomena by utilizing non-numerical data, including interviews, observations, and textual analysis. This approach is especially beneficial for examining intricate social issues or formulating theories (Serrat, 2023;Truijens et al., 2021)

3. Mixed-methods research uses both quantitative and qualitative methods. It lets you look into research problems in more depth by using different kinds of data and points of view (Doyle et al., 2009; Creswell, 2017; Gliner et al., 2016).

The selected research approach should align with the study's objectives, ensuring consistency between the methodology and the issue at hand. Qualitative approaches are particularly effective for exploratory studies (Doyle et al., 2009; Gliner et al., 2011, 2016), while quantitative methods are better suited for testing specific hypotheses. Mixed-methods research offers the necessary flexibility for comprehensive investigations that demand both depth and breadth of understanding (Doyle et al., 2009; De Lisle, 2011; Gliner et al., 2016). However, this exploratory research adopts a sequential mixed-methods strategy.

This methodology entails performing the study in separate stages, where qualitative data collection and analysis are accomplished before quantitative approaches are applied. Initially, comprehensive interviews are performed to investigate participants' experiences and viewpoints. The insights obtained from these interviews guide the creation of a second survey that quantifies the frequency of the highlighted themes within a broader community.

This method makes it easier to use what you learned in the first phase to guide and improve the next phase (Hong et al., 2018; Student et al., 2021; Lang et al., 2024), which leads to a better understanding of the research question overall(Hong et al., 2018; Student et al., 2021; Lang et al., 2024). Researchers frequently utilize two main types of sequential designs. The sequential explanatory design starts with gathering and analyzing quantitative data. Next, qualitative data is added to help understand the quantitative results better. This design is especially beneficial for research that necessitates elucidations of statistical patterns or relationships (Ivankova et al., 2006; Taguchi, 2018). The sequential exploratory design begins with the collection of qualitative data to investigate phenomena, subsequently followed by quantitative data to test or generalize the initial findings (Hong et al., 2018; Student et al., 2021; Lang et al., 2024),. This method is effective for formulating theories or pinpointing variables for additional investigation (Almalki, 2016; Student et al., 2021; Lang et al., 2024).

The integration of data takes place during the interpretation stage, where findings from both phases are merged to offer a comprehensive understanding of the research problem (Creswell & Plano Clark, 2018; Lang et al., 2024). While it offers benefits like integrating depth and breadth and maintaining methodological rigor, the sequential mixed methodology approach can be time-consuming and necessitates meticulous alignment between phases to ensure coherence (Cameron, 2009; Carnerud et al., 2018; Mahomed, 2019; Student et al., 2021).

Figure 3.1 below shows the sequential mixed methodology approach employed during the interpretation stage, facilitating a comprehensive understanding of data integration and its contribution to improving the overall research technique. This graphic visually

illustrates the integration of information from both phases, providing a clear representation of the method's structure and development.

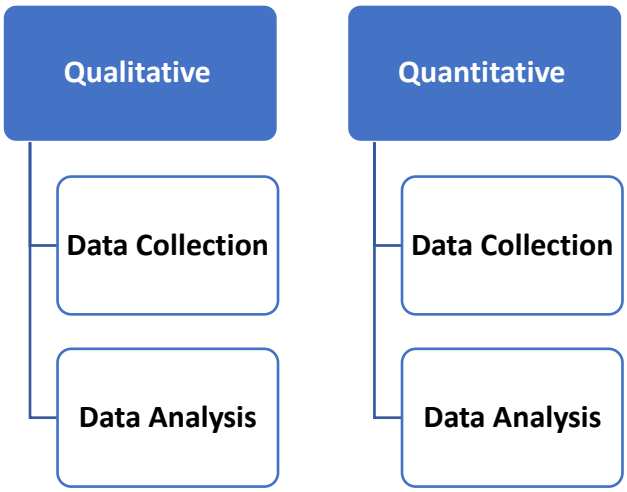

Figure 3.1: Sequential mixed methodology approach interpretation

3.4 Methodology Flow Chart Diagram

The research began in October 2023 and finished in January 2025, with interviews and surveys administered from December 2024 to January 2025. The pharmaceutical industry in Palestine, which matched the study goals, served as both the research population and sample. Figure 3.2 presents a comprehensive summary of the study approach using a flowchart.

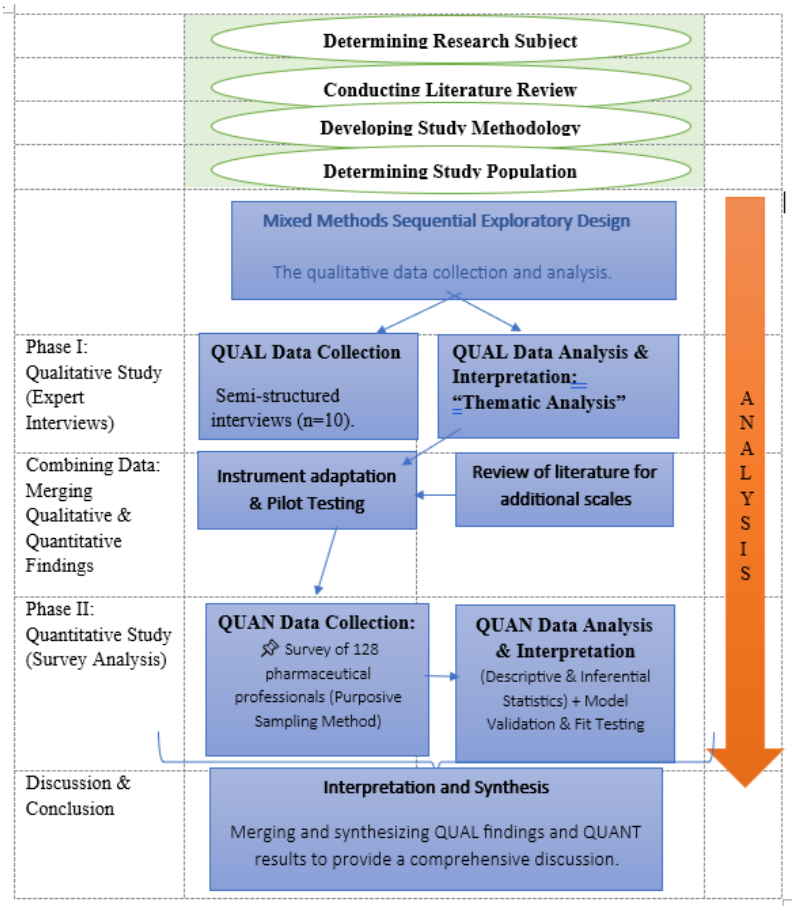

Figure 3.2: Research Methodology Flow Chart Diagram

Identifying the scope and objective of the study was the first phase. It followed by looking deeply into the prior literature about the concept of the interplay of EFQM, risk management, organizational resilience, and absorptive capacity to reach the step of formulating research questions and hypotheses. The second phase was started by identifying the research population and sample, and then, designing the data collection tools which were basically the semi-structured interview and the survey, after that all, conducting the collecting data.

The third phase involved analyzing the collected data using SEM-PLS 4.0 software to calculate both the inner and outer models, hence assuring precise analysis of latent components and associated indicators (Ringle et al., 2020). The tool's extensive

functionalities highlight its increasing favor among researchers for tackling complex study inquiries across various fields (Calvo-Mora et al., 2018).

The fourth stage entailed assessing the data acquired from the third phase to evaluate the established hypotheses and address the research questions. This phase was executed in accordance with the results of previous studies to formulate conclusions and offer insights that fulfill the study objectives. The framework was established as a guiding model for the Palestinian pharmaceutical firms, offering a complete managerial strategy that incorporates EFQM principles, absorptive capacity, and risk management techniques to assess and improve organizational resilience within the industry. Finally, finalizing conclusions and recommendations, which was the fifth phase.

3.5 Data Collection Tools

Data collection of the research study could be accomplished by many tools (Onwuegbuzie et al., 2010; Mkandawire, 2019; Lang et al., 2024). Accordingly, for this research, the main tools that were used to collect data are semi structured interviews and the survey, which were the sources of the primary data. At the same time, the literature review was the source of the secondary data and was used to support and provide additional information to the primary data (Onwuegbuzie et al., 2010; Mkandawire, 2019; Lang et al., 2024) Perform a comprehensive literature analysis to discern essential ideas related to EFQM, risk management frameworks, organizational resilience techniques, and absorptive capacity in the pharmaceutical industry. This review synthesizes information from academic papers, industry reports, and pertinent research projects. Emphasis was focused on the impact of absorptive capacity on the absorption of new knowledge and practices inside organizations, hence improving their potential to adapt and innovate in

response to environmental changes and crises. This thorough evaluation establishes a robust basis for comprehending the interplay of EFQM, risk management, organizational resilience, and absorptive capacity, so assuring a complete approach to the analysis. (Nenadál, 2020; Costella et al., 2023; Zahra & George, 2002).

3.5.1 Interviews

Interviews were chosen as the primary method for gathering qualitative data due to their flexibility and ability to yield in-depth insights. Roulston (2013) asserts that interviews enable the exploration of unexpected responses and innovative research areas, making them especially suitable for the exploratory character of this study. The study relies on extensive literature identifying important components and indicators; however, conducting interviews was necessary to confirm the presence of these practices in the selected pharmaceutical businesses and evaluate their practical implementation.

Semi-structured interviews were selected for its equilibrium between structure and adaptability, permitting the researcher to customize inquiries based on the participant's expertise while facilitating elaboration (Saunders et al., 2009; Creswell, 2013). This method guaranteed that any newly uncovered industry-specific practices could be integrated into the survey phase, hence augmenting its relevance. That said, given the absence of newly found practices, the questionnaire adhered to validated scales for each component in the study, thereby maintaining methodological rigor.

Semi-structured interviews are highly effective in exploratory research, enabling participants to articulate detailed insights in their own words, thereby enhancing comprehension of intricate subjects such as EFQM practices, risk management, absorptive capacity, and organizational resilience (Baimyrzaeva, 2018; Mkandawire,

2019). Furthermore, its format allows the researcher to modify the order or wording of questions as needed to correspond with the interviewee's context and replies (Stuckey, 2013). our methodology is crucial for our research, which examines the intricate relationship between management frameworks and organizational resilience in the Palestinian pharmaceutical industry.

Interviews focused on supply chain managers, quality managers, plant managers, senior executives, and human resources specialists in pharmaceutical organizations. These individuals were chosen for their strategic positions and experience, guaranteeing they could offer important insights on organizational processes. Participants were expected to possess a minimum of five years of experience to guarantee sufficient awareness of EFQM concepts, risk management tactics, and resilience-building processes. Ten semi-structured interviews were conducted with top executives and mid-level managers to obtain varied viewpoints. The data gathering section provides further details on the interview process, including data collection methodologies and participant recruitment. The semi-structured interview questions are available in Appendix I.

3.5.2 The Survey

The survey instrument was developed to objectively analyze the correlation among EFQM practices, risk management methods, absorptive capacity, and organizational resilience in Palestinian pharmaceutical enterprises. It was designed to enhance the insights from interviews and to tackle critical concerns highlighted in earlier research. This comprehensive evaluation establishes a solid basis for comprehending the interplay of EFQM, risk management, organizational resilience, and absorptive capacity within the Palestinian pharmaceutical industry.

A descriptive analytic methodology was employed, utilizing surveys as the principal quantitative data collecting instrument because of its capacity to gather empirical data, evaluate conceptual frameworks, and uncover patterns, correlations, and trends (Bryman, 2015; Williams, 2007). Surveys are acknowledged for their economic efficiency, scalability, and capacity to gather standardized data effectively (Mkandawire, 2019b; Student et al., 2021). Moreover, employing a structured format reduces response variability and improves data coherence and consistency (Moser & Kalton, 2017). To overcome the constraints of closed questions—such as limited potential for complicated replies (Salganik & Levy, 2015)—qualitative interviews were included to enhance the findings and tackle variations that may have been neglected in the survey.

The survey utilized a five-point Likert scale, enabling respondents to express their level of agreement from "strongly disagree" to "strongly agree" (Nemoto & Beglar, 2013; Shin et al., 2018). This method enabled a systematic and quantifiable means of capturing participants' viewpoints, assuring clarity and uniformity in gathering data. Surveys were disseminated in digital modes, such as email and WhatsApp, enhancing accessibility and adaptability to respondents' preferences (Walston et al., 2006).

The survey had five principal components, each corresponding to the study's aims and based on established scales from prior research:

1. **Demographic Dat**a

This part compiled demographic data about respondents, encompassing gender, age, educational credentials, years of experience, and current role. These characteristics provide context for evaluating replies and confirming the sample's representativeness.

2. **EFQM**

This section's questions were sourced from Øgland's (2014) validated scale, which evaluates the impact of EFQM self-assessments on organizational performance. This section comprises 32 questions that address fundamental EFQM dimensions:

- Leadership (4 questions) - Assessing how leaders formulate vision, involve stakeholders, and promote excellence.
- Strategy and Planning (5 questions) - Evaluating policy development, strategy execution, and review mechanisms.
- People (5 questions) - Analyzing employee empowerment, knowledge management, and communication.
- Partnerships and Resources (5 questions) - Investigating external cooperation, financial management, and resource optimization.
- Processes (5 questions) – Evaluating process design, innovation, and customer-centric service delivery.
- Customer Results (2 questions) – Determining techniques employed to evaluate consumer satisfaction and performance.
- Employee Results (2 questions) - Assessing workforce satisfaction and performance evaluation.

- Social Responsibility Results (2 questions) – Understanding corporate social responsibility and stakeholder involvement.
- Key Performance Results (2 questions) – Monitoring financial and operational performance indicators.

These aspects were tailored to align with the Palestinian pharmaceutical industry. guaranteeing their applicability to actual business practices.

3. **Absorptive Capacity**

Absorptive Capacity (ACAP)

This section utilized the validated scale developed by Lau and Lo (2019) to evaluate an organization's capacity to acquire, integrate, transform, and apply external knowledge. This section comprises 14 questions, addressing four fundamental dimensions:

- Acquisition (4 questions) - Assessing how firms obtain external knowledge from headquarters, partners, and external consultants.
- Assimilation (2 questions) - Assessing the effectiveness of companies in interpreting and analyzing novel market data.
- Transformation (3 questions) - Evaluating the process of assimilating new knowledge into established activities.
- Exploitation (5 questions) - Analyzing how organizations leverage and implement gained information for innovation and efficiency.

These factors underscore the importance of absorptive capability in promoting innovation and adaptability among Palestinian pharmaceutical firms, hence assuring continued growth and resilience in a competitive marketplace.

4. **Risk Management**

Items linked to risk management were derived from Gachanja's (2017) methodology, which examines enterprise risk management strategies and their impact on organizational performance. This part comprises 31 questions that evaluate five essential dimensions:

- Risk and Governance Self-Assessment (7 questions) — Assessing risk identification methodologies, managerial obligations, and risk evaluation instruments.
- Identification of Risk Indicators (4 questions) - Assessing how firms track financial vulnerabilities and formulate mitigation solutions.
- Incident Management (6 questions) - Evaluating crisis response protocols, risk assessment, and the combination of risk categories.
- Adherence to Internal and External Regulations (9 questions) – Analyzing compliance with regulatory obligations, executive supervision, and the advantages of business risk management.
- Action Tracking (5 questions) - Assessing the oversight and efficacy of risk mitigation solutions.

This customized scale assesses risk management maturity, emphasizing: Frequency of risk evaluations, Management of supply chain disruptions, and Preparedness for regulatory changes.

These factors enable Palestinian pharmaceutical companies to proactively identify, evaluate, and manage risks, hence enhancing organizational resilience in a dynamic environment.

5. **Organizational Resilience**

The questions listed in this part were extracted from the validated survey scale developed by Sengül, Marsan, and Gün (2018), explicitly intended to evaluate organizational resilience in high-risk and regulated industries. This part comprises 41 questions, addressing ten fundamental dimensions:

- Sensing Anticipation (5 questions) - Assessing early warning systems, risk consideration, and preparedness.
- Steering (5 questions) – Assessing leadership engagement, strategic decision-making, and lessons derived from prior experiences.
- Organizational Culture (3 questions) – Evaluating employee accountability, problem ownership, and roles during crises.
- Organizational Agility (3 questions) – Assessing flexibility in decision-making and swift adaptability to emergencies.
- Adaptive Culture (1 question) - Assessing the acceptance of leadership actions during crises.
- Slack Resources (7 questions) – Evaluating financial and material resource preparedness for crisis management.
- Networking (6 questions) – Analyzing external collaboration, supply chain interdependencies, and industry-wide cooperation.
- Coordination/Cooperation (6 questions) – Assessing teamwork, interdepartmental problem-solving, and leadership availability.
- Organizational Learning (4 questions) - Assessing knowledge transfer, training initiatives, and ongoing education.

- Improvised Decision-Making (1 question) — Evaluating leadership confidence in unforeseen emergencies.

The survey instrument underwent a stringent validation process to ensure accuracy and relevance.

An expert from the Palestinian pharmaceutical industry evaluated the survey's relevance to practical applications.

- Academic Assessment: Three university professors evaluated the material for authenticity, intelligibility, and pertinence to resilience research. Their feedback facilitated the refinement of the questions and resolved any language or technical issues.
- Bilingual Adaptation: The survey was originally created in English and subsequently translated into Arabic by professionals to guarantee cultural relevance and clarity, given that Arabic is the primary language in Palestine.

This systematic methodology ensures that the organizational resilience scale effectively reflects actual difficulties and resilience tactics in the Palestinian pharmaceutical industry. The full survey instrument, detailing all measured constructs and items, can be found in Appendix II.

3.5.3 Data Collection Tools Validity and Reliability

Ensuring the validity and reliability of data collection instruments is essential in both quantitative and qualitative research. These steps guarantee the right development of instruments, the collection of solid data, and the contribution to dependable outcomes that correspond with the study's aims. This study investigates the influence of EFQM approaches and risk management on organizational resilience within the Palestinian

pharmaceutical industry, employing specialized measures to guarantee both reliability and validity.

3.5.3.1 Interview Validity

The interview questions were designed based on the extensive literature research outlined in Chapter Two. This guaranteed that the inquiries aligned with the constructions of EFQM principles, risk management, absorptive capacity, and organizational resilience. The interview methodology was evaluated by four arbitrators: three academic professors and one industry specialist from the Palestinian pharmaceutical industry to confirm its validity.

The arbitrators offered significant insights and suggestions for enhancement. One academic proposed incorporating a cover page into the interview process for explaining the data's intended use, guarantee confidentiality, and define the study's aims. Another suggestion entailed rewording specific questions to more accurately correspond with the particular context of the respondents' organizations. Subsequent to this input, the interview questions were finalized and prepared for implementation in the data gathering phase. This thorough validation approach confirmed the suitability and significance of the interview protocol in fulfilling the study goals.

3.5.3.2 Survey Validity

Validity is a crucial factor in assessing the quality of survey instruments. It guarantees that the survey questions are suitable for assessing the targeted constructs and are consistent with the study's assumptions and theoretical framework (Kimberlin & Winterstein, 2008). To ascertain the survey's validity, its design utilized established scales

from prior investigations, guaranteeing a thorough and dependable assessment of the research constructs:

1. **EFQM Practices**: The questions were modified from Øgland's (2014) validated scale, which assesses EFQM self-evaluations within organizational settings.
2. **Absorptive Capacity**: The items were derived from the scale developed by Lau and Lo (2019), which assesses how companies acquire, integrate, and utilize external information.
3. **Risk Management**: The survey utilized the scale established by Gachanja (2017), concentrating on corporate risk management procedures and their maturity level.
4. **Organizational Resilience**: The questions were modified from the survey instrument developed by Sengül, Marsan, and Gün (2018), which evaluates resilience in high-risk, regulated industries.

The survey was sent to four arbitrators for review: three academic professors and one expert from the Palestinian pharmaceutical industry. Their input validated the survey's construct validity, confirming that the questions effectively included the intended variables without language or technical mistakes. A pilot study was done to detect and address any outstanding grammatical or technical issues prior to the implementation of the complete survey.

3.5.3.3 Survey Reliability

Reliability testing is essential for confirming the stability, consistency, and validity of survey results. An instrument is deemed dependable if it repeatedly yields identical findings under identical settings, hence augmenting the credibility of the study

(Thompson, 2002; Sekaran & Bougie, 2010). The survey instrument's reliability in the current investigation was assessed using Cronbach's alpha, a well-established statistic for evaluating internal coherence in Likert-scale surveys (Nemoto & Beglar, 2013).

Cronbach's alpha coefficients were computed for each variable in the survey to assess relationships among the survey questions. According to accepted criteria, α values below 0.7 are insufficient, values from 0.7 to 0.8 are deemed acceptable, values between 0.8 and 0.9 are regarded as good, and values beyond 0.9 are defined as excellent (Bonett & Wright, 2015). This study demonstrated that all survey variables have α values more than 0.7, signifying strong internal consistency. Appendix V presents the Cronbach's alpha values for each variable, indicating outstanding reliability. The results validate that the survey instrument is a dependable method for gathering data on EFQM practices, risk management techniques, absorptive capacity, and organizational resilience.

Pilot research with 30 participants was performed to improve the survey's reliability. This stage explained and corrected any misconceptions or technical problems in the questionnaire, guaranteeing its appropriateness for comprehensive execution. Cronbach's alpha was computed post-pilot research to verify the dependability of the modified instrument, hence proving its robustness.

The survey comprised a one-page opening letter describing its objectives, guaranteeing respondent confidentiality, and supplying the researcher's contact information for inquiries. It was subsequently distributed to all specified pharmaceutical companies through email and WhatsApp, providing extensive accessibility. To enhance response rates and mitigate potential issues, follow-ups were executed via telephone calls and in-person visits. This proactive strategy markedly improved both engagement and data integrity.

The survey focused on six prominent pharmaceutical companies: Jerusalem Pharmaceuticals, Birzeit Pharmaceutical Company, Beit Jala Pharmaceutical Company, Alison Pharmaceutical Company, Sama Pharmaceuticals Manufacturing Co., and Pharmacare. All six companies responded, guaranteeing thorough industry representation.

The data gathering procedure was finalized within two months, ensuring a thorough and efficient collection of responses. The survey data were compiled and structured for further research, establishing the quantitative basis of the present research.

The validation and reliability process guarantee that the data gathered in this study are accurate and reliable, establishing a robust basis for analyzing the relationships among EFQM practices, risk management, absorptive capacity, and organizational resilience in the Palestinian pharmaceutical industry.

3.5.3.4 Surveys' Pilot Study

Pilot testing despite being an essential phase in the research process, certain researchers frequently neglect it (Bhattacherjee, 2012; Gliner et al., 2016; Mkandawire, 2019). The main aim of pilot testing is to identify and resolve potential issues that respondents may face while completing the survey, thereby ensuring the tool's clarity, relevance, and functionality. Before the survey distribution, this study conducted a pilot test to assess usability and confirm the absence of linguistic or technical issues using Cronbach's Alpha as shown in Table 3.1 below. A random sample of 30 experienced executives or experts was selected from department managers within Palestinian pharmaceutical companies.

The intended participants included senior management, departmental managers, supervisors/decision-makers, and specialists in quality and risk management, including

those in supply chain and planning departments. The selection of these individuals is based on their expertise and familiarity with the research context, enabling them to offer valuable feedback on the survey design. The pilot test feedback was crucial for refining the survey.

Table 3.1: Cronbach's Alpha for Survey Variables of Pilot study

Reliability Statistics/ Scale	Cronbach's Alpha	N of Items
EFQM Practices	0.941	32
Absorptive Capacity (ACAP)	0.848	13
Risk Management Practices	0.953	31
Organizational Resilience Practices	0.962	41

3.6 Research Population and Sampling Techniques

The research population for this study comprises Palestinian pharmaceutical manufacturing companies. These companies play a vital role in the national economy and contribute significantly to global healthcare by addressing the growing demand for affordable, high-quality pharmaceuticals.

Companies must satisfy the following requirements to qualify for participation in this study:

1. Official Registration: They must be properly registered with local authorities in Palestine.

2. Legitimate Licensing: They must hold legitimate operating licenses to ensure adherence to local and international pharmaceutical rules.

3. Active Operations: They must engage actively in pharmaceutical manufacture or associated operations.

Participating firms were selected to ensure compliance with regulatory guidelines and to accurately represent the Palestinian pharmaceutical industry. This industry has substantial worldwide issues, such as compliance with international legislation, management of intricate supply chains, and competition in volatile market conditions. Eligibility requirements were put in place to maintain the integrity and accuracy of the data. Companies were evaluated for their appropriateness via telephone contact, email correspondence, site visits, or online assessments.

During a trial phase, leading pharmaceutical companies—Jerusalem Pharmaceuticals, Birzeit Pharmaceutical Company, Beit Jala Pharmaceutical Company, Alison Pharmaceutical Company, Sama Pharmaceuticals Manufacturing Co., and Pharmacare—participated in the enhancement of the survey design and ensured its conformity with the study's objectives.

In our correspondence with the six pharmaceutical companies representing the Palestinian pharmaceutical industry, it was established that 180 personnel inside these enterprises are qualified to complete the questionnaire. The 180 participants in this study are management and specialist people who may offer knowledgeable replies pertinent to the study's aims.

The study specifically targeted individuals in management roles, ensuring input from people directly involved in decision-making and operational functions. Eligible participants included senior management, departmental heads, supervisors, and specialists in essential areas such as supply chain, quality, production, executive management, human resources, finance, sales and marketing, and risk management. Particular emphasis was placed on personnel in supply chain and planning divisions due to their critical role in organizational resilience.

Following the instrument's completion, 150 questionnaires were distributed to managers at Palestinian pharmaceutical companies. Regular follow-up efforts, including email reminders, phone calls, WhatsApp messaging, and in-person visits, led to the collection of 133 completed surveys. Five were excluded due to insufficient data, yielding a total sample size of 128 valid responses and a response rate of 88.7%. The survey data was utilized to examine the application of essential frameworks, such as the EFQM model, risk management strategies, and absorptive capacity, and their combined effect on organizational resilience. The research examined how probability and effect evaluations, essential to qualitative risk management frameworks, aid in the discovery and assessment of risk variables. The questionnaire also investigated how EFQM principles and absorptive capacity enhance resilience by allowing firms to foresee, adjust to, and get back from operational disturbances.

The minimum sample size is necessary to be determined for surveys in order to be able to generalize the results from the population (Saunders et al., 2009). Goodhue et al. (2012) provided a formula for obtaining a statistically representative sample size for the population, which was adapted from Singh and Masuku and Singh (2014), and Masri (2016).

$$n = [z^2 * p * (1 - p) / e^2] / [1 + (z^2 * p * (1 - p) / (e^2 * N))]$$

Where:

n = Sample size

N= Population (180)

P= Proportion of property offers and neutral (0.5)

e = Error margin (0.05)

z = z value, upper α/2 from the normal distribution (For 95% of confidence level z= 1.96)

$n = [1.96^2 * 0.5 * (1 - 0.5) / 0.05^2] / [1 + (1.96^2 * 0.5 * (1 - 0.5) / (0.05^2 * 180))]$

$n = 384.16 / 3.1342 = 122.569$

The study adhered to recognized principles for quantitative research to guarantee the statistical representativeness of the sample. The sample size was established following the guidelines of Saunders et al. (2009), highlighting the necessity of precise population representation. This methodology corresponds with Goodhue et al. (2012), who emphasize the necessity of adequate sample sizes for data precision, and is further confirmed by Singh and Masuku (2014) and Masri (2016), who underscore representativeness as fundamental to obtaining significant and generalizable conclusions. This study establishes a solid basis for comprehending the challenges and opportunities in the Palestinian pharmaceuticals industry by adhering to these concepts.

3.6 Analysis Techniques

The analytical procedure was carried out utilizing the mixed-analysis method since this study utilizes a sequential mixed method. This method looks at qualitative data in a way that lets you understand and explain quantitative data by using what you learned from the qualitative data analysis (Onwuegbuzie and Combs, 2011). This section provides an overview of the techniques used to analyze both the quantitative data gathered from the survey and the qualitative data gathered from the interviews.

3.6.1 Interview Analysis

The data gathering procedure to meet the study objectives included participant selection, the development of surveys and interviews, and a comprehensive analysis of qualitative

data. This research integrates qualitative and quantitative methods to reveal linkages and patterns that enhance the comprehension of resilience in pharmaceutical supply chains. Thematic analysis was utilized as the principal tool to identify major themes, challenges, and best practices from the qualitative data gathered through expert interviews. Utilizing the methodology proposed by Nowell et al. (2017), NVivo V15 software was employed to systematically arrange and classify the data, hence facilitating an organized procedure for determining significant patterns. This investigation concentrated on the incorporation of EFQM concepts, risk management techniques, and absorptive capacity in the pharmaceutical industries of Palestine. Significant focus was placed on absorptive capacity—defined as an organization's capability to identify, integrate, and economically utilize significant new knowledge (Richtnér & Löfsten, 2014)—which is essential for improving resilience and sustainability in the pharmaceutical industry.

The subsequent phases contain the theme analysis procedure (Vaismoradi et al., 2013):

Familiarization: Analyzing interview notes and regularly reviewing recordings to get a full understanding of participant replies.

Generating Initial Codes: Identifying and categorizing issues into codes that represent reoccurring patterns or insights.

Formulating Themes: Consolidating associated codes into comprehensive themes that correspond with the study's aims.

Enhancing Themes: Evaluating and enhancing the themes to guarantee pertinence and direct connection with the study aim.

Establishing Themes: Designating explicit names and meanings to themes to improve comprehension and guarantee clarity in the analysis.

Validation: Constructing arguments to substantiate the selected themes and their relevance to the study setting.

This study utilizes theme analysis to offer valuable insights on the integration of EFQM principles, risk management strategies, and absorptive capacity to enhance resilience in pharmaceutical companies. The results aid in formulating a complete management framework that tackles the contextual and industry-specific difficulties encountered by the Palestinian pharmaceutical business. This systematic method guarantees that the data analysis process complies with stringent qualitative research criteria and yields dependable, actionable insights (Richtnér & Löfsten, 2014).

3.6.2 Survey Analysis

This study used statistical analysis to assess the degree of EFQM implementation, risk management maturity, and perceived organizational resilience in Palestinian pharmaceutical enterprises. The survey data investigates the moderating influence of absorptive capacity on the link among EFQM principles, risk management techniques, and organizational resilience. Partial Least Squares Structural Equation Modeling (PLS-SEM) served as the principal analytical instrument, executed via Smart PLS-SEM 4.1 software (Vann Yaroson, 2019). Descriptive and inferential statistical approaches were employed to identify correlations, trends, and interactions within the dataset, particularly examining the impact of absorptive capacity on organizational resilience.

PLS-SEM has emerged as an essential instrument for hypothesis testing and qualitative data analysis in several domains, such as management, marketing, and social sciences (Hair et al., 2011). This approach facilitates the study of large statistical models that include both implicit (unobserved) and observed variables, allowing researchers to

investigate complex interactions with accuracy (Vinzi et al., 2010). Its capacity to manage limited sample sizes, non-normative data distributions, and predictive analytic requirements renders it especially appropriate for the setting of our investigation, where these issues are prominent (Sarstedt et al., 2014).

A notable advantage of PLS-SEM is its capacity to investigate moderating effects without enforcing strict assumptions on interactive methods, rendering it more adaptable than conventional covariance-based approaches (Vinzi et al., 2010). Furthermore, PLS-SEM is very proficient in executing confirmatory factor analysis, confirming theoretical constructs, and evaluating correlations among variables. Its efficacy is thoroughly demonstrated in scenarios necessitating a sophisticated comprehension of variable interactions, including management information systems and research on organizational resilience (Hair Jr. et al., 2020; Asyraf & Afthanorhan, 2013).

This work employed Smart PLS-SEM 4.1 to compute both the inner and outer models, allowing an accurate assessment of latent constructs and associated indicators (Ringle et al., 2020). The inner model examined the structural linkages between EFQM principles, risk management techniques, absorptive capacity, and organizational resilience, whereas the outer model concentrated on evaluating the reliability and validity of the measurement constructs. This dual-level study yielded substantial insights into the theoretical framework and verified the validation of essential components.

Moreover, the adaptability of PLS-SEM facilitated the integration of mediations, effect chains, and dynamic relationships inside the model. This was especially significant in examining how absorptive capacity influences the interactions of EFQM, risk management, and organizational resilience, providing a more profound comprehension

of its function in improving organizational performance within the Palestinian pharmaceutical industry.

The application of PLS-SEM enabled the investigation of intricate relationships and confirmed the theoretical framework posited in this study. The method's versatility, especially in handling small sample numbers and non-normal data, highlights its appropriateness for fulfilling the study's aims. This investigation provides valuable insights into how management frameworks might enhance resilience and sustainability in resource-limited and dynamic settings.

PLS-SEM was used to find the mean values to help in ranking the implementation of tested practices. The answer range for the survey is 5 -1, so the range length can be found in the following formula (Creswell, 2017):

$$\text{The Range Length} = \frac{\text{Answer Range}}{\text{Number of Answers}} \qquad \text{The Range Length} = 0.8$$

$$\text{The Range Length} = \frac{5-1}{5}$$

As a result, any mean values between the range of (1 - 1.79) is shallow, and mean values between the range of (1.8 - 2.59) are low, and mean values between the range of (2.6 - 3.39) is medium, any mean values between the range of (3.4 - 4.19) is high, and any mean values between the range of (4.2 - 5) are very high.

Frequencies and percentages were calculated to analyze the demographic data of the respondents, following the approach outlined by Mindrila and Balentyne (2017). This research examines the pharmaceutical industry in Palestine, where enterprises are primarily family-owned (Hanieh et al., 2015). Table 3.2 below displays the correlation strength classification used in this study.

Table 3.2: The strength of r correlation results

Strength of Relationship	Correlation Coefficient (r)
Strong	$r > 0.7$
Moderate	$0.5 < r < 0.7$
Weak	$0.3 < r < 0.5$
None or Very Weak	$r < 0.3$

3.7 Ethical Concerns

We conducted the preparation and execution of interviews and surveys with utmost care to maintain the confidentiality and integrity of the study. Firstly, the researcher explicitly stated on the survey's opening page that they would keep all collected data, including names of individuals and businesses, anonymous, maintain it in a secure environment, and use it solely for the study. The researcher emphasized transparency and secrecy to encourage participants to be truthful and trust each other (Bryman, 2015). We took many precautions to maintain ethical standards. To ensure the validity and objectivity of the study, all chosen firms were given an official recommendation letter from the Arab American University's Faculty of Higher Education. To make sure the online survey will be filled out without revealing respondents' identities, the researcher followed up with them after submitting it. In keeping with ethical data-collecting best practices, the survey did not contain any information that may identify the respondents, their employers, or their personal details (Creswell & Plano Clark, 2018).

We also distributed questionnaires to companies at staggered periods, allowing participants to complete them within a week. This helped to reduce pressure and the possibility of hasty or forced answers. The privacy of the participants and the validity of

the study were protected by these safeguards, which guaranteed that their identities would remain anonymous and secret throughout the whole process. The researcher reduced the possibility of fraud or dishonesty occurring during data collection by following these procedures, which is an important step in guaranteeing the data's authenticity and dependability (Mertens, 2014). The study is also more rigorous and trustworthy because the participant data were handled in an ethical way, which is in line with the standards of responsible research conduct (Saunders et al., 2009).

Chapter Four
Data Analysis and Results

4.1 Overview

This chapter focuses on the analysis and presentation of findings derived from qualitative and quantitative data obtained through interviews and surveys. The characteristics of respondents are studied descriptively to contextualize the data. The interviews are analyzed to determine themes pertaining to EFQM practices, risk management techniques, absorptive capacity, and their contribution to bolstering organizational resilience.

The degrees of EFQM adoption, risk management maturity, and absorptive capacity in Palestinian pharmaceutical firms are evaluated comprehensively. The organizational resilience of these organizations is subsequently assessed based on the gathered data. The hypotheses are ultimately evaluated by inferential statistical methods, yielding insights into the interconnections of EFQM principles, risk management strategies, absorptive capacity, and organizational resilience within the industry.

4.2 Interviews Analysis

Table 4.1 outlines the objective analysis of qualitative data obtained from ten semi-structured interviews with senior professionals in the Palestinian pharmaceutical industry. The analysis adhered to a systematic methodology, commencing with the identification of codes that reflect specific concepts. These codes were subsequently organized into pertinent issues, which ended in the extraction and discussion of central themes.

Table 4.1: Summary of Identified Codes, Issues Discussed, and Central Themes

Codes	Issues Discussed	Initial/Central Themes
Implementation of EFQM Principles	Leadership, Strategy, People, Processes	EFQM Practices
Risk Assessments	Identifying and Mitigating Risks	Risk Management Practices
Knowledge Absorption	Integration of External Knowledge	Absorptive Capacity
Supply Chain Resilience	Disruption Preparedness, Supplier Relations	Organizational Resilience
Employee Engagement	Training, Knowledge Sharing	Organizational Resilience
Operational Continuity	Crisis Management, Recovery Strategies	Organizational Resilience
Resource Constraints	Cost, Infrastructure	Barriers to Implementation
External Pressures	Regulatory Compliance, Market Competition	Challenges in Pharmaceutical Context
Collaboration	Stakeholder Engagement	Opportunities for Collaboration

Themes Identified in Interviews

Theme 1: EFQM Practices

This theme emphasizes the use of EFQM concepts in the Palestinian pharmaceutical industry. The majority of interviewees stated that their firms comply with EFQM methods, especially in leadership, strategy formulation, employee involvement, and

process management. That said, several organizations recognized restricted execution owing to resource limitations, including financial and infrastructural obstacles. Numerous attendees emphasized the importance of connecting EFQM concepts with the distinct legislative and commercial realities in Palestine.

Theme 2: Risk Management Practices

Interviewees highlighted the significance of risk management as an essential element of organizational resilience. The majority of participants indicated conducting regular risk assessments to identify, evaluate, and mitigate potential operational and supply chain disruptions. The most prominent practices involved supplier risk evaluations, readiness for regulatory changes, and proactive crisis management strategies. Several interviewees noted that the maturity of risk management varied considerably among firms, contingent upon their resources and technological capabilities.

Theme 3: Absorptive Capacity

The ability to acquire, integrate, and apply external knowledge appeared as a reoccurring topic. Interviewees highlighted the importance of absorptive capacity in fostering innovation, especially in responding to industry changes and adopting new technologies. Examples included using relationships with global vendors and regulatory organizations to remain current on international standards. Several participants noted that continual training programs and knowledge-sharing activities are vital for strengthening absorptive capacity at both individual and organizational levels.

Theme 4: Organizational Resilience

Organizational resilience was a key subject, with participants detailing ways utilized to adjust to disturbances and retain operational continuity. Key topics highlighted were supply chain resilience, staff participation, and disaster recovery strategies. According to

the individuals who were interviewed, resilience is frequently dependent on the incorporation of EFQM processes and risk management measures. According to reports, businesses who made significant investments in highly effective staff training, collaborative supply chain management, and technical advancements had a greater capacity to recover from challenges.

Theme 5: Barriers to Implementation

EFQM, risk management, and absorptive capacity practices were difficult to effectively implement, according to the participants, who identified several obstacles to their implementation. High operational costs, a lack of infrastructure, regulatory obstacles and restricted access to resources were some of the constraints that were encountered. In addition, interviewees mentioned that resistance to change among employees and managers is a persistent barrier to the implementation of new frameworks or practices.

Theme 6: Opportunities for Collaboration

Despite the limitations, respondents noted the potential for collaboration among stakeholders, including regulatory agencies, industrial partners, and academic institutions. Such collaboration was considered as a solution to solve resource constraints, promote knowledge-sharing, and strengthen the resilience of the industry.

Insights from Interviews

The qualitative findings illustrate the complex connection between EFQM principles, risk management techniques, and absorptive capacity in enhancing organizational resilience in the Palestinian pharmaceutical companies. Interviewees emphasized the importance of aligning these frameworks with local industrial conditions to enhance their effectiveness. Insights from the interviews prompted adjustments and refinements to the questionnaire statements to enhance their relevance and clarity. The recognized obstacles and

possibilities established a basis for creating specific survey questions and developing methods to improve resilience and sustainability.

4.3 Survey Analysis

This chapter focuses on the examination and deliberation of the findings obtained from the questionnaire. The data were evaluated utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM V4.1), and a combination of descriptive and inferential statistical methods. The demographic data was examined by employing descriptive statistics, namely percentages and frequencies (Table 4.2). Additionally, the dimension item's Degree of Agreement (DOA) was determined by calculating the mean and standard deviation of a five-point Likert scale.

Finally, it is worth mentioning that a five-point Likert scale, ranging from “Strongly Disagree” (1) to “Strongly Agree” (5), is used in the second, third, and fourth parts of the questionnaire. In these parts, all items are positively phrased. Thus, no items need to be reversed. Higher scores (i.e. moving from “Strongly Disagree” to “Strongly Agree”) reflect better levels. The levels of these three variables are qualitatively evaluated according to Table (4.2)

Table 4.2: Scoring Range of Likert Scale

Range	Descrpition of Range
1.00-1.80	Very Low
1.81-2.60	Low
2.61-3.40	Medium
3.41-4.20	High
4.21-5.00	Very High

4.3.1 Respondent's Characteristics

Table 4.3 presents the demographic profile of 128 respondents. The descriptive analysis of the study sample uncovers numerous significant insights regarding the respondents' characteristics. The sample is mostly male, comprising 75.0%, whereas females account for 25.0%. The age distribution shows that the majority of respondents are between the ages of 30 and 40 (43.0%), followed by those between the ages of 41 and 50 (34.4%). A lesser percentage is under 30 years (7.0%), aged 51–60 (10.9%), and beyond 60 years (4.7%). Concerning education, around 49.2% of respondents own a Bachelor's degree, 31.3% hold a Master's degree, and 17.2% have a diploma. A negligible number (2.3%) completed vocational or technical training, while no respondents indicated possessing a PhD. The majority of respondents possess 5–10 years of professional experience (27.3%), followed by those with 11–15 years (22.7%). Additional experience categories are less than 5 years (11.7%), 16–20 years (13.3%), 21–25 years (10.2%), and over 25 years (14.8%). A review of job titles reveals that the majority are engaged in plant operations (31.3%) and quality management positions (29.7%), while lesser percentages are involved in supply chain (8.6%), management (7.8%), and human resources (5.5%). Furthermore, 17.2% of respondents belong to alternative work groups. This research underscores a heterogeneous sample with demographic, educational, and professional attributes, illustrating the varying origins and experiences of the respondents.

Table 4.3: Demographic Characteristics of Respondents

Variable		**Frequency**	**Percentage (%)**
Gender	Male	96	75.0%
	Female	32	25.0%
Age	Under 30	9	7.0%

	30–40	55	43.0%
	41–50	44	34.4%
	51–60	14	10.9%
	Over 60	6	4.7%
Education	Vocational / technical training	3	2.3%
	Diploma	22	17.2%
	BA	63	49.2%
	Master’s	40	31.3%
	PhD	0	0.0%
Experience	Less than 5	15	11.7%
	5–10	35	27.3%
	11–15	29	22.7%
	16–20	17	13.3%
	21–25	13	10.2%
	More than 25	19	14.8%
Job title	Plant	40	31.3%
	Quality	38	29.7%
	Supply chain	11	8.6%
	Managements	10	7.8%
	Human resource	7	5.5%
	Others	22	17.2%

4.3.2 Level of Implementing EFQM Practices

The results of Table 4.4 indicate that the EFQM Practices consists of six dimensions: Leadership, Strategy and Planning, People, Partnerships and Resources, Processes, and Results. Leadership received a favorable evaluation (mean = 3.88, DOA = 77.5%), demonstrating robust capabilities in mission and vision development while indicating areas for improvement in employee motivation and recognition. Strategy and Planning exhibited strong performance (mean = 3.93, DOA = 78.5%), especially in aligning policies with stakeholder expectations; however, there is room for improvement in the communication and implementation of these policies. The People dimension exhibited moderate performance (mean = 3.37, DOA = 67.3%), indicating substantial potential for enhancement in facilitating communication between employees and the organization. The organization effectively managed partnerships and resources (mean = 3.75, DOA = 75.1%); however, more robust strategies could enhance external partnerships. Processes exhibited robust performance (mean = 3.92, DOA = 78.5%), particularly in product delivery and servicing; however, advancements in process design could improve results further.

Results indicated a high performance level (mean = 3.73, DOA = 74.7%), especially in monitoring financial and operational metrics; nonetheless, employee satisfaction and engagement necessitate increased focus. The organization demonstrates substantial alignment with operational goals; however, it should prioritize enhancing employee engagement, policy communication, external partnerships, and process innovation to attain improved effectiveness and efficiency. Targeted improvements may enhance overall performance and stakeholder satisfaction.

Table 4.4: Descriptive Statistics for EFQM Practices.

Item	**Mean**	**SD**	**% DOA**	**IL**
Dimension 1: Leadership				
1. Leaders develop the mission, vision and values and are role models of a culture of excellence.	4.02	0.692	80.3%	High
2. Leaders are personally involved in ensuring that the organization's management system is developed, implemented and continuously improved.	3.88	0.858	77.5%	High
3. Leaders are involved with customers, partners and representatives of society.	3.98	0.744	79.5%	High
4. Leaders motivate, support and recognize the organization's people.	3.64	0.954	72.8%	High
Total	**3.88**	**0.634**	**77.5%**	**High**
Dimension 2: Strategy and planning	**Mean**	**SD**	**DOA**	**IL**
5. Policy and strategy are based on the present and future needs and expectations of shareholders.	4.06	0.607	81.1%	High
6. Policy and strategy are based on information from performance measures, research, learning and creatively related activities.	3.84	0.728	76.9%	High

7. Policy and strategy are developed, reviewed and updated.	3.97	0.616	79.3%	High
8. Policy and strategy are deployed through a framework of key processes.	4.01	0.553	80.2%	High
9. Policy and strategy are communicated and implemented.	3.75	0.764	75.1%	High
Total	**3.93**	**0.499**	**78.5%**	**High**
Dimension 3: People	**Mean**	**SD**	**% DOA**	**IL**
10. People resources are planned, managed and improved.	3.37	1.022	67.4%	Medium
11. People's knowledge and competencies are identified, developed and sustained.	3.33	0.983	66.6%	Medium
12. People are involved and empowered.	3.40	1.018	68.0%	High
13. People and the organization have a dialogue.	3.25	1.047	64.9%	Medium
14. People are rewarded, recognized and cared for.	3.48	0.947	69.7%	High
Total	**3.37**	**0.858**	**67.3%**	**Medium**
Dimension 4: Partnerships and Resources	**Mean**	**SD**	**% DOA**	**IL**
15. External partnerships are managed.	3.66	0.676	73.3%	High
16. Finances are managed.	3.67	0.743	73.4%	High

17. Buildings, equipment and materials are managed.	3.73	0.728	74.6%	High
18. Technology is managed.	3.87	0.692	77.4%	High
19. Information and knowledge are managed.	3.84	0.672	76.7%	High
Total	3.75	0.560	75.1%	High
Dimension 5: Processes				
20. Processes are systematically designed and managed.	3.81	0.708	76.2%	High
21. Processes are improved, as needed, using innovation in order to fully satisfy and generate increasing value for customers and other stakeholders.	3.86	0.696	77.2%	High
22. Products and services are designed and developed based on customer needs and expectations.	3.91	0.630	78.2%	High
23. Products and services are produced, delivered and serviced.	4.07	0.585	81.3%	High
24. Customer relationships are managed and enhanced.	3.98	0.582	79.5%	High
Total	3.92	0.490	78.5%	High
Dimension 6: Results				

25. Our organization regularly collects and analyzes customer feedback to understand their satisfaction and needs.	3.77	0.780	75.4%	High
26. Our organization tracks and evaluates key performance indicators related to customer satisfaction and loyalty.	3.83	0.677	76.6%	High
27. Our organization regularly gathers feedback from employees to assess their satisfaction and engagement levels.	3.13	1.075	62.6%	Medium
28. Our organization monitors and evaluates workforce performance to ensure alignment with organizational goals.	3.61	0.904	72.3%	High
29. Our organization evaluates its reputation and stakeholder perceptions regarding its contributions to social responsibility.	3.97	0.642	79.3%	High
30. Our organization measures the impact of its social responsibility initiatives on the community and stakeholders.	3.75	0.785	75.1%	High
31. Our organization assesses external perceptions of its overall success,	3.76	0.669	75.2%	High

including customer and market perspectives.				
32. Our organization tracks critical financial and operational metrics to evaluate its overall performance.	4.03	0.616	80.7%	High
Total	**3.73**	**0.571**	**74.7%**	**High**
EFQM	**3.76**	**0.524**	**75.3%**	**High**

4.3.3 Level of Implementing Absorptive Capacity (ACAP) Practices

Table 4.5 below provides the descriptive data for Absorptive Capacity (ACAP) to facilitate the methods designed to enhance absorptive capacity. This table presents an overview of the principal items assessed, together with their respective mean values, standard deviations (SD), and the percentage and degree of adoption (DOA). A study of the organization's absorptive capacity (ACAP) shows that it does well in a number of areas, as shown by its overall mean score of 3.72, its standard deviation (SD) of 0.534, and its degree of agreement (DOA) of 74.5%. In the acquisition dimension, there are a lot of interactions between the company and its headquarters to gain knowledge (mean = 3.71, DOA = 74.3%) and work well with outsiders, like consultants (mean = 3.75, DOA = 75.1%). Employee visits to other branches yielded a lower score (mean = 3.14, DOA = 62.8%), suggesting potential for enhancement in internal knowledge exchange and collaboration. When it comes to analyzing market demand (mean = 3.84, DOA = 76.7%) and quickly finding customer service opportunities (mean = 3.80, DOA = 75.9%), the company does a good job. Transformation and Exploitation are strong dimensions, as shown by the organization's good performance in activities (mean = 3.92, DOA = 78.4%)

and its good knowledge storage and use (mean = 3.80, DOA = 76.1%). Despite these strengths, the lower scores in employee visits (mean = 3.14) and the adoption of a common language regarding products (mean = 3.62) indicate areas that require targeted intervention.

To improve overall effectiveness and efficiency, the organization could implement structured inter-branch employee exchange programs to promote deeper internal knowledge sharing. Furthermore, cultivating a cohesive organizational language and enhancing communication protocols may optimize processes and guarantee consistency in knowledge application. Regular training and collaborative workshops may effectively address gaps in knowledge dissemination and utilization. Addressing these areas will enable the organization to enhance its absorptive capacity and sustain a competitive advantage in responding to market changes and opportunities.

Table 4.5: Descriptive Statistics for Absorptive Capacity (ACAP).

Item	**Mean**	**SD**	**% DOA**	**DOA**
Dimension 1: Acquisition				
1. Your company has frequent interactions with its headquarters to acquire new knowledge (Acq1).	3.71	0.766	74.3%	High
2. Your company employees regularly visit other branches (Acq2).	3.14	1.116	62.8%	Medium
3. Your company periodically organizes meetings with customers or third parties to acquire new knowledge (Acq3).	3.57	0.823	71.3%	High

4. Your employees regularly approach third parties, such as consultants to acquire new knowledge (Acq4).	3.75	0.753	75.1%	High
5. New opportunities to serve your clients are quickly understood (Ass1).	3.80	0.588	75.9%	High
6. Your company quickly analyses and interprets changing market demands (Ass2).	3.84	0.765	76.7%	High
7. Your company regularly considers the consequence of changing market demands in terms of new products (Tra1).	3.89	0.706	77.7%	High
8. Your employees record and store newly acquired knowledge for future reference (Tra2).	3.80	0.712	76.1%	High
9. Your company quickly recognizes the usefulness of adding new external knowledge to existing knowledge (Tra3)..	3.84	0.603	76.9%	High
10. Your company constantly considers how to better exploit knowledge (Exp1).	3.79	0.718	75.7%	High
11. Your employees adopt a common language regarding your products	3.62	0.856	72.5%	High
12. Your company has a clear division of roles and responsibilities	3.75	0.887	74.9%	High

13. It is clearly known how activities within your company should be performed (Exp4).	3.92	0.699	78.4%	High
Total	**3.72**	**0.534**	**74.5%**	**High**

4.3.4 Level of Implementing Risk Management Practices

The results of Table 4.6 indicate that the Risk Management Practices consists of five dimensions: Risk and Control Self-Assessment, Identification of Risk Indicators, Incident Management, Compliance of both Internal and External Regulations and Action Tracking. The study of risk management practices shows good overall performance across key dimensions, as shown by a mean score of 3.77, a standard deviation of 0.465, and a level of agreement of 75.3%. The company does a good job of finding risks in the Risk and Control Self-Assessment dimension (mean = 3.75, DOA = 75.1%), using tools and methods like scenario analysis and SWOT analysis, and offers strong support through internal consulting and toolkits. Lower scores for self-assessment or survey techniques (mean = 3.47, DOA = 69.3%) indicate a necessity for increased employee participation in risk mapping processes. In the Identification of Risk Indicators dimension (mean = 3.93, DOA = 78.6%), the company shows that it is good at looking at its financial health and putting plans in action to take advantage of opportunities. Continuous efforts to refine financial analysis methods may enhance risk responses. The Incident Management dimension (mean = 3.80, DOA = 76.0%) demonstrates strengths in quantifying risks and integrating the impacts of major risk types. However, the relatively lower score (mean = 3.61, DOA = 72.3% for linking risk strategy to departmental objectives) shows that risk management and operational goals need to be better aligned. The organization

demonstrates considerable strength in integrating risk management into strategic objectives and enhancing profitability (mean = 3.88, DOA = 77.5%). However, there are opportunities to improve the communication of risk management responsibilities across all management levels (mean = 3.51, DOA = 70.2%). Lastly, the Action Tracking dimension (Mean = 3.47, DOA = 69.4%) shows that a lot of work has gone into using balanced scorecards (BSC) and keeping an eye on strategic outcomes. However, it also shows that communication problems are a big problem (Mean = 2.61, DOA = 52.1%).

The organization should prioritize enhancing internal communication methods to improve effectiveness and efficiency in action tracking. Structured training in risk management and enhanced interdepartmental collaboration may address deficiencies in self-assessment and risk mapping practices. It would also be better to make decisions if risk management duties were more fully integrated into management roles and advanced tools were used for financial and strategic risk analysis. Addressing these areas will enhance the organization's risk management framework and promote resilience in achieving strategic objectives.

Table 4.6: Descriptive Statistics for Risk Management Practices.

Item	**Mean**	**SD**	**% DOA**	**DOA**
Dimension 1: Risk and Control Self-Assessment				
1. Line managers are the most prominent people responsible for the risk identification followed by the board of directors/executive management team.	3.89	0.769	77.9%	High

2. The organization has established a comprehensive business risk inventory of the risks that it expects the managers to manage.	3.80	0.768	76.1%	High
3. Local/overseas experience examination and brainstorming are common techniques prominently used by the line managers	3.60	0.859	72.0%	High
4. Tools of identifying risks like scenario analysis and strengths, weaknesses, opportunities and threats (SWOT) analysis are frequently used where the risk identification responsibility is that of board of directors/executive management team.	3.84	0.739	76.9%	High
5. Guidance on risk identification is offered by the organization both directly (internal consulting services) or indirectly (documents, such as "tool kits")	3.87	0.680	77.4%	High
6. There exists a linkage between the organizational mission and risk management process.	3.80	0.692	75.9%	High
7. The business unit utilize facilitated self - assessment and/or survey techniques to map risks.	3.47	0.794	69.3%	High
Total	**3.75**	**0.602**	**75.1%**	**High**

Dimension 2: Identification of Risk Indicators				
8. The organization assesses the well-being of the business's financial resources to determine its vulnerabilities and therefore develop plans to minimize their impact.	3.85	0.664	77.0%	High
9. The practice may help identify areas of underutilized capacity, perhaps offering the option to capitalize on developing opportunities.	3.99	0.636	79.8%	High
10. The analysis of the organizations financial health is multifaceted and includes such areas as liquidity, solvency, repayment capacity, profitability, and financial efficiency measures.	3.96	0.648	79.2%	High
11. The organizations response techniques include risk avoidance, risk reduction, risk sharing, and risk acceptance.	3.93	0.577	78.5%	High
Total	**3.93**	**0.490**	**78.6%**	**High**
Dimension 3: Incident Management				
12. The organization address resource constraints, consider alternative methods of risk management, and outline specific steps to follow in management of the risk.	3.83	0.689	76.6%	High

13. The organization quantifies its key risk to the best extent possible.	3.87	0.667	77.4%	High
14. The organization has a process to integrate the impacts of the major risk types (strategic, operational, financial, hazard, and legal).	3.87	0.667	77.4%	High
15. There exist a risk management implementation team that work with each reporting department to link the organization's strategy to that area's objectives and residual risks in the organization.	3.61	0.931	72.3%	High
16. The organizations business units develop and determine risk mitigation strategies.	3.83	0.712	76.6%	High
17. Both risks and characteristics is identified from the widest possible range of issues, including at least strategy, operations, culture, systems, competence and brand.	3.79	0.646	75.7%	High
Total	**3.80**	**0.583**	**76.0%**	**High**
Dimension 4: Compliance of both Internal and External Regulations				
18. The organization has a corporate-wide common language for communicating risk-type exposures, control activities, and monitoring efforts.	3.80	0.651	76.1%	High

19. There is regular briefs to the board and executive committee on risk management issues.	3.80	0.616	75.9%	High
20. The organization has communicated a risk management mission statement, value proposition, and benefits statement to senior managers.	3.85	0.664	77.0%	High
21. The organization has incorporated responsibility for risk management into the position description of all managers.	3.51	0.865	70.2%	High
22. The board of directors is actively involved in the risk management process.	3.75	0.829	74.9%	High
23. Perceived benefit of ERM to measure risk -adjusted performance among business units.	4.00	0.643	80.0%	High
24. Perceived benefit of ERM to increase ability to meet strategic goals.	4.08	0.663	81.6%	High
25. Perceived benefit of ERM to reduce earnings volatility.	4.03	0.680	80.7%	High
26. Perceived benefit of ERM to increase profitability.	4.07	0.645	81.5%	High
Total	**3.88**	**0.499**	**77.5%**	**High**
Dimension 5: Action Tracking				

27. The management has put in place measures to evaluate the success of risk management strategies in the organization.	3.67	0.765	73.4%	High
28. Corporate management monitors performance outcomes against intended strategic goal to ensure that corporate activities remain on track and correspond to the set course.	3.84	0.643	76.9%	High
29. The balance score card and the ratios analysis are some of the techniques used for evaluation in the organization.	3.58	0.690	71.6%	High
30. The organization communicates the evaluation results openly to all the departments concerned.	3.66	0.851	73.1%	High
31. Some of the communication methods employed by the organization are not effective.	2.61	0.858	52.1%	Medium
Total	**3.47**	**0.524**	**69.4%**	**High**
Risk Management Practices	**3.77**	**0.465**	**75.3%**	**High**

4.3.5 Level of Implementing Organizational Resilience Practices

The results of Table 4.7 indicate that the Organizational Resilience Practices consists of eight dimensions: Sensing Anticipation, Steering, Organizational culture, Organizational agility, Slack resources, Networking, Coordination/ Cooperation, Organizational

learning. The study of organizational resilience practices shows strong performance in many areas, as shown by the mean score of 3.73, the standard deviation of 0.546, DOA = 74.6%, which all point to strong resilience. Sensing Anticipation (Mean = 3.87, DOA = 77.4%) indicates the organization's capability in monitoring its industry for early warnings and comprehending the implications of risks. Improvements are necessary in balancing short- and long-term priorities (mean = 3.75).

The organization demonstrates strong strategic thinking by top management in steering (mean = 3.78, DOA = 75.5%, with a mean of 3.96). However, there is potential for enhancement in the utilization of close calls for self-evaluation (mean = 3.62). Organizational Culture (Mean = 3.63, DOA = 72.6%), which shows that roles aren't very clear during crises and that people don't always take responsibility for problems, suggests that accountability and role clarity need to be improved. Organizational Agility (mean = 3.89, DOA = 77.8%) indicates a strong capacity for adaptability and decision-making in crisis situations. On the other hand, Slack Resources (Mean = 3.72, DOA = 74.3%) emphasizes being ready for emergencies but also says that collaborations with outside groups for resource sharing need to be improved (Mean = 3.52).

Networking (mean = 3.80, DOA = 75.9%) demonstrates strength, particularly in active participation in industry groups (mean = 4.22). However, there is room for improvement in accessing critical services during disruptions (mean = 3.51). Coordination and cooperation (mean = 3.64, DOA = 72.7%) emphasize teamwork and accessibility to authority; however, the score for rewarding individuals who identify potential issues is relatively low (mean = 3.15). Finally, organizational learning (mean = 3.53, DOA = 70.7%) indicates a necessity for promoting cross-departmental mobility and enhancing knowledge-sharing practices.

The organization should prioritize a balanced approach to short- and long-term planning while establishing structured mechanisms to reward employees for proactive problem-solving to enhance effectiveness and efficiency. Enhancing inter-organizational agreements for resource-sharing in crises and ensuring the continuous availability of essential services would improve overall resilience. Furthermore, the investment in knowledge-sharing systems and the promotion of cross-departmental collaboration would improve organizational learning. Addressing these areas will enhance the organization's resilience and preparedness for unforeseen challenges.

Table 4.7: Descriptive Statistics for Organizational Resilience Practices

	Mean	**SD**	**% DOA**	**DOA**
Dimension 1: Sensing Anticipation				
1. Our organization proactively monitors what is happening in its industry to have an early warning of emerging issues.	3.77	0.678	75.4%	High
2. In our organization, there is an appropriate balance between short- and long-term priorities.	3.75	0.756	74.9%	High
3. Our organization fully understands the impact that a risk (natural disasters, financial crisis, etc.) would have on us.	3.97	0.727	79.3%	High
4. Our organization has clearly defined priorities for what is important during and after a crisis.	3.89	0.769	77.9%	High

5. Our organization understands the minimum level of resources (staff, money, materials, etc.) it needs to operate successfully.	3.97	0.792	79.3%	High
Total	**3.87**	**0.620**	**77.4%**	**High**
Dimension 2: Steering				
6. Managers actively listen for problems in our organization because it helps them to prepare a better response.	3.64	0.882	72.8%	High
7. Whenever our organization suffers a close call, we use it as a trigger for self-evaluation rather than confirmation of our success.	3.62	0.775	72.5%	High
8. Our organization is successful at learning lessons from past projects and making sure these lessons are carried through to future projects.	3.80	0.749	75.9%	High
9. Top management thinks and acts strategically to ensure that our organization is always ahead of the curve.	3.96	0.720	79.2%	High
10. Top management in our organization are good examples of professionals that we can aspire to learn from.	3.86	0.742	77.2%	High
Total	**3.78**	**0.644**	**75.5%**	**High**

Dimension 3: Organizational culture				
11. Most people in our organization have a clear picture of what their role would be in a crisis.	3.58	0.917	71.6%	High
12. Most people in our organization feel responsible for the organization's effectiveness.	3.76	0.814	75.2%	High
13. People in our organization typically own a problem of the organization until it is resolved.	3.55	0.824	71.0%	High
Total	**3.63**	**0.684**	**72.6%**	**High**
Dimension 4: Organizational agility				
14. Our organization is able to shift rapidly from business-as-usual mode to responding to crisis mode.	3.99	0.744	79.8%	High
15. When a problem occurs in our organization, internal resources become more easily available at short notice, and there is less red tape to deal with than that of routine problems.	3.84	0.813	76.9%	High
16. When we need to, our organization can make tough decisions quickly.	3.87	0.771	77.4%	High
17. I believe people would accept decisions made by management about how our	3.85	0.789	77.0%	High

organization should manage a crisis, even if they were developed with little consultation.				
Total	**3.89**	**0.639**	**77.8%**	**High**
Dimension 5: Slack resources				
18. I believe our organization invests sufficient resources to be ready to respond to an emergency of any kind.	3.79	0.815	75.7%	High
19. Our organization has agreements with other organizations to provide resources in an emergency.	3.52	0.845	70.3%	High
20. In case evacuation via land transportation is not possible (earthquake, flood, and traffic), it is possible to evacuate and intervene in a possible fire or explosion by alternative means.	3.93	0.677	78.7%	High
21. I believe that in the event of a possible toxic gas/liquid spill, fire, or explosion, the operator's internal resources (staff, fire extinguishing equipment, water, etc.) will be sufficient to intervene.	3.80	0.830	76.1%	High
23. If we do not have personnel for emergency response in case of an earthquake or flood in the area, we can	3.62	0.921	72.5%	High

quickly reach human resources for the implementation of the emergency plan.				
24. I believe secondary or tertiary control mechanisms can be deployed when primary control mechanisms no longer work due to an earthquake or flood.	3.64	0.814	72.8%	High
Total	**3.72**	**0.622**	**74.3%**	**High**
Dimension 6: Networking				
25. I am confident that our staff have enough contacts that we would be able to access external resources at short notice if we needed to.	3.72	0.753	74.4%	High
26. Our organization understands how it is connected to other organizations in the same industry or location and actively manages those links.	3.80	0.676	76.1%	High
27. Our organization is regarded as an active participant in industry and industry groups.	4.22	0.596	84.4%	Very High
28. If our organization was unable to operate for 3months, our relationships with suppliers and customers would help us recover rapidly.	3.83	0.746	76.6%	High

29. When critical services (transportation, communications, electricity, water, health care, and emergency response centers) are disconnected, our own capabilities and connections would be sufficient to access these services.	3.51	0.884	70.2%	High
30. I believe that our organization can quickly access resources (personnel, money, and equipment) through national and/or international connections during a crisis.	3.69	0.705	73.8%	High
Total	**3.80**	**0.535**	**75.9%**	**High**
Dimension7: Coordination/ Cooperation				
31. People in our organization would report significant mistakes even if others did not notice that a mistake was made.	3.89	0.741	77.7%	High
32. People in our organization are always rewarded if they spot a potential trouble.	3.15	1.042	63.0%	Medium
33. There is an excellent sense of teamwork in our organization.	3.58	1.003	71.6%	High
34. People in our organization work with whoever they need to work with to get the job done well, regardless of departmental or organizational boundaries.	3.67	0.867	73.4%	High

35. In our organization, if something out of the ordinary happens, people know who has the expertise to respond.	3.70	0.871	73.9%	High
36. Should problems occur, someone with the authority to act is always accessible to people on the front lines.	3.83	0.757	76.6%	High
Total	**3.64**	**0.657**	**72.7%**	**High**
Dimension 8: Organizational learning				
37. Our organization is prepared to invest to ensure that decisions are made on the basis of the most up-to-date information.	3.75	0.809	74.9%	High
38. People are encouraged to move between different departments or try different roles within our organization to gain experience.	3.24	1.114	64.8%	Medium
39. In our organization, it is a priority that people have the information and knowledge they need to respond to unexpected problems that arise.	3.63	0.883	72.6%	High
40. Our organization actively encourages people to challenge and develop themselves through their work.	3.52	1.030	70.5%	High
Total	**3.53**	**0.814**	**70.7%**	**High**
Organizational Resilience Practices	**3.73**	**0.546**	**74.6%**	**High**

4.4 Data Screening and Preliminary Analysis

Data screening and preliminary analysis are critical prerequisites for advanced statistical analysis (Hair et al., 2020). This guarantees that the data are pristine, structured, and prepared for subsequent advanced analysis. We analyzed the study data using PLS to assess the validity of the standard and structural models and to test the hypotheses.

4.4.1 Treatment of Missing Data

In data analysis, screening constitutes the initial phase. Such screening is invaluable for ensuring error-free data input (Coakes, 2006). SPSS data screening indicated that all questionnaire items received complete and accurate responses; hence, no additional processing was necessary to rectify any missing values. Table 4.8 presents the results of the data screening.

The 150 questionnaires were distributed across six Pharmaceutical Companies in Palestine. The researcher was able to gather 133 questionnaires, of the 128 sets of questionnaires that had all of the questions answered.

Table 4.8: Overall frequencies for demographic variables of respondents

Items	Valid	Missing
Gender	128	0
Age	128	0
Academic Qualification	128	0
Job title	128	0
Years of experience	128	0

With reference to the data displayed in the table above, it is evident that all demographic variables are valid and that there are no missing values.

4.5 Testing the Goodness of the Measurement Model (Outer Model)

Prior to constructing models and evaluating hypotheses, it is crucial to evaluate the quality of measurements to guarantee their validity and reliability. The literature proposes two methods for assessing data quality: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) (Hair, Black, Babin & Anderson, 2013). Although philosophically divergent, the two approaches are conceptually analogous. Izquierdo, Olea, and Abad (2014) discovered that the EFA technique is frequently employed in organizational and enterprise research; nevertheless, Sureshchandar, Rajendran, and Anantharaman (2001) observed that this method has its limitations. One problem is that the item is assigned to a certain factor. This theory says that high loading is the way to judge measurement quality, even if the item loads onto a different factor. Dependence on this criterion may produce a cross-loading effect on the distinctiveness of components.

Moreover, in contrast to CFA, which is based on theoretical explanations, EFA utilizes statistical reasoning to assign items to factors. Ahire, Golhar, and Waller (1996) assert that confirmatory factor analysis (CFA) is more suitable for this research than exploratory factor analysis (EFA) due to its emphasis on one-dimensionality. So, this study used Confirmatory Factor Analysis (CFA) to look at the outer model (measurement model) by looking at how items and constructs relate to each other. Therefore, we examined the validity and reliability of the measurement models utilizing SmartPLS Version 4. When assessing a measurement model, two critical aspects to examine are validity and

reliability. A measuring instrument is deemed trustworthy if it consistently assesses the intended variable and valid if it accurately measures the intended concept.

PLS achieves measurement reliability by considering the factor loading of each item on the latent concept (Hulland, 1999). If the loadings are less than 0.70, the model doesn't account for all the variation; if they are greater than 0.70, there is more shared variation between the construct components than error variance (Hair et al., 2013; Hulland, 1999). We assessed the measurement quality for convergent and discriminant validity utilizing the CFA approach (see Sections 4.7.1 and 4.7.2 for details).

Multi-Collinearity Test

Before testing the proposed model, it is important to find out if there is multi-collinearity among the independent variables (Hair et al., 2020). A problem occurs in the matrix when two independent variables demonstrate a significant relationship. Analyzing the Heterotrait-Monotrait Ratio (HTMT). The HTMT ratio can evaluate discriminant validity in structural equation modeling. This study compares heterotrait correlations, which involve different constructs, to monotrait correlations, which involve the same construct. This study aims to analyze the differences among various latent variables (Henseler et al., 2015). Discriminant validity is established when HTMT values are below 0.85, according to research findings. Research indicates a potential upper threshold of 0.90; however, this is contingent upon the specific model and discipline (Henseler et al., 2015).

We assessed the HTMT to evaluate the discriminant validity of the constructs within the model. To make sure that constructs measure different ideas, discriminant validity is important, and the HTMT ratio is a good way to do this (Henseler, Ringle, & Sarstedt, 2015). Voorhees et al. (2016) defined HTMT thresholds of 0.85 for stringent analysis and

0.90 for a more relaxed assessment. The matrix reveals that most HTMT values fall below 0.85, indicating sufficient discriminant validity for the majority of construct relationships. Table 4.9 shows the HTMT ratio matrix that was used to check the constructs' discriminant validity. This study examines the constructs of EFQM practices, ACAP, risk management practices, and organizational resilience practices. According to established HTMT guidelines, values below 0.85 (or 0.90 in some cases) mean that the discriminant validity is good enough. The HTMT ratio between EFQM Practices and ACAP is 0.685, which is within acceptable ranges and shows that there is a clear connection between these ideas.

There is strong evidence that the HTMT values for risk management practices compared to EFQM practices (0.621) and ACAP practices (0.724) are below the threshold. The HTMT values for organizational resilience practices are 0.546 for EFQM practices, 0.645 for ACAP practices, and 0.756 for risk management practices. This means that all three sets of values meet the criteria for discriminant validity. The results indicate that the constructs examined are sufficiently distinct, thereby supporting their conceptual independence within the study's framework.

Table 4.9: Heterotrait-monotrait ratio (HTMT) – Matrix

	1.EFQM Practices	2. ACAP	3.Risk Management Practices
1. EFQM Practices			
2. ACAP	0.685		
3. Risk Management Practices	0.621	0.724	
4.Organizational Resilience Practices	0.546	0.645	0.756

4.6 Structural Equation Modeling

In the fourth chapter, there was a more detailed explanation of the research project's method, specifically how Structural Equation Modeling (SEM) was used to test the hypotheses that came from the theoretical model. In accordance with the proposal made by Anderson and Gerbing (1988), we carried out the SEM analysis using a two-stage methodology. The creation of the measuring model is the initial step in the process. In this section, we establish the causal relationships that exist between the theoretical concepts and the observable variables (iterations). We conducted a confirmatory factor analysis using PLS 4.0. The main exogenous and endogenous parts were laid out in the second section, which was called the "structural model." The paths and causes that connected them were also shown. The five variables that made up the exogenous constructs were as follows: EFQM Practices (EFQM), Absorptive Capacity (ACAP), Risk Management Practices (RMP), and Organizational Resilience Practices (ORP). The moderating variable was Absorptive Capacity (ACAP).

4.6.1 The Measurement Model

This model is an important part of the structural equation model because it looks at the variables that matter, their indicators, and how they are connected to each other. Validity and reliability are the primary criteria for assessing the measurement model. In measurement science, validity denotes the extent to which an instrument accurately measures the intended concept, whereas reliability indicates the consistency of that measurement (Sekaran, 2016). This research adhered to the protocols set forth by Hair et al. (2020) and Finn et al. (2014) for the assessment of reflective measurement items. This study assessed validity, including both convergent and discriminant validity. by

conducted a reliability analysis to assess the consistency of an instrument's measurements over time, thereby ensuring the stability and dependability of the results. This analysis enables researchers to confirm that their measurement tools yield reliable data that accurately reflect the constructs being studied.

4.6.2 Construct Validity

Sekaran and Bougie (2009) define construct validity as the degree to which test outcomes are relevant to the theoretical constructs that informed the test's creation. Ramayah et al. (2011) established the theoretical foundation that the instrument must employ. Examining loadings and cross-loadings facilitates the attainment of convergence and discriminant validity. Hair et al. (2011) contend that indicator loadings, or factor loadings, must exceed a threshold of 0.70 to be deemed acceptable. Correspondingly, Valérie (2012) noted the subsequent observations: Academic research often employs the correlation coefficient, referred to as loadings, as a metric. A correlation coefficient of 0.70 indicates that the shared variance between the construct and its measure surpasses the error variance.

The construct explains more than fifty percent of the variability in the observed variable. A correlation under 0.70 requires careful interpretation of the results, suggesting possible problems with item design or reliability. An erroneous item indicates insufficient content validity or a flawed translation between the context and the item. Hair et al. (2017) said that indicators with outer loadings between 0.40 and 0.70 are usually taken off the scale only if it makes the whole thing more reliable or the average variance extracted (AVE) better. In this investigation, the prior discussion established a suitable cut-off value of 0.70 for factor loadings.

The factor loading values are shown in Figure 4.1 before deletion and in Figure 4.2 after deletion. where the Values for paragraph EFQM03 (0.609) for Leadership, ACAP02

(0.537), for ACAP, ORP27 (0.512) for Networking, ORP31 (0.549) for Coordination/ Cooperation, and RMP31(0.124) for Action Tracking are found to be less than 0.7. These values can be dropped for the sake of getting improvement in final results. Table 4.11 illustrates these loadings effectively they exceeded the 0.70 threshold. All items assessing a specific construct exhibited high loadings on that construct and low loadings on alternative constructs, thus confirming construct validity.

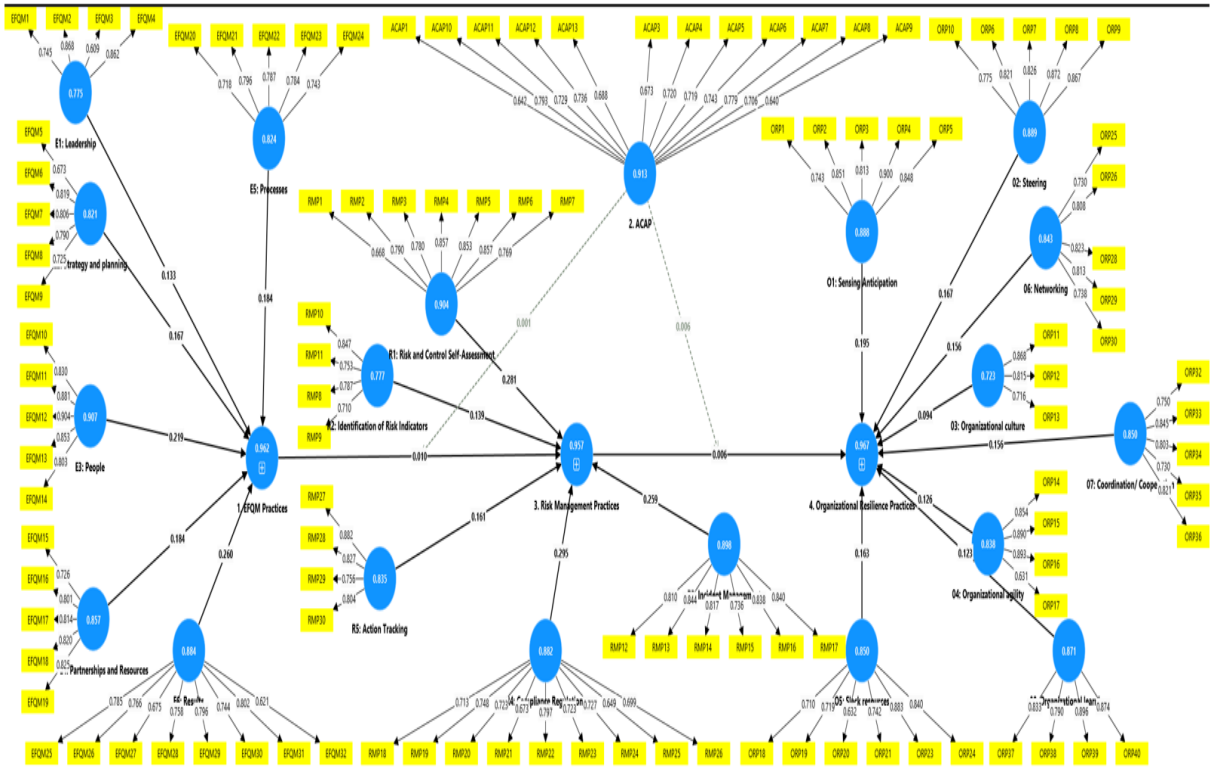

Figure 4.1: Organizational study model (before deletion)

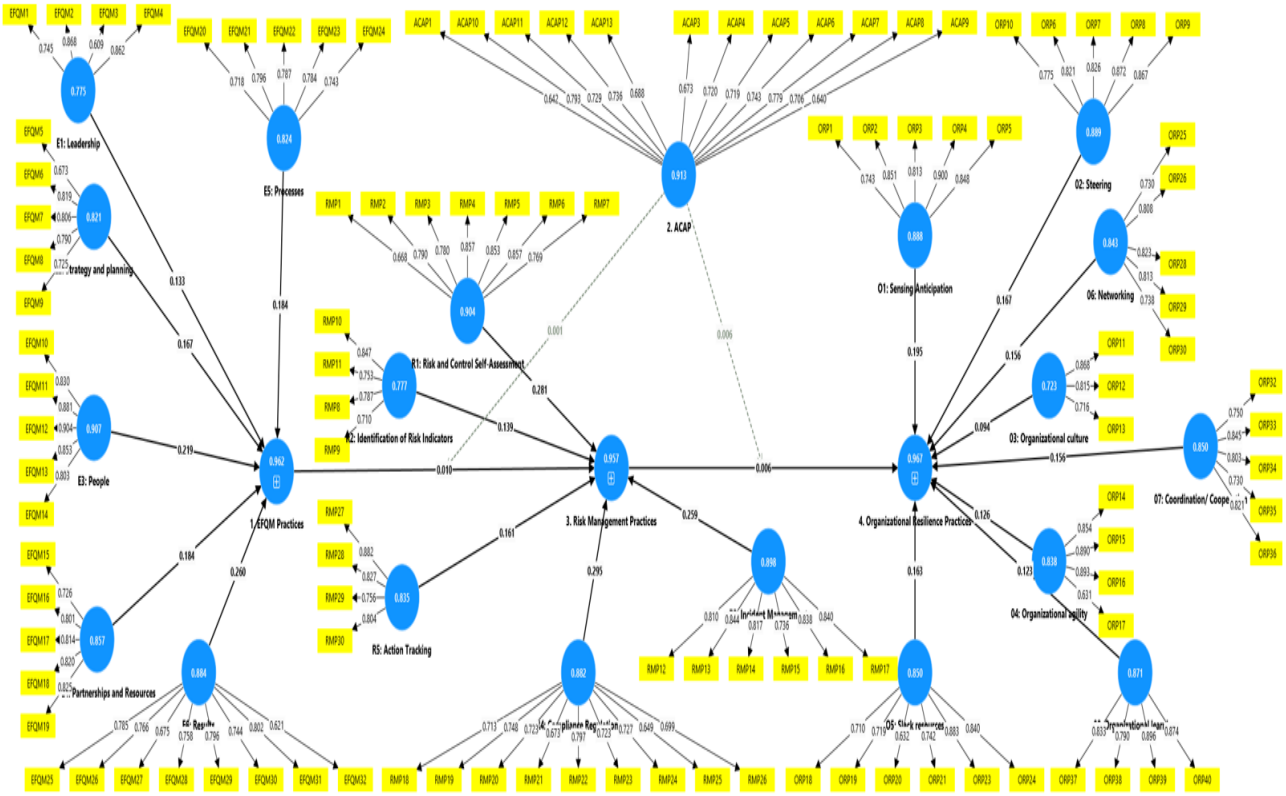

Figure 4.2: study model (After Deletion)

4.6.3 Discriminant Validity

The discriminant validity test (Hair et al., 2017) is used by researchers to make sure that an idea is different from others and can explain data that other models can't. The Fornell-Larcker criteria is a prevalent method for assessing discriminant validity in structural equation modeling (SEM). Discriminant validity ensures that constructs are distinct and evaluate different concepts (Hair et al., 2017). The study checked for discriminant validity by looking at how the square root of the average variance extracted (AVE) for each construct related to other parts. The diagonal values in the table, representing the square root of AVE, exceed the off-diagonal correlation values within their respective rows and columns.

The Fornell-Larcker correlation matrix is shown in Table 4.10. It checks the construct validity and discriminant validity of the EFQM Practices, ACAP, Risk Management

Practices, and Organizational Resilience Practices. When the square root of the average variance extracted (AVE) for each construct (diagonal values) is higher than its correlations with other constructs (off-diagonal values), the Fornell-Larcker criterion says that the test is discriminant valid.

The square root of the AVE for EFQM Practices is 0.859, which is higher than its correlations with ACAP (0.487), risk management practices (0.589), and organizational resilience practices (0.504). This shows that the practice is discriminant. As a whole, ACAP is more internally consistent than its correlations with EFQM Practices (0.487), Risk Management Practices (0.747), and Organizational Resilience Practices (0.778), with an AVE square root of 0.866. The square root of the AVE (0.885) for risk management practices is higher than its correlations with EFQM practices (0.589), ACAP practices (0.747), and organizational resilience practices (0.642).

This means that risk management practices meet the Fornell-Larcker criterion. Finally, the average variance extracted (AVE) for organizational resilience practices is 0.828, which is higher than the correlations for EFQM practices (0.504), ACAP practices (0.778), and risk management practices (0.642). The Fornell-Larcker analysis demonstrates sufficient constructs and discriminant validity among the variables in the study.

Table 4.10: Fornell-Larcker Correlation through construct and discriminant validity

Item	1. EFQM Practices	2. ACAP	3. Risk Management Practices	4. Organizational Resilience Practices
1. EFQM Practices	0.859			

2. ACAP	0.487	0.866		
3. Risk Management Practices	0.589	0.747	0.885	
4. Organizational Resilience Practices	0.504	0.778	0.642	0.828

4.6.4 Convergent Validity

The level to which one measure has a positive relationship with other measures that look at the same thing is called convergent validity. Researchers can use factor loadings, composite reliability (CR), and average variance extracted (AVE) to check if a model is convergent.

1. Factor loadings: Elevated outer loadings suggest that indicators exhibit considerable commonality within a construct. The accepted threshold for outer loadings is 0.70 or higher (Hair et al., 2011). Table 4.11 illustrates that all item loadings satisfy the established criteria and conform to the recommended values.

2. Composite reliability (CR): indicates the extent to which construct indicators accurately represent the variable of interest. According to Hair et al. (2011), a CR value exceeding 0.70 is considered acceptable. Table 4.11 presents the composite reliability values for this study, ranging from 0.701 to 0.904, indicating high convergent validity.

3. The average variance extracted (AVE): is used to measure the difference between measurement error indicators; a value greater than 0.50 is needed to show that the idea is valid (Hair et al., 2011).

The AVEs for this research, which ranged from 0.512 to 0.731, were deemed acceptable, except for two constructs. According to Lam (2012), an Average Variance Extracted

(AVE) value below 0.50 may still indicate satisfactory internal reliability for measurement items, provided that the composite reliability exceeds the acceptable threshold of 0.60 (refer to Table 4.11). All latent variables satisfied the threshold value and were considered to meet the criteria for convergent validity. The study model reported Cronbach's alpha and composite reliability (CR) for each construct. We frequently use Cronbach's alpha to assess internal consistency, recommending a minimum value of 0.70. All constructs in this study fulfill or exceed this criterion.

Table 4.11: Result of measurement model

Construct	**Measurement Item**	**Loading**	**Cronbach's alpha**	**CR (rho_a)**	**CR (rho_c)**	**(AVE)**
1: Leadership	EFQM1	0.745	0.775	0.801	0.858	0.606
	EFQM2	0.868				
	EFQM4	0.862				
2: Strategy and planning	EFQM5	0.711	0.821	0.827	0.875	0.585
	EFQM6	0.819				
	EFQM7	0.806				
	EFQM8	0.79				
	EFQM9	0.725				
3: People	EFQM10	0.83	0.907	0.909	0.931	0.731
	EFQM11	0.881				
	EFQM12	0.904				
	EFQM13	0.853				

Construct	Measurement Item	Loading	Cronbach's alpha	CR (rho_a)	CR (rho_c)	(AVE)
	EFQM14	0.803				
4: Partnerships and Resources	EFQM15	0.726	0.857	0.859	0.898	0.637
	EFQM16	0.801				
	EFQM17	0.814				
	EFQM18	0.82				
	EFQM19	0.825				
5: Processes	EFQM20	0.718	0.824	0.825	0.877	0.587
	EFQM21	0.796				
	EFQM22	0.787				
	EFQM23	0.784				
	EFQM24	0.743				
6: Results	EFQM25	0.785	0.884	0.886	0.909	0.556
	EFQM26	0.766				
	EFQM27	0.701				
	EFQM28	0.758				
	EFQM29	0.796				
	EFQM30	0.744				
	EFQM31	0.802				
	EFQM32	0.701				
1. EFQM Practices			**0.962**	**0.964**	**0.965**	**0.617**

Construct	Measurement Item	Loading	Cronbach's alpha	CR (rho_a)	CR (rho_c)	(AVE)
2. ACAP	ACAP1	0.703	0.913	0.915	0.926	0.512
	ACAP3	0.722				
	ACAP4	0.720				
	ACAP5	0.719				
	ACAP6	0.743				
	ACAP7	0.779				
	ACAP8	0.706				
	ACAP9	0.740				
	ACAP10	0.793				
	ACAP11	0.729				
	ACAP12	0.736				
	ACAP13	0.788				
2. ACAP			0.913	0.915	0.926	0.512
R1: Risk and Control Self-Assessment	RMP1	0.768	0.904	0.909	0.925	0.638
	RMP2	0.790				
	RMP3	0.780				
	RMP4	0.857				
	RMP5	0.853				
	RMP6	0.857				
	RMP7	0.769				

Construct	Measurement Item	Loading	Cronbach's alpha	CR (rho_a)	CR (rho_c)	(AVE)
R2: Identification of Risk Indicators	RMP8	0.787	0.777	0.780	0.857	0.602
	RMP9	0.710				
	RMP10	0.847				
	RMP11	0.753				
R3: Incident Management	RMP12	0.810	0.898	0.899	0.922	0.664
	RMP13	0.844				
	RMP14	0.817				
	RMP15	0.736				
	RMP16	0.838				
	RMP17	0.840				
R4: Compliance Regulations	RMP18	0.713	0.882	0.885	0.905	0.516
	RMP19	0.748				
	RMP20	0.723				
	RMP21	0.873				
	RMP22	0.797				
	RMP23	0.723				
	RMP24	0.727				
	RMP25	0.749				
	RMP26	0.799				
R5: Action Tracking	RMP27	0.882	0.835	0.849	0.890	0.670

Construct	Measurement Item	Loading	Cronbach's alpha	CR (rho_a)	CR (rho_c)	(AVE)
	RMP28	0.827				
	RMP29	0.756				
	RMP30	0.804				
3. Risk Management Practices			0.957	0.961	0.961	0.618
O1: Sensing Anticipation	ORP1	0.743	0.888	0.897	0.918	0.693
	ORP2	0.851				
	ORP3	0.813				
	ORP4	0.900				
	ORP5	0.848				
02: Steering	ORP6	0.821	0.889	0.893	0.919	0.694
	ORP7	0.826				
	ORP8	0.872				
	ORP9	0.867				
	ORP10	0.775				
03: Organizational culture	ORP11	0.868	0.723	0.751	0.843	0.643
	ORP12	0.815				
	ORP13	0.716				
04: Organizational agility	ORP14	0.854	0.838	0.874	0.893	0.679
	ORP15	0.890				
	ORP16	0.893				

Construct	Measurement Item	Loading	Cronbach's alpha	CR (rho_a)	CR (rho_c)	(AVE)
	ORP17	0.731				
O5: Slack resources	ORP18	0.710	0.850	0.860	0.890	0.576
	ORP19	0.719				
	ORP20	0.732				
	ORP21	0.742				
	ORP23	0.883				
	ORP24	0.840				
06: Networking	ORP25	0.730	0.843	0.854	0.888	0.614
	ORP26	0.808				
	ORP28	0.813				
	ORP29	0.738				
	ORP30	0.750				
07: Coordination/ Cooperation	ORP32	0.803	0.850	0.858	0.893	0.626
	ORP33	0.730				
	ORP34	0.821				
	ORP35	0.833				
	ORP36	0.790				
08: Organizational learning	ORP37	0.896	0.871	0.877	0.912	0.721
	ORP38	0.874				
	ORP39	0.743				

Construct	Measurement Item	Loading	Cronbach's alpha	CR (rho_a)	CR (rho_c)	(AVE)
	ORP40	0.851				
4. Organizational Resilience Practices			0.967	0.970	0.969	0.656

Note: CR= Composite Reliability, AVE= Average Variance Extracted.

4.6.5 Factor Loading (Outer Loading)

The study's data shows that the constructs are highly reliable overall, as shown by the high Cronbach's alpha and composite reliability values for each dimension. The EFQM Practices dimension is very reliable, as shown by a Cronbach's alpha of 0.962 and a composite reliability (rho_c) of 0.965. Some practices, like "Leadership" (0.775) and "Strategy and Planning" (0.821), are less reliable than others, but they are still within acceptable ranges. This suggests that there are ways to make measurements more consistent. The "People" dimension demonstrates high reliability, evidenced by a Cronbach's alpha of 0.907 and a rho_c of 0.931.

Additionally, it exhibits a strong convergent validity with an AVE of 0.731.A Cronbach's alpha of 0.913 and a composite reliability of 0.926 show that the ACAP dimension is very reliable, which means it can be used for analysis. When it comes to organizational resilience practices, reliability metrics are very strong. For example, Cronbach's alpha is at 0.967 and composite reliability is at 0.969, which means that the data is very consistent within itself. Individual factors such as "Sensing Anticipation" and "Steering" demonstrate high reliability values. An alpha value of 0.957 and a composite reliability value of 0.961 show that risk management practices are reliable. This shows how strong

these measures are. Nonetheless, the "Compliance Regulations" factor exhibits the lowest AVE value of 0.516, suggesting possible issues with its convergent validity.

The data shows how reliable the constructs are overall and also points out places where they might be more reliable, namely in "Leadership," "Strategy and Planning," and "Compliance Regulations." The high composite reliability and AVE values for most of the dimensions show that the scales used in the study are mostly well-validated and can be used for further analysis.

4.6.6 Conclusion of Measurement Model

This section outlines the results of the factor analysis. This study assesses the reliability and validity of concepts related to measurement. After making sure that the constructs were reliable and valid, the structural models looked at how the latent variables were related to each other. After checking and screening the data as described in the last section, we look at both the outer and inner models (Vinzi et al., 2010).

This study analyzed both the outer model (measurement model) and the inner model (structural model) using PLS-SEM. This provided a comprehensive understanding of the interrelationships among the latent variables. The study uses Partial Least Squares Structural Equation Modeling (PLS-SEM) to clearly show how the things that were looked at are related and have effects on each other. This study analyzed the external model (measurement model) to verify that the indicators accurately represented their corresponding latent constructs.

The evaluation of the outer model involved an assessment of factor loadings, reliability, and validity measures. These are essential for ensuring that the measurement scales align with the study's theoretical framework. The research utilized PLS-SEM for the inner

structural model. The study employed PLS-SEM to analyze mediation, as well as direct and indirect effects. Ringle et al. (2015) assert that Smart PLS 4.1 is an effective tool for analyzing the relationships among various components of a theoretical model. The model must remain clear during the execution of the PLS-SEM analysis.

The study comprises four exogenous latent variables, two independents variable EFQM Practices and Organizational Resilience Practices, one moderating variables, Absorptive Capacity (ACAP). The dependent variable in this study is Organizational Resilience Practices as shown in Figure 4.3.

4.7 Structural Model Results (Inner Model)

The structural model, also called the "inner model," shows how the study's variables are related to each other and how independent and dependent factors are related. The results of the structural model can help explain the study hypotheses' findings, as well as the significance and type of associations (positive or negative).

We conducted the data analysis in two phases, following the fundamental steps of statistical analysis using SEM-PLS software. The initial stage confirmed that the collected data satisfied the criteria of the measurement model, while the subsequent stage assessed the structural model to fulfill the study's objectives. Furthermore, various tests are employed to assess the structural model, including the coefficient of determination (R^2), effect size f^2, model predictive significance, and goodness of fit (GoF).

The study's hypotheses were evaluated using route coefficient levels, significance, and bootstrapping methods. The next step, as depicted in Figure 4.3, entails assessing the structural model that the inner model represents.

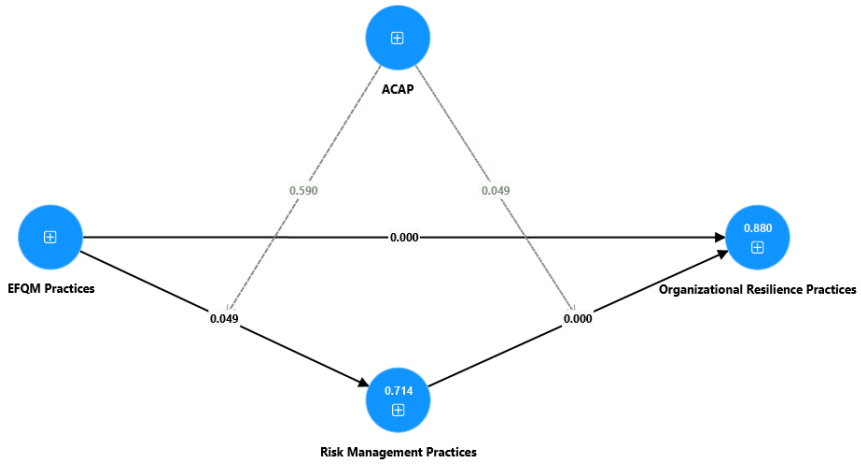

Figure 4.3: Structural model

4.7.1 R-Square (R^2)

The coefficient of determination (R^2) is the most widely used metric to assess the structural model's performance, indicating its predictive accuracy. R^2 values range from 0 to 1, where a higher value suggests greater predictive accuracy. (Hair et al. 2017), as a general guideline, R^2 values of 0.75, 0.50, and 0.25 for endogenous latent variables can be interpreted as high, moderate, and weak, respectively. However, this classification is only a rough estimate, as the R^2 value is influenced by the complexity of the research model.

The R^2 value of Analyzing the coefficient of determination (R^2) values for the endogenous variables gives us information about how well the model can predict those variables. There is a 69.6% chance that the predictor variables in the model can explain the variation in ACAP (Absorptive Capacity). This is shown in Table 4.12 by the adjusted R^2 value of 0.696. This demonstrates significant explanatory power.

The adjusted R^2 value for risk management practices is 0.713, indicating that 71.3% of the variance in these practices is explained by the explanatory variables. This underscores the model's robustness in elucidating this variable. Organizational Resilience Practices

shows the highest adjusted R^2 value of 0.874, indicating that 87.4% of its variance can be explained by the predictors. Overall, the results show that the model is good at capturing the changes in important organizational concepts, with Organizational Resilience Practices showing the highest level of accuracy. The small difference between the R^2 value and the adjusted R^2 value for all variables suggests that there isn't much bias from making the model more complicated or adding predictors that aren't needed.

Table 4.12: The outputs of R2 values for endogenous variables

Variable	R^2	R^2 adjusted
2. ACAP	0.698	0.696
3. Risk Management Practices	0.718	0.713
4. Organizational Resilience Practices	0.877	0.874

4.7.2 Effect Size (f^2)

The effect size, which measures how much an exogenous construct's exclusion affects the endogenous constructs, may be determined using the following equation:

$$F^2 = \frac{R^2 included - R^2 exluded}{1 - R^2 \, included}$$

Cohen (1988) demonstrated that the exogenous latent variable has minor, medium, and high impacts for F^2 values of 0.02, 0.15, and 0.35, respectively. Table 4.13 shows that, the effect size (f^2) values show how much the exogenous constructs affected the endogenous variables in the study model. Cohen's guidelines indicate that a f^2 value of 0.02 signifies a small effect, 0.15 denotes a medium effect, and 0.35 indicates a large effect. The findings demonstrate that EFQM practices exert an extremely large influence on ACAP, as reflected by a f^2 value of 2.312. Still, EFQM practices don't have a big

effect on risk management practices (f^2 = 0.053) or organizational resilience practices (f^2 = 0.149).

In fact, the latter is almost at the level of a medium effect size. ACAP exhibits a moderate impact on risk management practices (f^2 = 0.456) and a lesser impact on organizational resilience practices (f^2 = 0.054). Risk management practices demonstrate the most significant impact on organizational resilience practices (f^2 = 0.729), indicating a considerable effect. The results show that different constructs have different levels of influence on each other. For example, risk management practices were found to be a major factor in organizational resilience practices.

Table 4.13: The Effect Size of the Exogenous Constructs

Variables (Paths)	f^2	**Effect size rating**
EFQM Practices → ACAP	2.312	Extremely High
EFQM Practices →Risk Management Practices	0.053	Small
EFQM Practices →Organizational Resilience Practices	0.149	Medium
ACAP →Risk Management Practices	0.456	High
ACAP→Organizational Resilience Practices	0.054	Small
Risk Management Practices → Organizational Resilience Practices	0.729	High

4.7.3 Predictive Relevance of the Model

The Q^2 value (Stone-Geisse Q^2) indicates the importance of the model's predictive relevance in the structural model. We conduct a descriptive analysis of the study sample using the data presented in Table 4.14 (Prediction Relevance of the Model). Key performance indicators include SSO (Sum of Squares for the observed values), SSE (Sum

of Squares for the error terms), and Q^2 (Predictive relevance of the model). Finding the Q^2 values (Q^2 =1-SSE/SSO) shows how useful the model is for making predictions by checking how well it can guess the dependent variables.

This analysis presents the following observations based on the data:1. ACAP (Absorptive Capacity) exhibits an SSO value of 1586.000 and an SSE value of 955.748, yielding a Q^2 value of 0.397. This suggests a moderate predictive relevance of the model for ACAP, given that the Q^2 value is slightly below 0.4. 2. EFQM Practices indicates an SSO of 3904.000 and an SSE of 2257.596, resulting in a Q^2 value of 0.422. This shows that EFQM practices have a little more predictive power than ACAP, which means they can explain things better within the model's predictive power. 3. Organizational resilience practices have a strong predictive value, as shown by a Q^2 value of 0.413. This is based on an SSO of 4,758,000 and an SSE of 2,794,770. The value additionally reinforces the model's ability to predict organizational resilience with moderate accuracy. 4. Risk Management Practices exhibit an SSO value of 3782.000 and SSE of 2262.413, yielding a Q^2 of 0.402.

This suggests comparable predictive relevance to ACAP and organizational resilience practices, indicating that risk management practices hold moderate relevance to the model's predictions. With Q^2 values between 0.397 and 0.422, the model shows moderate predictive relevance across the four variables. This is in line with Hair et al.'s (2017) acceptable standards for predictive validity. The results show that the model gives us some useful information. However, we could still make it more accurate, since Q^2 values above 0.35 usually mean that a PLS-SEM model is doing its job well at predicting the future.

Table 4.14: Prediction Relevance of the Model

Variables	SSO	SSE	Q^2 (=1-SSE/SSO)
ACAP	1586.000	955.748	0.397
EFQM Practices	3904.000	2257.596	0.422
Organizational Resilience Practices	4758.000	2794.770	0.413
Risk Management Practices	3782.000	2262.413	0.402

4.7.4 Goodness of Fit (GoF) of the Model

Tenenhaus et al. (2005, p. 176) say that the goodness of fit (GoF) is a global fit measure in PLS Structural Equation Modeling. It is found by taking the geometric mean of the average variance extracted and the average R^2 of the endogenous variables. There are special formulas that make it easier to find GOF, which is very helpful for checking how well a model can predict the future. This lets researchers see how well their theory fits with real-world data. By providing a single summary statistic, GOF enables a straightforward comparison between different models or studies in the field.

$$GoF = \sqrt{AVG(R^2).AVG(AVE)}$$

$$GoF = \sqrt{0.877 * 0.656} = 0.758$$

The GoF value of 0.758 is significantly above the baseline values documented by Waltzel et al. (2009). If the F-value is below 0.1, the model is inadequate. For GoF values ranging from 0.1 to 0.25, a slight fit is observed. For GoF values between 0.25 and 0.36, the fit is deemed moderate. GoF values exceeding 0.36 signify a substantial fit.

4.8 Hypotheses Testing

We estimated the structural model after running the PLS algorithm to assess the relationships between the study models. In PLS, path coefficients are important, but it's also important to look at the hypothesis that is being tested, even if the paths are important

or match the expected trend (Hair et al., 2022). The researchers said that the resampling method can be used to figure out how important each path coefficient is, as well as the indicators' weights and loadings. Hair et al in their 2011 study, say that the resampling method needs at least 5,000 resamples, where the number of instances is the same as the number of observations in the original sample.

The critical t values for the two-tailed test at the 10%, 5%, and 1% significance levels are 1.65, 1.96, and 2.58, respectively. The researcher conducted 5000 resampling, with a replenishment of retest cases equivalent to the initial sample size of 128, to calculate the standard errors and t-statistics. Figures 4.4 and 4.5 illustrate the retest outcomes for the predicted relationships, while the path coefficient presents the results of the hypothesis testing.

The results of testing the hypothesis are shown in the path coefficient and retest results for the predicted relationships are shown in Figures 4.4.

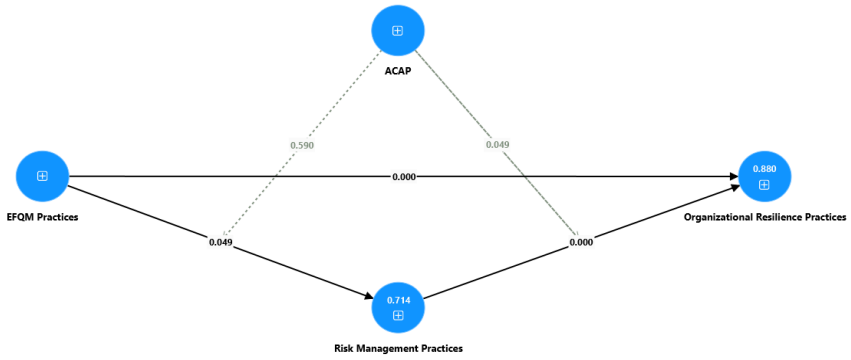

Figure 4.4: PLS bootstrapping (p- value, R^2) for the study model

H1: Absorptive capacity moderates the relationship between EFQM principles and organizational resilience in pharmaceutical companies.

Table 4.15: Mean, Stdev, T Values, P Values, Bootstrapped Confidence Interval (Bci)

Effects	Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Bootstrapped Confidence Interval		Result Supported
							2.5% LL	97.5% UL	
Direct	EFQM Practices → Organizational Resilience	0.262	0.259	0.061	4.312	0.000	0.133	0.373	Yes
Indirect	ACAP x EFQM → Organizational Resilience	-0.012	-0.011	0.022	0.537	0.591	-0.052	0.033	No

The data in Table 4.15 show that the proposed moderating effect of Absorptive Capacity (ACAP) on the relationship between EFQM Principles and Organizational Resilience has a range of outcomes. The hypothesis H1 says that absorptive capacity changes the connection between EFQM principles and organizational resilience, which makes the positive effect stronger. Some evidence supports this. The direct effect of EFQM practices on organizational resilience is characterized by an original sample coefficient of 0.262, a sample mean of 0.259, and a standard deviation of 0.061. The T-statistic for this relationship is 4.312, exceeding the threshold of 1.96and thereby indicating statistical significance. The p-value is 0.000, significantly lower than the standard significance level of 0.05, indicating that this direct effect is statistically significant.

The Bootstrapped Confidence Interval (BCI) for this effect spans from 0.133 to 0.373, remaining entirely above zero. This supports the conclusion that the direct effect of EFQM practices on organizational resilience is statistically and practically significant. This corroborates the initial segment of the hypothesis. The study looked at how Absorptive Capacity (ACAP) might act as a moderator between EFQM practices and organizational resilience. The results showed that ACAP did not have any effect. The sample coefficient for the indirect effect is -0.012, with a mean of -0.011 and a standard deviation of 0.022. The T-statistic is 0.537, significantly lower than the critical value of 1.96, suggesting that the indirect effect lacks statistical significance. The p-value is 0.591, significantly exceeding 0.05, indicating that the moderating role of absorptive capacity is not significant in this context. The BCI for the indirect effect is between -0.052 and 0.033, which is equal to zero.

This supports the claim that ACAP does not significantly change the link between EFQM practices and organizational resilience. We partially reject hypothesis H1. The direct relationship between EFQM practices and organizational resilience is significant; however, there is no evidence to indicate that absorptive capacity (ACAP) moderates this relationship. The results show that EFQM principles directly improve the resilience of organizations. However, in the pharmaceutical industry, absorptive capacity doesn't seem to have much of an effect on this relationship or change it.

H2: Effective risk management strategies positively impact organizational resilience in pharmaceutical companies.

Table 4.16: Mean, Stdev, T Values, P Values, Bootstrapped Confidence Interval (Bci)

Path	**Original sample (O)**	**Sample mean (M)**	**Standard deviation (STDEV)**	**T statistics (|O/STDEV|)**	**P values**	**BCI**		**Result Supported**
						2.5% LL	97.5% UL	
Risk Management Practices →Organizational Resilience Practices	0.550	0.549	0.058	9.423	0.000	0.431	0.663	Yes

The results in Table 4.16 show that there is strong support for H2 when looking at the proposed relationship between risk management strategies and organizational resilience in pharmaceutical companies. Risk management strategies significantly enhance organizational resilience in pharmaceutical companies. The coefficient of the original sample for the relationship is 0.550, with a sample mean of 0.549 and a standard deviation of 0.058. This suggests that risk management practices significantly enhance organizational resilience. by divide the original sample coefficient by the standard deviation, you get the T-statistic. This one is 9.423, which is higher than the 1.96 level needed for statistical significance (Hair et al., 2017).2017).

The elevated T-statistic indicates statistical significance, implying that risk management practices contribute positively to organizational resilience. The p-value is reported as 0.000, significantly lower than the conventional threshold of 0.05, thereby affirming the statistical significance of the effect (Henseler et al., 2014). A p-value of this magnitude

indicates that the observed effect is unlikely to have arisen by chance. The Bootstrapped Confidence Interval (BCI) for the effect spans from 0.431 to 0.663 at the 95% confidence level, with the entire interval situated above zero. The BCI confirmed that this means that risk management practices have a positive and significant effect on the resilience of organizations. This shows how statistically significant and useful this relationship is in real life.

H3: Absorptive capacity moderates the relationship between EFQM principles and risk management effectiveness, enhancing their synergistic impact on organizational resilience, particularly during disruptive events.

Table 4.17: Mean, Stdev, T Values, P Values, Bootstrapped Confidence Interval (Bci)

Effects	**Relationship**	**Original sample (O)**	**Sample mean (M)**	**(STDEV)**	**T statistics**	**P values**	**Bootstrapped Confidence Interval**		**Result Supported**
							2.5% LL	97.5% UL	
Direct	EFQM Practices → Risk Management Practices	0.231	0.248	0.118	1.966	0.049	0.022	0.471	Yes
	EFQM Practices	0.262	0.259	0.061	4.312	0.000	0.133	0.373	Yes

	→ Organizational Resilience Practices								
Indirect	ACAP x EFQM → Risk Management → Organizational Resilience	-0.012	-0.011	0.022	0.537	0.591	-0.052	0.033	No

As shown in Table 4.17, the analysis of the hypothesized relationship for H3 shows that combining EFQM ideas with risk management methods has a mixed effect on the resilience of pharmaceutical companies, with absorptive capacity acting as a moderating factor. The hypothesis receives partial support; however, significant insights emerge concerning both direct and indirect effects.

This study shows that EFQM practices have a direct effect on risk management practices. The sample coefficient is 0.231, the sample mean is 0.248, and the standard deviation is 0.118. The T-statistic for this relationship is 1.966, slightly exceeding the critical value

of 1.96, thereby indicating statistical significance. The p-value is 0.049, which is below the 0.05 threshold, indicating that this relationship is significant. The Bootstrapped Confidence Interval (BCI) for this effect spans from 0.022 to 0.471, indicating a wholly positive range. This suggests that the incorporation of EFQM practices has a significant impact on risk management practices. A sample coefficient of 0.262, a sample mean of 0.259, and a standard deviation of 0.061 show that EFQM practices have a direct effect on the resilience of organizations. The T-statistic for this effect is 4.312, exceeding the critical value of 1.96 and thereby confirming statistical significance. The p-value of 0.000 indicates a high level of significance, suggesting that EFQM practices exert a positive and substantial influence on organizational resilience. The BCI varies between 0.133 and 0.373, thereby underscoring the importance of this relationship.

It's not clear how absorptive capacity (ACAP) can be used as a moderator to explain the link between EFQM practices, risk management practices, and organizational resilience. The sample coefficient for the indirect effect is -0.012, with a mean of -0.011 and a standard deviation of 0.022. The T-statistic is 0.537, significantly below the critical value of 1.96, suggesting that the indirect effect lacks statistical significance. The p-value is 0.591, exceeding the threshold of 0.05, indicating that absorptive capacity does not significantly moderate the relationship. The Bootstrapped Confidence Interval (BCI) spans from -0.052 to 0.033, encompassing zero, which further substantiates the absence of significant moderation. The hypothesis H3 receives partial support.

The direct relationships between EFQM practices and both risk management practices and organizational resilience are statistically significant and positive. However, there is no proof that absorptive capacity can increase the impact of EFQM ideas and risk management techniques on the resilience of an organization. Since the indirect effect

didn't mean anything, this means that absorptive capacity doesn't play a role in this relationship in the pharmaceutical world.

H4: Absorptive capacity moderates the relationship between risk management strategies and organizational resilience.

Table 4.18: Mean, Stdev, T Values, P Values, Bootstrapped Confidence Interval (Bci)

Effects	**Relationship**	**Original sample (O)**	**Sample mean (M)**	**Standard deviation (STDEV)**	**T statistics (|O/STDEV|)**	**P values**	**Bootstrapped Confidence Interval**		**Result Supported**
							2.5% LL	97.5% UL	
Direct	Risk Management → Organizational Resilience	0.550	0.549	0.058	9.423	0.000	0.431	0.663	Yes
Indirect	ACAP X Risk Management → Organizational Resilience	0.346	0.337	0.062	5.568	0.000	0.219	0.462	Yes

The proposed moderating effect of Absorptive Capacity (ACAP) on the relationship between Risk Management Strategies and Organizational Resilience shows that H4 is very likely to be true (Table 4.18). We find that absorptive capacity moderates the correlation between risk management strategies and organizational resilience, thereby enhancing the positive influence. The relationship between risk management strategies and organizational resilience exhibits a sample coefficient of 0.550, a sample mean of 0.549, and a standard deviation of 0.058. The T-statistic is 9.423; it exceeds the threshold

of 1.96, thereby indicating the statistical significance of the relationship. The p-value of 0.000 is significantly lower than the conventional threshold of 0.05, indicating a highly significant direct effect of risk management strategies on organizational resilience. The Bootstrapped Confidence Interval (BCI) for the direct effect is from 0.431 to 0.663, which is always above zero.

This shows that risk management practices have a positive and significant direct effect on the resilience of organizations. An important positive effect of Absorptive Capacity (ACAP) on the connection between Risk Management Strategies and Organizational Resilience can be seen. The sample coefficient for the indirect effect is 0.346, with a mean of 0.337 and a standard deviation of 0.062. The T-statistic for this relationship is 5.568, surpassing the critical value of 1.96, thereby indicating statistical significance. The p-value of 0.000 indicates strong support for the conclusion that the moderating effect of ACAP is significant. The bootstrapped confidence interval (BCI) for the indirect effect ranges from 0.219 to 0.462, remaining entirely above zero.

This finding backs up the claim that absorptive capacity greatly increases the positive effects of risk management strategies on the resilience of an organization. We affirm the hypothesis H4. The direct effect of risk management strategies on the resilience of organizations is statistically significant and positive. The moderating effect of absorptive capacity is also positive. The findings indicate that absorptive capacity enhances the effectiveness of risk management strategies for organizational resilience and strengthens the positive relationship between these factors in the pharmaceutical industry.

H5: EFQM principles positively impact organizational resilience in pharmaceutical companies.

As presented in Table 4.19 (attached below), there is strong statistical evidence supporting hypothesis H5, confirming the proposed relationship between EFQM practices and organizational resilience in pharmaceutical companies.

The EFQM principles markedly improve organizational resilience in pharmaceutical organizations. The initial sample coefficient for the connection is 0.262, with a sample mean of 0.259 and a standard deviation of 0.061, indicating a very steady effect size. The T-statistic, defined as the ratio of the original sample coefficient to the standard deviation (|O/STDEV|), is 4.312, surpassing the conventional threshold of 1.96 for statistical significance in hypothesis testing (Hair et al., 2017).

Table 4.19: Mean, Stdev, T Values, P Values, Bootstrapped Confidence Interval (Bci)

Path	**Original sample (O)**	**Sample mean (M)**	**Standard deviation (STDEV)**	**T statistics (|O/STDEV|)**	**P values**	**BCI**		**Result Supported**
						2.5% LL	**97.5 % UL**	
EFQM Practices → Organizational Resilience Practices	0.262	0.259	0.061	4.312	0.000	0.133	0.373	Yes

The elevated T statistic reinforces the statistical significance of the link, suggesting that the impact is unlikely to have arisen by coincidence. Furthermore, the recorded p-value of 0.000 is significantly lower than the conventional significance threshold of 0.05. This offers more proof that the hypothesis is valid, as a p-value of this magnitude substantiates the statistical significance of the observed effect. The bootstrapped confidence interval (BCI) for the effect size spans from 0.133 to 0.373 at the 95% confidence level, excluding zero. These results support the idea that EFQM methods make pharmaceutical companies

much more resilient, since the whole confidence interval stays above zero (Henseler et al., 2014).

4.9 Summary of the Hypotheses

There is a strong direct effect of EFQM practices on the resilience of organizations, but the idea that absorptive capacity can strengthen this link has not been proven. The fact that the indirect effect is not important shows that absorptive capacity does not change the connection between EFQM principles and organizational resilience in a meaningful way. This partial rejection of H1 suggests that while EFQM techniques contribute to resilience, the hypothesis is not supported as absorptive capacity does not significantly alter this relationship.

The second hypothesis H2, which explores the influence of risk management practices on organizational resilience, also receives strong support. The strong and positive link between risk management strategies and the resilience of organizations shows that risk management is an important part of making organizations more resilient. The strength of this conclusion is shown by the high T-statistic and low p-value, which confirm that risk management practices are an important part of pharmaceutical companies' resilience.

Conversely, H3 yields a more intricate outcome. H3 looks at how absorptive capacity controls the combination of EFQM ideas with risk management measures. The findings indicate ambiguous support. EFQM practices, risk management techniques, and organizational resilience exhibit statistically significant direct correlations; however, the moderating influence of absorptive capacity remains unsubstantiated. Since there wasn't a noticeable indirect effect, this means that absorptive capacity doesn't make it easier to combine EFQM principles with risk management strategies to improve resilience.

This limited endorsement for H3 indicates that, although the integration of EFQM and risk management is advantageous, absorptive capacity does not substantially affect this correlation within the pharmaceutical industry.

The results are better for H4, which says that absorptive capacity moderates the link between risk management techniques and the resilience of an organization. The direct impact of risk management measures and the moderating influence of absorptive capacity are both substantial. The beneficial relationship between absorptive capacity and risk management strategies indicates that absorptive capacity enhances the efficacy of risk management by bolstering organizational resilience. This discovery substantiates the idea that absorptive capacity allows companies to more effectively assimilate and utilize knowledge, thereby enhancing their resilience to external challenges (Hair et al., 2017).

The results from the studies that looked at the associations give us important information about how EFQM principles, risk management techniques, and absorptive capacity can help pharmaceutical companies become more resilient. Hypothesis H5 posits that EFQM principles increase organizational resilience, and the data robustly corroborates this assertion. The direct link between EFQM practices and organizational resilience is statistically significant, showing a positive and substantial effect. This proves that these principles greatly improve the resilience of organizations. This finding backs up earlier research that showed how important EFQM is for improving the abilities of organizations.

In the end, the results of this study show how important EFQM techniques and risk management strategies are for making pharmaceutical companies more resilient. Absorptive capacity strongly moderates the relationship between risk management and resilience; however, it does not substantially influence the effects of EFQM principles. These findings deepen our understanding of how organizational practices can promote

resilience in a volatile and demanding business. Table 4.20 below clearly summarizes the results of the hypothesis testing, so explaining the findings and their alignment with the hypotheses. The table presents a concise summary of the correlations examined in this study, indicating which hypotheses were validated and which were dismissed, especially concerning the impact of absorptive capacity on organizational resilience within the pharmaceutical industry.

Table 4.20: Summary of Hypotheses Testing (from H1 to H5)

No.	Hypothesis	Result
H1	Absorptive capacity moderates the relationship between EFQM principles and organizational resilience in pharmaceutical companies.	Supported
H2	Effective risk management strategies positively impact organizational resilience in pharmaceutical companies.	Supported
H3	Absorptive capacity moderates the relationship between EFQM principles and risk management effectiveness, enhancing their synergistic impact on organizational resilience, particularly during disruptive events.	Not Supported
H4	Absorptive capacity moderates the relationship between risk management strategies and organizational resilience.	Supported
H5	EFQM principles positively impact organizational resilience in pharmaceutical companies.	Supported

Chapter Five

Discussion and Managerial Framework

5.1 Overview

This chapter offers a thorough analysis of the findings outlined in Chapter Four, integrating quantitative data from Partial Least Squares Structural Equation Modeling (PLS-SEM) and qualitative insights derived from interviews with senior professionals in the Palestinian pharmaceutical industry. It examines the relationships among EFQM practices, risk management techniques, absorptive capacity, and organizational resilience. The chapter critically examines these interactions in accordance with theoretical frameworks and practical implications and concludes by recommending a managerial framework that improves organizational resilience within the pharmaceutical industry.

5.2 Discussion

5.2.1 EFQM Practices and Organizational Resilience

This chapter provides an extensive review of the findings presented in Chapter Four, merging quantitative data from Partial Least Squares Structural Equation Modeling (PLS-SEM) with qualitative insights obtained from interviews with senior experts in the Palestinian pharmaceutical industry. It analyzes the interconnections between EFQM practices, risk management strategies, absorptive capacity, and organizational resilience. The findings reveal that EFQM procedures substantially improve organizational resilience, evidenced by a high path coefficient (0.262, $p < 0.001$). This demonstrates that aspects like as Leadership, Strategy, and Processes are essential for:

- Improving operational efficacy
- Fostering a culture of excellence

- Harmonizing corporate goals with stakeholder anticipations

However, some aspects of EFQM, including People and collaborations and Resources, provide chances for improvement—especially in fostering internal collaboration and developing external collaborations. This illustrates resource limitations, as noted in the interviews, and underscores the necessity to synchronize EFQM adoption with the local industry context.

These findings corroborate prior studies, emphasizing the crucial function of EFQM in promoting resilience. Bolboli & Reiche (2015) demonstrated that the EFQM model fosters organizational resilience through continuous improvement and proactive quality management. Rodríguez-González et al. (2019) further supported this by illustrating how EFQM-driven quality management enhances operational stability and sustainability, particularly in the pharmaceutical industry.

The middling performance in several EFQM areas in this study indicates that organizations should implement targeted initiatives to improve communication, optimize resource allocation, and bolster employee engagement. This aligns with findings from Rahmati & Jalilvand (2024), who emphasized that without adequate alignment between EFQM criteria and internal organizational realities, its impact on resilience is restricted.

5.2.2 Risk Management Practices and Organizational Resilience

Risk management strategies emerged as the most significant predictor of organizational resilience, exhibiting a substantial path coefficient of 0.550 ($p < 0.001$). This highlights the essential need of risk assessment, mitigation, and proactive supervision in fostering resilience.

Both quantitative and qualitative evaluations reveal robust performance in the Identification of Risk Indicators and Incident Management dimensions, showcasing organizations' capacity to proactively evaluate risks and execute mitigation solutions. However, failures remain in aligning risk management with departmental goals and in clearly communicating risk responsibilities across various management tiers.

These results are consistent with the current literature. Torabi et al. (2016) and Mishra et al. (2018) highlighted that firms implementing proactive risk management exhibit enhanced adaptability in times of crisis by integrating systematic risk assessment and contingency planning.

Additionally, Burnard et al. (2018) emphasized that embedding risk management tactics into daily operations significantly strengthens resilience and ensures long-term sustainability. This aligns with the findings in this study, which suggest that effective risk management enhances organizational resilience by improving decision-making processes and resource allocation.

This study identifies deficiencies in risk management maturity among organizations, indicating the necessity for industry-wide standardization, technological integration, and capacity-building initiatives. This corresponds with Suresh et al. (2020), who discovered that companies employing systematic and technology-oriented risk management strategies are more adept at managing disruptions.

5.2.3 Absorptive Capacity as a Driver of Resilience

Absorptive capacity is essential for enhancing organizational resilience, evidenced by a total degree of agreement (DOA) of 74.5%. Critical dimensions, including information acquisition and transformation, demonstrated strong performance, highlighting

organizations' capacity to utilize external collaborations and convert gained knowledge into implementable strategies. However, internal knowledge-sharing methods, especially cross-branch collaboration, exhibited comparatively poorer performance, indicating a possible area for improvement.

The results indicate that absorptive capacity does not substantially modify the direct correlation between EFQM practices and resilience. Conversely, it enhances the correlation between risk management strategies and resilience (path coefficient = 0.346, $p < 0.001$). This suggests that absorptive capacity improves the efficacy of risk management by allowing enterprises to incorporate external knowledge into their risk mitigation measures.

The findings correspond with Sadeghi et al. (2020) and Stentoft et al. (2023), who assert that absorptive capacity is a crucial catalyst for innovation and resilience, especially in knowledge-intensive and regulated industries. Their research underscores that the capacity to integrate external knowledge allows firms to foresee hazards and improve adaptive strategies. Hillmann and Guenther (2021) examine the significance of absorptive capacity in enhancing risk management practices, assuming that firms with robust information absorption capacities can synchronize risk strategies with changing market and regulatory requirements.

Furthermore, Chege et al. (2023) contend that absorptive capacity enhances the incorporation of external knowledge into EFQM-based quality management systems, hence indirectly bolstering resilience through increased operational efficiency and innovation. Their findings augment the research of Para-González et al. (2021), which emphasizes how EFQM promotes continual learning and innovation, so indirectly associating it with absorptive capacity as a means for enduring enhancement.

5.2.4 Integration of EFQM, Risk Management, and Absorptive Capacity

The combined implementation of EFQM concepts with risk management measures has demonstrated a beneficial impact on resilience (path coefficient = 0.231, $p < 0.05$). This illustrates the complementing characteristics of these frameworks, wherein EFQM offers a systematic methodology for quality and operational excellence, while risk management enhances resilience through proactive risk detection and mitigation.

The moderating effect of absorptive capacity in this integration was not statistically significant. This indicates that while EFQM and risk management can be successfully integrated, absorptive capacity does not necessarily enhance their cumulative effect. Alghababsheh (2023) presented related findings, highlighting that although information absorption facilitates individual organizational tasks, its influence on cross-functional integration necessitates additional examination.

The findings of this study correspond with those of Bastani et al. (2021), who discovered that the integration of EFQM and risk management enhances resilience, while its efficacy varies based on contextual factors, including legislative limitations and industry-specific threats. Miao et al. (2021) emphasize the necessity of robust internal coordination mechanisms when implementing absorptive capacity within highly structured frameworks like EFQM and risk management.

These findings underscore the need for additional investigation into the contextual factors that affect the interplay between absorptive capacity, EFQM procedures, and risk management. Future study may investigate how particular knowledge-sharing methods facilitate or impede the incorporation of these frameworks in resilience-building initiatives.

5.3 Managerial Framework

Building on the findings of this study, a structured managerial framework is proposed to enhance organizational resilience within the Palestinian pharmaceutical industry. This framework integrates EFQM principles, risk management strategies, and absorptive capacity, ensuring a holistic and sustainable approach to resilience.

The framework focuses on four key areas:

- **Strengthening EFQM Implementation** – Enhancing leadership, strategy alignment, and employee engagement to embed excellence practices**.**
- **Advancing Risk Management Practices** – Standardizing risk policies, improving interdepartmental coordination, and strengthening crisis response mechanisms.
- **Enhancing Absorptive Capacity** – Promoting knowledge-sharing, leveraging external partnerships, and investing in continuous learning.
- **Fostering Collaboration & Innovation** – Engaging stakeholders, adopting new technologies, and ensuring ongoing organizational improvements.

This structured approach enables proactive adaptation to market and regulatory challenges**,** improving long-term sustainability and competitive advantage. The table below provides a detailed breakdown of the proposed strategies and their expected impact:

Table 5.1: Managerial Framework for Enhancing Organizational Resilience

Key Area	Strategic Actions	Expected Impact on Resilience
1. Strengthening EFQM Implementation	Leadership Development: Provide leadership training on EFQM principles and decision-making. Strategic Alignment: Align strategies with stakeholder expectations and resilience factors. Employee Engagement: Improve communication, recognition, and motivation. Resource Optimization: Focus on improving weak areas (People & Partnerships), integrate technology.	Improves adaptability and operational efficiency, ensuring a proactive leadership culture.
2. Advancing Risk Management Practices	Standardizing Risk Management: Establish industry-wide risk identification & mitigation protocols. Interdepartmental Coordination: Enhance collaboration to align risk strategies with business objectives. Capacity Building: Train employees in advanced risk mitigation methods	Reduces vulnerabilities, enhances crisis response, and minimizes operational disruptions.

	(e.g., scenario analysis, crisis simulations).	
3.Enhancing Absorptive Capacity	Internal Knowledge Sharing: Develop systems for sharing expertise across teams. Leveraging External Partnerships: Engage with regulators, academic institutions, and industry leaders. Training & Development: Implement continuous learning programs to strengthen knowledge acquisition and innovation.	Enhances learning, innovation, and adaptability to industry changes.
4.Fostering Collaboration & Innovation	Stakeholder Engagement: Build strong local and global collaborations to address resource constraints. Technology Adoption: Use AI, blockchain, and predictive analytics for better risk management. Continuous Improvement: Develop feedback loops to identify and address weaknesses.	Boosts organizational flexibility, sustainability, and competitive advantage.

This study highlights the significance of EFQM practices, risk management strategies, and absorptive capacity in improving organizational resilience. This study confirms earlier findings by Rodríguez-González et al. (2019) and Nenadál (2020), emphasizing

the essential function of EFQM practices—specifically leadership, strategy, and stakeholder collaboration—in enhancing resilience. The findings indicate that EFQM functions as a systematic framework for operational excellence and continuous improvement, aiding firms in maintaining resilience in dynamic environments.

Risk management has been identified as the primary predictor of resilience, corroborating the findings of ISO (2018) and Hopkin (2017), which highlight the necessity of proactive risk identification, mitigation, and preparedness for ensuring long-term organizational sustainability. The findings align with the assertions of Torabi et al. (2016), who contend that a structured risk management system improves an organization's capacity to anticipate and address external disruptions.

Furthermore, absorptive capacity enhances the effectiveness of risk management strategies by enabling the acquisition, dissemination, and utilization of external knowledge. This is consistent with the findings of Sadeghi et al. (2020) and Stentoft et al. (2023), which highlight that absorptive capacity improves resilience via knowledge transformation and strategic adaptation. However, its function in moderating the relationship between EFQM practices and resilience seems constrained, highlighting the necessity for enhanced integration of knowledge-sharing systems within organizations. The findings align with Nguyen et al. (2021) and Chatterjee et al. (2022), who argue that organizational learning and adaptive capabilities are essential for enhancing resilience, necessitating a structured internal framework for optimal effectiveness.

The managerial framework proposed in this study offers strategies to mitigate weaknesses and capitalize on opportunities for enhancing resilience. Implementing a structured framework that incorporates quality management (EFQM), proactive risk mitigation, and absorptive capacity enables pharmaceutical companies to improve their capacity to

manage uncertainties, maintain operational excellence, and attain long-term sustainability in a fluctuating global landscape. The findings highlight the importance of integrating continuous learning mechanisms, enhancing interdepartmental coordination, and aligning strategic objectives with evolving market demands—elements essential for maintaining resilience in high-risk and regulated industries.

Chapter Six
Conclusions and Recommendations

6.1 Overview

This chapter consolidates the study's results, offering conclusions, practical recommendations, and insights into the study's contributions. The research limitations are addressed, along by recommendations for future research areas. The chapter emphasizes the importance of the suggested framework—incorporating EFQM principles, risk management strategies, and absorptive capacity—specifically designed for the Palestinian pharmaceutical industry to improve resilience, operational efficiency, and global competitiveness.

The data analysis has provided a comprehensive view of the roles of EFQM, risk management, and absorptive capacity in improving organizational resilience in the pharmaceutical industry. These insights possess substantial importance for both theoretical models and actual implementations, particularly in emerging markets. The last section of this paper summarizes the key findings, assesses the research limitations, and suggests actionable strategies for enhancing resilience in pharmaceutical supply chains. Moreover, it offers guidance for subsequent research, intending to expand upon the groundwork created by this study and tackle outstanding issues.

6.2 Conclusions

This study provides key insights into the factors influencing organizational resilience within the Palestinian pharmaceutical industry. The results emphasize that EFQM principles, risk management strategies, and absorptive capacity are essential in bolstering resilience.

Principal Discoveries:

- **EFQM Principles Enhance Resilience**

The research validates that leadership, strategic planning, and ongoing enhancement substantially enhance organizational resilience.

The criteria of People and Partnerships were recognized as the most demanding within the EFQM framework, necessitating focused enhancements.

- **Risk management is the most significant predictor of resilience:**

Companies employing proactive risk management, characterized by regular risk evaluations and crisis preparedness, exhibit greater resilience.

Regulatory compliance and financial limitations continue to pose significant obstacles, requiring organized mitigation solutions.

- **Absorptive Capacity Moderates Resilience Factors**

Organizations proficient in knowledge acquisition, transformation, and application are more adept at adapting to market disturbances and regulatory changes.

Absorptive capacity augments both EFQM-oriented enhancements and the efficacy of risk management, rendering it a crucial facilitator of resilience.

- **Integrated Framework for Sustainable Development**

The suggested managerial structure successfully tackles industry-specific difficulties, enhancing efficiency, adaptability, and risk awareness.

Organizations that incorporate EFQM, risk management, and absorptive capacity can improve operational stability and sustain long-term competitiveness.

Final Reflection: Palestinian pharmaceutical companies must emphasize ongoing enhancement, systematic risk management, and strategic learning to bolster resilience. The study's findings emphasize that a comprehensive, integrated strategy—rather than

individual enhancements—is crucial for sustained growth in a progressively intricate and uncertain global environment.

6.3 Recommendations

Building upon the study's results and the proposed managerial framework, the following recommendations focus on enhancing organizational resilience in the Palestinian pharmaceutical industry:

- ✓ **Strengthening EFQM Implementation**

Leadership Development: Deliver specialized leadership training that incorporates EFQM concepts to improve decision-making and accountability.

Strategic Alignment: Consistently revise strategy plans to incorporate resilience-oriented risk management strategies, guaranteeing conformity with market requirements and regulatory changes.

Employee Engagement: Enhance communication pathways between management and employees while instituting incentive frameworks that promote proactive engagement in resilience efforts.

Resource Optimization: Allocate investments to fortify "People" and "Partnerships," seen as deficient areas, while utilizing digital tools to improve efficiency.

- ✓ **Advancing Risk Management Practices**

Standardized Risk Management Frameworks: Establish industry-wide standards for risk identification and mitigation, ensuring uniformity across firms.

Enhancing Interdepartmental Collaboration: Enhance communication and collaboration among departments to synchronize risk strategies with fundamental operational objectives.

Capacity Building: Facilitate advanced training sessions on risk assessment approaches, such as scenario analysis and stress testing, and execute crisis simulation exercises.

- ✓ **Enhancing Absorptive Capacity**

Internal Knowledge Sharing: Implement organized knowledge-sharing systems between departments and facilities.

Leveraging External Partnerships: Fortify partnerships with regulatory agencies, academic entities, and industry experts to augment knowledge acquisition.

Workforce Development: Establish ongoing training initiatives centered on knowledge transformation and application, promoting a flexible organizational culture.

- ✓ **Driving Resilience Through Collaboration and Innovation**

Stakeholder Engagement: Formulate local and global alliances to address resource constraints and foster creative methodologies.

Technology Integration: Employ AI-based risk assessment tools, digital surveillance systems, and data analytics to improve decision-making and operational flexibility.

Continuous Improvement Culture: Establish systems for feedback acquisition and performance assessment to ensure continuous improvements in resilience initiatives.

6.4 Research Contribution

This research substantially enhances the body of knowledge regarding organizational resilience, specifically in the Palestinian pharmaceutical industry. It establishes an innovative framework that incorporates EFQM concepts, risk management tactics, and absorptive capacity, providing a systematic method for addressing industry-specific difficulties.

Principal Contributions:

1. **Theoretical Contribution**
    - Improves comprehension of the interplay between EFQM, risk management, and absorptive capacity in bolstering organizational resilience.
    - Fills a need in the literature by concentrating on resilience in the Palestinian pharmaceutical industry, a domain seldom examined in previous studies.
    - Shows the moderating function of absorptive capacity, underscoring its importance in resilience-building frameworks.
2. **Practical Contribution**
    - Presents a managerial framework with implementable techniques for pharmaceutical companies to enhance resilience and operational stability.
    - Offers a validated empirical methodology for the pharmaceutical industries to improve risk preparedness and sustainability.
    - Identifies principal issues including legislative limitations, financial limitations, and supply chain deficiencies, providing specific solutions.
3. **Contextual Contribution**
    - Analyzes resilience enhancement in a developing economy, focusing on the specific limitations caused by geopolitical instability and resource shortage.
    - Provides practical options relevant not only to the Palestinian pharmaceutical industry but also to other industries with similar economic and operational concerns.

This study enhances the current understanding of resilience by connecting academic research with commercial application, providing practical insights for firms in challenging conditions.

6.5 Limitations of the Study

This study offers significant insights on organizational resilience in the Palestinian pharmaceutical industry; yet, certain limitations must be recognized:

1. The research exclusively targets Palestinian pharmaceutical firms. This specialization offers detailed sectoral insights but restricts the applicability of the findings to other industries or geographic locations with varying socio-economic, legal, and operational constraints. Comprehensive regional or worldwide investigations might reveal diverse resilience processes.

2. The limited sample size, mainly including executives and professionals in the Palestinian pharmaceutical companies, may restrict the range of opinions. This may restrict the depth of the data on resilience across different organizational roles or hierarchies. Future research should use bigger, more heterogeneous samples to encompass wider organizational dynamics.

3. The study used a cross-sectional design, providing a snapshot of resilience behaviors at a particular moment. This approach may neglect long-term trends, changing dynamics, or the delayed impacts of EFQM principles, risk management methods, or absorptive capacity on organizational resilience. A longitudinal method would effectively capture these temporal changes and their influence on organizational approaches.

4. The study mainly depends on self-reported data from qualitative interviews and survey responses, which may be influenced by biases, including social desirability bias and individual judgments of participants. This dependence may affect the precision of the results, particularly in domains necessitating objective assessments, such as operational performance or financial indicators.

5. Regulatory and Geopolitical Constraints: The particular regulatory and geopolitical challenges facing the Palestinian pharmaceutical industry, including restricted access to resources, limited market opportunities, and supply chain disruptions, were emphasized in this research. In any case, these external restrictions may hinder the isolation of the suggested resilience framework's impacts, thereby restricting the practical applicability of the findings.

6. Comprehensive Framework Validation: Although the study presents a framework integrating EFQM concepts, risk management methods, and absorptive capacity, its practical use has not been thoroughly confirmed in real-world contexts. Subsequent research should evaluate the framework's use to ascertain its flexibility and efficacy in many organizational and geographical settings.

7. Absence of comparable Analysis: The study omits comparable data from other industries or countries, which might provide deeper insights into the distinctive strengths and limitations of the Palestinian pharmaceutical industry's resilience strategy. Incorporating such comparisons might enhance the study's worldwide significance.

6.6 Future Research

To expand upon the findings of this research, the subsequent subjects are suggested for future research:

1. Expand the Framework's Applicability: Further studies should investigate the framework's pertinence across other industries and geographic regions, especially in other developing countries with similar issues. Investigating its implementation across industries like healthcare, manufacturing, or technology, characterized by diverse regulatory frameworks and operational dynamics, would assist in supporting the

framework's wider applicability. The insights gained from this research might enhance its flexibility and relevance.

2. Evaluate Technological Integration: A comprehensive analysis of the viability and effects of incorporating new technologies—such as blockchain, IoT, and artificial intelligence (AI)—into resilience-enhancing methods is essential. For the Palestinian pharmaceutical companies, investigating how these technologies may improve supply chain visibility, facilitate real-time decision-making, and mitigate risks is essential. This study domain can evaluate the capacity for technical innovation to mitigate resource limitations in developing countries.

3. Conduct Longitudinal Studies: Longitudinal study is advised to examine the enduring feasibility and development of the proposed framework in fostering resilience and sustainability. Such studies would enable researchers to monitor the evolution of EFQM principles, risk management techniques, and absorptive capacity over time, as well as evaluate their enduring effects on organizational performance and flexibility.

4. Examine Stakeholder Interactions: Future study should explore the significance of multi-stakeholder collaboration, including partnerships across regulatory bodies, academia, and industry, in promoting resilience. Examining how these relationships might foster innovation, address common challenges, and facilitate mutual development may provide practical insights for bolstering the resilience of organizations functioning in resource-limited settings.

5. Assess Financial Feasibility: Financial factors are essential for businesses with restricted funds. The research must evaluate the cost-effectiveness of applying the suggested framework, particularly for small and medium-sized pharmaceutical companies. A cost-benefit analysis would yield essential insights for decision-makers and

guarantee that the framework is both viable and effective for financially limited organizations.

6. Analyze Dynamic Interactions: Exploring the dynamic relationship between EFQM principles, risk management techniques, and absorptive capacity is crucial for comprehending how these components collectively impact organizational resilience. This research may examine industry-specific or contextual elements that influence the kind and intensity of these interactions, therefore augmenting the theoretical comprehension of resilience-building mechanisms.

7. Examine Generalizability Across Diverse Contexts: Extending the framework's applicability to organizations across varied socio-economic, legal, and cultural contexts is essential for assessing its worldwide significance. For example, analyzing its relevance in industries with distinct legal obstacles or cultural standards can demonstrate the framework's flexibility and confirm its usefulness across many situations.

8. Examine Wider Socio-Economic Effects: Considering the substantial influence of the pharmaceutical industry on public health, coming research ought to analyze the effects of resilience frameworks on broader socio-economic results, including employment generation, enhancements in public health, and economic development. Investigating these macro-level effects might underscore the significance of resilience-building initiatives in essential industries.

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Appendices

Appendix I: Interview Questions

Appendix II: Questionnaire

Appendix III: List of survey and interview questions arbitrators

Appendix IV: Distribution and Characteristics of Interviewees

Appendix V: Values of Cronbach's Alpha for each variable of the Pilot

Appendix VI: Data Analysis output using PLS-SEM Program

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ARAB AMERICAN UNIVERSITY

Appendix I: Interview Questions

Dear Interviewee,

The researcher is conducting out a study entitled: "**Understanding the Impact of EFQM and Risk Management on Organizational Resilience in the Pharmaceutical Industry: The Role of Absorptive Capacity**" in partial fulfillment of the requirements for a Master's degree in Quality Management from the Arab American University.

This study aims to investigate the contribution of EFQM (European Foundation for Quality Management) principles and approaches to risk management on organizational resilience within the pharmaceutical industry. This research examines the influence of absorptive capacity on improving these interactions, emphasizing gaining knowledge, dissemination, and utilization inside companies.

Your feedback is crucial for testing our conceptual model, proving its applicability to real-world practices, and verifying if these links correspond with activities in pharmaceutical manufacturing firms across all industries.

All information provided will remain strictly confidential. No personal names or company-specific details will be disclosed in the study. Data will be anonymized and shown solely in a general manner.

The interview will be recorded for the purposes of transcription and analysis, pending your consent. The recordings will be securely stored and used just for academic research.

Your correct and informative perspective in this area is wanted for participation in answering the interview questions. If you accept the aforementioned requirements, kindly provide your useful valuable views.

Thank you for your time and cooperation.

Interviewee Name | Signature

_____ | _____

Sincerely,

Researcher: Muath M. Daraghmeh

Part One: General Information

1. Title: _____

2. Position: _____

3. Years of experience: _____

4. Date of Interview: _____

Part Two: Interview Questions

Introduction

1. Are you familiar with EFQM or similar quality management systems (e.g., ISO)?

- If not, EFQM is related to a framework that focuses on improving organizational quality and performance through principles such as leadership, strategy, people, processes, and results.

_____

_____

Section 1: EFQM and Organizational Resilience

1. Do you believe that applying EFQM practices can enhance your company's ability to adapt and remain resilient during disruptions (e.g., supply chain issues, regulatory changes, data loss, cyber-attacks, or production downtime)?

- If yes, could you provide particular examples or scenarios where EFQM practices contributed to your company's resilience?

_____

_____

2. In your company, do EFQM principles (e.g., leadership, strategy, and people engagement) help in mitigating disruptions or responding to unforeseen challenges? How?

_____

_____

Section 2: EFQM and Risk Management

1. From your perspective, does EFQM influence how risks are identified, assessed, and managed in your company?

- If yes, in what specific ways (e.g., through structured processes, systematic reviews, leadership involvement)?

_____

_____

2. Do you think EFQM promotes a proactive approach to risk management, or is it more focused on reactive responses after issues occur? Please explain with examples.

_____

_____

Section 3: Risk Management and Organizational Resilience

1. Based on your experience, how does effective risk management contribute to organizational resilience in your company?

- Could you provide examples where robust risk management practices enabled your company to recover or adapt quickly during disruptions?

_____

_____

2. Do you see a direct relationship between the structured management of risks and your company's ability to remain resilient in a volatile environment? If so, how?

_____

_____

Section 4: Holistic Impact of Absorptive Capacity

1. Do you believe that absorptive capacity (i.e., your company's ability to acquire, share, and apply knowledge) enhances the contributions of both EFQM practices and risk management to building resilience?

For example, do you think that learning from past experiences or external insights (e.g., training, lessons from crises, or best practices) helps your company to implement EFQM principles more effectively or improve risk management processes to adapt and recover better from disruptions?

_____

_____

Can you describe any processes or tools in your company that ensure EFQM, risk management, and resilience efforts are integrated through knowledge-sharing and learning?

_____

_____

Are there instances where the lack of absorptive capacity limited the impact of EFQM on risk management or risk management on resilience?

_____

_____

What steps do you think companies could take to strengthen absorptive capacity to improve these relationships?

_____

_____

Section 5: Validating Conceptual Relationships

1. Do you agree or disagree with the following statements? Please explain your perspective:

- EFQM positively influences organizational resilience.
- EFQM enhances risk management practices.
- Risk management significantly contributes to organizational resilience.
- Absorptive capacity moderates the relationship between EFQM and risk management, enhancing the impact.
- Absorptive capacity moderates the relationship between risk management and organizational resilience, strengthening the link.

2. If you agree with these relationships, can you provide examples that support these ideas?

- If you disagree, what alternative explanations or factors do you think influence these relationships?

_____

_____

Section 6: Additional Context

1. Are there any practices unique to your company or region (not covered in this interview) that significantly impact EFQM, risk management, or resilience?
2. Do you have any recommendations on how EFQM, risk management, or absorptive capacity can be better leveraged to enhance resilience in the pharmaceutical industry?

_____

_____

Closing Note

Thank you for participating in this interview and sharing your insights. Your input is invaluable for validating the conceptual framework of this study. If you wish to add any further comments or information later, feel free to contact me using the details provided above.

الجامعة العربية الأمريكية
ARAB AMERICAN UNIVERSITY

Appendix II: Questionnaire

Dear Participant,

The researcher is carrying out a study titled "**Understanding the Impact of EFQM and Risk Management on Organizational Resilience in Pharmaceutical industry: The Role of Absorptive Capacity**" in partial fulfillment of the requirements of Master's degree in Quality Management from the Arab American University, Ramallah.

This questionnaire seeks to collect primary data about the use of the EFQM Excellence Model, risk management practices, and absorptive capacity inside pharmaceutical companies. The findings will assess how these characteristics improve organizational performance and resilience, providing a more profound understanding of their impact within the pharmaceutical industry. Your involvement is crucial for delivering an accurate perspective on these activities. Please answer these questions truthfully and thoughtfully, reflecting your organization's actual operations. Your cooperation is appreciated, and all replies will remain entirely secret.

Your answers will be kept strictly confidential. The researcher is the only one who will have access to the information you provide.

If you agree to participate in this questionnaire, please answer the questions. Answering the questions takes no more than 15 minutes. If you have any questions about this project,

feel free to contact the researcher Muath M. Daraghmeh by email at engmuath@gmail.com.

Thank you for your time and cooperation.

Sincerely yours

Researcher: Muath M. Daraghmeh

Section One: Respondents' Demographic Characteristics

Please choose the appropriate response:

Gender	Male
	Female
Age	Under 30
	30–40
	41–50
	51–60
	Over 60
Education	Vocational / technical training
	Diploma
	BA
	Master's
	PhD
Experience	Less than 5
	5–10

	11–15
	16–20
	21–25
	More than 25
Job title	Plant
	Quality
	Supply chain
	Managements
	Human resource
	Others

Section Two: EFQM Practices

Dimension 1: Leadership	**Strongly Disagree**	**Not Agree**	**Neutral**	**Agree**	**Strongly Agree**
1. Leaders develop the mission, vision and values and are role models of a culture of excellence.					
2. Leaders are personally involved in ensuring that the organization's management system is developed, implemented and continuously improved.					

3. Leaders are involved with customers, partners and representatives of society.					
4. Leaders motivate, support and recognize the organization's people.					
Dimension 2: Strategy and planning					
5. Policy and strategy are based on the present and future needs and expectations of shareholders.					
6. Policy and strategy are based on information from performance measures, research, learning and creatively related activities.					
7. Policy and strategy are developed, reviewed and updated.					
8. Policy and strategy are deployed through a framework of key processes.					
9. Policy and strategy are communicated and implemented.					
Dimension 3: People					
10. People resources are planned, managed and improved.					

11. People's knowledge and competencies are identified, developed and sustained.					
12. People are involved and empowered.					
13. People and the organization have a dialogue.					
14. People are rewarded, recognized and cared for.					
Dimension 4: Partnerships and Resources					
15. External partnerships are managed.					
16. Finances are managed.					
17. Buildings, equipment and materials are managed.					
18. Technology is managed.					
19. Information and knowledge are managed.					
Dimension 5: Processes					
20. Processes are systematically designed and managed.					
21. Processes are improved, as needed, using innovation in order to					

fully satisfy and generate increasing value for customers and other stakeholders.					
22. Products and services are designed and developed based on customer needs and expectations.					
23. Products and services are produced, delivered and serviced.					
24. Customer relationships are managed and enhanced.					
Dimension 6: Results					
25. Our organization regularly collects and analyzes customer feedback to understand their satisfaction and needs.					
26. Our organization tracks and evaluates key performance indicators related to customer satisfaction and loyalty.					
27. Our organization regularly gathers feedback from employees to assess their satisfaction and engagement levels.					

28. Our organization monitors and evaluates workforce performance to ensure alignment with organizational goals.					
29. Our organization evaluates its reputation and stakeholder perceptions regarding its contributions to social responsibility.					
30. Our organization measures the impact of its social responsibility initiatives on the community and stakeholders.					
31. Our organization assesses external perceptions of its overall success, including customer and market perspectives.					
32. Our organization tracks critical financial and operational metrics to evaluate its overall performance.					

Section Two: Absorptive Capacity (ACAP).

Dimension 1: Acquisition	**Strongly Disagree**	**Not Agree**	**Neutral**	**Agree**	**Strongly Agree**

1. Your company has frequent interactions with its headquarters to acquire new knowledge (Acq1).					
2. Your company employees regularly visit other branches (Acq2).					
3. Your company periodically organizes meetings with customers or third parties to acquire new knowledge (Acq3).					
4. Your employees regularly approach third parties, such as consultants to acquire new knowledge (Acq4).					
5. New opportunities to serve your clients are quickly understood (Ass1).					
6. Your company quickly analyses and interprets changing market demands (Ass2).					
7. Your company regularly considers the consequence of changing market demands in terms of new products (Tra1).					

8. Your employees record and store newly acquired knowledge for future reference (Tra2).					
9. Your company quickly recognizes the usefulness of adding new external knowledge to existing knowledge (Tra3)..					
10. Your company constantly considers how to better exploit knowledge (Exp1).					
11. Your employees adopt a common language regarding your products					
12. Your company has a clear division of roles and responsibilities					
13. It is clearly known how activities within your company should be performed (Exp4).					

Section Four: Risk Management Practices

Dimension 1: Risk and Control Self-Assessment	**Strongly Disagree**	**Not Agree**	**Neutral**	**Agree**	**Strongly Agree**

1. Line managers are the most prominent people responsible for the risk identification followed by the board of directors/executive management team.					
2. The organization has established a comprehensive business risk inventory of the risks that it expects the managers to manage.					
3. Local/overseas experience examination and brainstorming are common techniques prominently used by the line managers					
4. Tools of identifying risks like scenario analysis and strengths, weaknesses, opportunities and threats (SWOT) analysis are frequently used where the risk identification responsibility is that of board of directors/executive management team.					
5. Guidance on risk identification is offered by the					

organization both directly (internal consulting services) or indirectly (documents, such as "tool kits")					
6. There exist a linkage between the organizational mission and risk management process.					
7. The business unit utilize facilitated self - assessment and/or survey techniques to map risks.					
Dimension 2: Identification of Risk Indicators					
8. The organization assesses the well-being of the business's financial resources to determine its vulnerabilities and therefore develop plans to minimize their impact.					
9. The practice may help identify areas of underutilized capacity, perhaps offering the option to capitalize on developing opportunities.					
10. The analysis of the organizations financial health is					

multifaceted and includes such areas as liquidity, solvency, repayment capacity, profitability, and financial efficiency measures.					
11. The organizations response techniques include risk avoidance, risk reduction, risk sharing, and risk acceptance.					
Dimension 3: Incident Management					
12. The organization address resource constraints, consider alternative methods of risk management, and outline specific steps to follow in management of the risk.					
13. The organization quantifies its key risk to the best extent possible.					
14. The organization has a process to integrate the impacts of the major risk types (strategic, operational, financial, hazard, and legal).					

15. There exist a risk management implementation team that work with each reporting department to link the organization's strategy to that area's objectives and residual risks in the organization.					
16. The organizations business units develop and determine risk mitigation strategies.					
17. Both risks and characteristics is identified from the widest possible range of issues, including at least strategy, operations, culture, systems, competence and brand.					
Dimension 4: Compliance of both Internal and External Regulations					
18. The organization has a corporate-wide common language for communicating risk-type exposures, control activities, and monitoring efforts.					

19. There is regular briefs to the board and executive committee on risk management issues.					
20. The organization has communicated a risk management mission statement, value proposition, and benefits statement to senior managers.					
21. The organization has incorporated responsibility for risk management into the position description of all managers.					
22. The board of directors is actively involved in the risk management process.					
23. Perceived benefit of ERM to measure risk -adjusted performance among business units.					
24. Perceived benefit of ERM to increase ability to meet strategic goals.					
25. Perceived benefit of ERM to reduce earnings volatility.					

26. Perceived benefit of ERM to increase profitability.					
Dimension 5: Action Tracking					
27. The management has put in place measures to evaluate the success of risk management strategies in the organization.					
28. Corporate management monitors performance outcomes against intended strategic goal to ensure that corporate activities remain on track and correspond to the set course.					
29. The balance score card and the ratios analysis are some of the techniques used for evaluation in the organization.					
30. The organization communicates the evaluation results openly to all the departments concerned.					
31. Some of the communication methods employed by the organization are not effective.					

Section Five: Organizational Resilience Practices

Dimension 1: Sensing Anticipation	**Strongly Disagree**	**Not Agree**	**Neutral**	**Agree**	**Strongly Agree**
1. Our organization proactively monitors what is happening in its industry to have an early warning of emerging issues.					
2. In our organization, there is an appropriate balance between short- and long-term priorities.					
3. Our organization fully understands the impact that a risk (natural disasters, financial crisis, etc.) would have on us.					
4. Our organization has clearly defined priorities for what is important during and after a crisis.					
5. Our organization understands the minimum level of resources (staff, money, materials, etc.) it needs to operate successfully.					

Dimension 2: Steering					
6. Managers actively listen for problems in our organization because it helps them to prepare a better response.					
7. Whenever our organization suffers a close call, we use it as a trigger for self-evaluation rather than confirmation of our success.					
8. Our organization is successful at learning lessons from past projects and making sure these lessons are carried through to future projects.					
9. Top management thinks and acts strategically to ensure that our organization is always ahead of the curve.					
10. Top management in our organization are good examples of professionals that we can aspire to learn from.					
Dimension 3: Organizational culture					

11. Most people in our organization have a clear picture of what their role would be in a crisis.					
12. Most people in our organization feel responsible for the organization's effectiveness.					
13. People in our organization typically own a problem of the organization until it is resolved.					
Dimension 4: Organizational agility					
14. Our organization is able to shift rapidly from business-as-usual mode to responding to crisis mode.					
15. When a problem occurs in our organization, internal resources become more easily available at short notice, and there is less red tape to deal with than that of routine problems.					
16. When we need to, our organization can make tough decisions quickly.					

17. I believe people would accept decisions made by management about how our organization should manage a crisis, even if they were developed with little consultation.					
Dimension 5: Slack resources					
18. I believe our organization invests sufficient resources to be ready to respond to an emergency of any kind.					
19. Our organization has agreements with other organizations to provide resources in an emergency.					
20. In case evacuation via land transportation is not possible (earthquake, flood, and traffic), it is possible to evacuate and intervene in a possible fire or explosion by alternative means.					
21. I believe that in the event of a possible toxic gas/liquid spill, fire, or explosion, the operator's internal resources (staff, fire extinguishing					

equipment, water, etc.) will be sufficient to intervene.					
22. If we do not have personnel for emergency response in case of an earthquake or flood in the area, we can quickly reach human resources for the implementation of the emergency plan.					
23. I believe secondary or tertiary control mechanisms can be deployed when primary control mechanisms no longer work due to an earthquake or flood.					
Dimension 6: Networking					
24. I am confident that our staff have enough contacts that we would be able to access external resources at short notice if we needed to.					
25. Our organization understands how it is connected to other organizations in the same industry or location and actively manages those links.					

26. Our organization is regarded as an active participant in industry and industry groups.					
27. If our organization was unable to operate for 3months, our relationships with suppliers and customers would help us recover rapidly.					
28. When critical services (transportation, communications, electricity, water, health care, and emergency response centers) are disconnected, our own capabilities and connections would be sufficient to access these services.					
29. I believe that our organization can quickly access resources (personnel, money, and equipment) through national and/or international connections during a crisis.					
Dimension7: Coordination/ Cooperation					
30. People in our organization would report significant mistakes even if					

others did not notice that a mistake was made.					
31. People in our organization are always rewarded if they spot a potential trouble.					
32. There is an excellent sense of teamwork in our organization.					
33. People in our organization work with whoever they need to work with to get the job done well, regardless of departmental or organizational boundaries.					
34. In our organization, if something out of the ordinary happens, people know who has the expertise to respond.					
35. Should problems occur, someone with the authority to act is always accessible to people on the front lines.					
Dimension 8: Organizational learning					
36. Our organization is prepared to invest to ensure that decisions are					

made on the basis of the most up-to-date information.					
37. People are encouraged to move between different departments or try different roles within our organization to gain experience.					
38. In our organization, it is a priority that people have the information and knowledge they need to respond to unexpected problems that arise.					
39. Our organization actively encourages people to challenge and develop themselves through their work.					

Thank you for your kind cooperation

Appendix III: List of survey and interview questions arbitrators

#	Arbitrator Code	Arbitrator Background	Arbitrator Title	Arbitrator Experience
1	Arbitrator A	Academic	Associate Professor	18 years
2	Arbitrator B	Academic	Assistant Professor	18 years
3	Arbitrator C	Academic	Assistant Professor	20 years
4	Arbitrator D	Pharmaceutical Industry	Technical Manager	16 years

Appendix IV: Distribution and Characteristics of Interviewees

#	Company Name	Location	Interviewee Title	Interviewee Experience
A	Jerusalem Pharmaceuticals Company	Al-Bireh	1. General Manager	23 years
			2. Deputy General Manager	30 years
B	Birzeit Pharmaceuticals Company	Beitunia/Ramallah	3. Supply Chain Manager	12 years
			4. Quality Control Manager	22 years
C	Pharmacare Pharmaceuticals Company	Beitunia/Ramallah	5. Quality Assurance Manager	16 years
D	Beit Jala Pharmaceutical Company	Beit Jala/Bethlehem	6. Health & Safety Manager	14 years
			7. Financial Manager	20 years
E	Alison Pharmaceutical Company	Jericho	8. Production Manager	11 years
			9. HR Manager	22 years

F	Sama Pharmaceuticals Manufacturing Co.	Nablus	10. R&D Manager	15 years

Appendix V: Values of Cronbach's Alpha for each variable of the Pilot

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
q1	114.90	197.817	0.283	0.942
q2	115.10	190.714	0.489	0.940
q3	114.93	195.926	0.322	0.942
q4	115.37	186.171	0.685	0.938
q5	114.73	195.582	0.517	0.940
q6	115.00	191.862	0.642	0.939
q7	114.97	195.206	0.518	0.940
q8	114.87	196.878	0.486	0.940
q9	115.23	192.185	0.485	0.940
q10	115.57	180.185	0.774	0.937
q11	115.70	182.493	0.745	0.937
q12	115.50	184.190	0.665	0.938
q13	115.67	184.023	0.612	0.939
q14	115.37	185.689	0.706	0.938
q15	115.20	193.683	0.480	0.940
q16	115.30	193.872	0.431	0.941
q17	115.20	193.959	0.504	0.940
q18	114.87	196.257	0.532	0.940
q19	114.93	196.271	0.653	0.939
q20	115.03	191.206	0.724	0.938
q21	114.97	192.792	0.608	0.939
q22	114.87	196.671	0.501	0.940
q23	114.77	190.116	0.752	0.938
q24	114.90	195.472	0.553	0.940
q25	115.00	192.414	0.523	0.940
q26	115.07	192.892	0.670	0.939
q27	115.83	187.661	0.504	0.941
q28	115.33	185.195	0.694	0.938

q29	114.80	197.062	0.565	0.940
q30	114.97	192.033	0.652	0.939
q31	115.10	193.266	0.629	0.939
q32	114.80	192.234	0.555	0.939

Cronbach's Alpha for Survey Variables of Pilot study of Absorptive Capacity (ACAP).items

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
a1	44.57	27.151	0.417	0.843
a2	45.33	24.920	0.335	0.868
a3	44.80	24.441	0.604	0.831
a4	44.60	25.145	0.655	0.827
a6	44.37	27.964	0.518	0.840
a7	44.40	27.076	0.504	0.838
a8	44.33	28.092	0.442	0.842
a9	44.50	26.741	0.502	0.838
a10	44.40	26.800	0.723	0.830
a11	44.37	27.275	0.567	0.836
a12	44.87	24.740	0.642	0.828
a13	44.67	25.747	0.599	0.831
a14	44.40	27.490	0.495	0.839

Cronbach's Alpha for Survey Variables of Pilot study of Risk Management Practices items

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
r1	114.80	180.786	0.640	0.951
r2	114.97	175.482	0.745	0.950
r3	115.27	175.926	0.658	0.951
r4	114.90	178.369	0.670	0.951
r5	114.80	180.166	0.733	0.951
r6	115.03	179.206	0.716	0.951

r7	115.27	178.823	0.662	0.951
r8	114.97	186.309	0.421	0.953
r9	114.87	182.257	0.619	0.952
r10	114.77	185.702	0.423	0.953
r11	114.67	184.713	0.578	0.952
r12	114.77	179.840	0.785	0.950
r13	114.77	181.220	0.777	0.951
r14	114.73	184.133	0.545	0.952
r15	114.93	176.754	0.736	0.950
r16	114.77	181.426	0.686	0.951
r17	114.80	178.303	0.779	0.950
r18	114.83	181.454	0.693	0.951
r19	114.87	183.292	0.557	0.952
r20	114.87	180.051	0.642	0.951
r21	115.27	177.168	0.666	0.951
r22	114.93	181.375	0.486	0.953
r23	114.60	178.386	0.787	0.950
r24	114.50	183.431	0.551	0.952
r25	114.53	187.085	0.342	0.954
r26	114.47	186.671	0.437	0.953
r27	114.93	180.409	0.756	0.951
r28	114.73	180.133	0.731	0.951
r29	115.23	179.289	0.682	0.951
r30	115.10	179.955	0.579	0.952
r31	116.07	188.754	0.171	0.956

Cronbach's Alpha for Survey Variables of Pilot study of Organizational Resilience Practices items

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
f1	142.63	354.516	0.763	0.958
f2	142.77	352.323	0.715	0.958
f3	142.50	359.017	0.716	0.958
f4	142.47	352.533	0.770	0.958

f5	142.50	353.569	0.751	0.958
f6	143.07	352.823	0.638	0.958
f7	143.03	354.102	0.599	0.958
f8	142.87	354.189	0.698	0.958
f9	142.67	361.954	0.603	0.959
f10	142.63	361.620	0.579	0.959
f11	143.10	346.852	0.757	0.957
f12	142.87	345.499	0.791	0.957
f13	142.93	353.513	0.705	0.958
f14	142.57	352.530	0.783	0.957
f15	142.87	350.947	0.691	0.958
f16	142.60	355.214	0.765	0.958
f17	142.70	364.079	0.353	0.960
f18	142.77	350.737	0.728	0.958
f19	143.13	350.809	0.702	0.958
f20	142.57	368.737	0.276	0.960
f21	142.77	359.426	0.445	0.959
f22	142.87	360.878	0.425	0.959
f23	142.87	365.154	0.352	0.960
f24	142.90	360.369	0.500	0.959
f25	142.80	364.028	0.383	0.959
f26	142.33	359.954	0.706	0.958
f27	142.67	362.299	0.586	0.959
f28	143.03	363.344	0.347	0.960
f29	142.87	360.533	0.545	0.959
f30	142.57	357.495	0.642	0.958
f31	143.47	347.706	0.612	0.959
f32	143.20	344.372	0.746	0.957
f33	143.07	359.651	0.402	0.960
f34	142.90	348.507	0.761	0.957
f35	142.77	355.289	0.579	0.959
f36	142.87	356.671	0.652	0.958
f37	143.23	349.840	0.546	0.959
f38	143.07	349.857	0.642	0.958
f39	143.33	348.092	0.599	0.959

Appendix VI: Data Analysis output using PLS-SEM Program

Loading and Cross- Loading

Items	1. EFQM Practices	2. ACAP	3. Risk Management Practices	4. Organizational Resilience Practices
EFQM1	0.745	0.394	0.353	0.416
EFQM2	0.868	0.483	0.519	0.584
EFQM4	0.862	0.585	0.583	0.695
EFQM5	0.711	0.412	0.440	0.456
EFQM6	0.819	0.622	0.544	0.617
EFQM7	0.806	0.528	0.534	0.519
EFQM8	0.790	0.473	0.469	0.471
EFQM9	0.725	0.501	0.437	0.437
EFQM10	0.830	0.617	0.606	0.633
EFQM11	0.881	0.571	0.549	0.637
EFQM12	0.904	0.646	0.590	0.663
EFQM13	0.853	0.593	0.579	0.667
EFQM14	0.803	0.597	0.526	0.642
EFQM15	0.726	0.494	0.470	0.529

Items	1. EFQM Practices	2. ACAP	3. Risk Management Practices	4. Organizational Resilience Practices
EFQM16	0.801	0.527	0.420	0.494
EFQM17	0.814	0.572	0.473	0.526
EFQM18	0.820	0.557	0.533	0.566
EFQM19	0.825	0.637	0.577	0.569
EFQM20	0.718	0.620	0.624	0.652
EFQM21	0.796	0.659	0.652	0.682
EFQM22	0.787	0.592	0.515	0.556
EFQM23	0.784	0.613	0.526	0.590
EFQM24	0.743	0.612	0.531	0.516
EFQM25	0.785	0.584	0.474	0.491
EFQM26	0.766	0.607	0.486	0.485
EFQM27	0.701	0.616	0.474	0.554
EFQM28	0.758	0.676	0.604	0.655
EFQM29	0.796	0.575	0.493	0.499
EFQM30	0.744	0.609	0.615	0.654
EFQM31	0.802	0.588	0.463	0.546
EFQM32	0.701	0.466	0.497	0.550
ACAP1	0.612	0.703	0.581	0.627

Items	1. EFQM Practices	2. ACAP	3. Risk Management Practices	4. Organizational Resilience Practices
ACAP3	0.570	0.722	0.557	0.579
ACAP4	0.598	0.720	0.602	0.576
ACAP5	0.485	0.719	0.583	0.610
ACAP6	0.577	0.743	0.618	0.647
ACAP7	0.644	0.779	0.641	0.674
ACAP8	0.590	0.706	0.592	0.603
ACAP9	0.475	0.740	0.496	0.462
ACAP10	0.639	0.793	0.638	0.671
ACAP11	0.675	0.729	0.649	0.667
ACAP12	0.628	0.736	0.634	0.648
ACAP13	0.641	0.788	0.582	0.602
RMP1	0.299	0.383	0.768	0.465
RMP2	0.523	0.623	0.790	0.660
RMP3	0.612	0.672	0.780	0.672
RMP4	0.540	0.658	0.857	0.690
RMP5	0.485	0.649	0.853	0.640
RMP6	0.496	0.639	0.857	0.654
RMP7	0.539	0.618	0.769	0.595

Items	1. EFQM Practices	2. ACAP	3. Risk Management Practices	4. Organizational Resilience Practices
RMP8	0.525	0.568	0.787	0.613
RMP9	0.339	0.441	0.710	0.499
RMP10	0.513	0.490	0.847	0.589
RMP11	0.491	0.496	0.753	0.545
RMP12	0.567	0.641	0.810	0.724
RMP13	0.588	0.685	0.844	0.661
RMP14	0.585	0.686	0.817	0.681
RMP15	0.429	0.580	0.736	0.563
RMP16	0.498	0.674	0.838	0.675
RMP17	0.562	0.643	0.840	0.637
RMP18	0.570	0.639	0.713	0.666
RMP19	0.491	0.534	0.748	0.591
RMP20	0.534	0.545	0.723	0.620
RMP21	0.418	0.544	0.873	0.573
RMP22	0.587	0.532	0.797	0.638
RMP23	0.513	0.464	0.723	0.563
RMP24	0.535	0.501	0.727	0.573
RMP25	0.506	0.422	0.749	0.536

Items	1. EFQM Practices	2. ACAP	3. Risk Management Practices	4. Organizational Resilience Practices
RMP26	0.459	0.409	0.799	0.495
RMP27	0.593	0.587	0.882	0.722
RMP28	0.599	0.539	0.827	0.644
RMP29	0.545	0.461	0.756	0.572
RMP30	0.539	0.558	0.804	0.629
ORP1	0.490	0.571	0.655	0.743
ORP2	0.634	0.634	0.709	0.851
ORP3	0.494	0.519	0.648	0.813
ORP4	0.642	0.691	0.810	0.900
ORP5	0.644	0.717	0.717	0.848
ORP6	0.706	0.639	0.635	0.821
ORP7	0.546	0.609	0.658	0.826
ORP8	0.678	0.744	0.702	0.872
ORP9	0.654	0.651	0.660	0.867
ORP10	0.580	0.529	0.581	0.775
ORP11	0.621	0.654	0.701	0.868
ORP12	0.555	0.558	0.590	0.815
ORP13	0.423	0.407	0.492	0.716

Items	1. EFQM Practices	2. ACAP	3. Risk Management Practices	4. Organizational Resilience Practices
ORP14	0.410	0.462	0.507	0.854
ORP15	0.503	0.517	0.559	0.890
ORP16	0.565	0.618	0.646	0.893
ORP17	0.329	0.323	0.388	0.731
ORP18	0.545	0.507	0.624	0.710
ORP19	0.492	0.565	0.628	0.719
ORP20	0.365	0.436	0.480	0.732
ORP21	0.375	0.427	0.534	0.742
ORP23	0.537	0.629	0.672	0.883
ORP24	0.563	0.608	0.624	0.840
ORP25	0.491	0.553	0.579	0.730
ORP26	0.566	0.551	0.568	0.808
ORP28	0.668	0.678	0.701	0.813
ORP29	0.596	0.571	0.624	0.738
ORP30	0.498	0.518	0.541	0.750
ORP32	0.608	0.587	0.558	0.803
ORP33	0.671	0.716	0.659	0.730
ORP34	0.581	0.590	0.597	0.821

Items	1. EFQM Practices	2. ACAP	3. Risk Management Practices	4. Organizational Resilience Practices
ORP35	0.564	0.468	0.547	0.833
ORP36	0.615	0.655	0.688	0.790
ORP37	0.615	0.678	0.625	0.896
ORP38	0.537	0.518	0.486	0.874
ORP39	0.666	0.661	0.594	0.743
ORP40	0.673	0.644	0.588	0.851

الملخص

تبحث هذه الدراسة في دمج مبادئ المؤسسة الأوروبية لإدارة الجودة (EFQM) واستراتيجيات إدارة المخاطر والقدرة الاستيعابية لتعزيز المرونة التنظيمية في صناعة الأدوية الفلسطينية. على الرغم من تعرض هذه الصناعة لقيود تنظيمية وتحديات مالية واضطرابات في سلاسل التوريد، إلا أن هناك نقصاً في الأبحاث التي تستكشف التفاعل بين هذه العوامل في الاقتصادات الناشئة. وتقترح هذه الدراسة إطاراً منهجياً مصمماً لمعالجة التحديات الفريدة التي تواجهها هذه الصناعة.

اعتمدت الدراسة نهجاً متعدد المناهج، حيث تم دمج المقابلات النوعية مع التحليل الكمي. وشمل جمع البيانات 10 مقابلات معمقة و128 استبياناً، تم تحليلها باستخدام نمذجة المعادلات الهيكلية بطريقة المربعات الصغرى الجزئية (PLS-SEM)، حيث أشارت النتائج إلى أن تطبيق إطارEFQM، لا سيما في مجالات القيادة، والاستراتيجية، وإدارة العمليات، يُحسِّن بشكل كبير من المرونة التنظيمية. كما تُعد استراتيجيات إدارة المخاطر ضرورية للكشف المبكر عن الاضطرابات والتعامل معها بفعالية. ومع ذلك، أظهرت القدرة الاستيعابية تأثيراً محدوداً في هذه العلاقات، مما يشير إلى أن اكتساب المعرفة الخارجية وحده قد لا يكون كافياً لتعزيز المرونة دون وجود آليات داخلية قوية للتكامل والاستفادة منها.

وتؤكد الدراسة على أهمية توحيد الأطر التنظيمية وتعزيز التعاون بين أصحاب المصلحة للامتثال للمعايير الدولية، مثل ممارسات التصنيع الجيد (GMP) وممارسات التوزيع الجيد (GDP). ومن خلال سد فجوة بحثية مهمة، تُسهم هذه الدراسة في إثراء المعرفة حول المرونة التنظيمية في الاقتصادات الناشئة، وخصوصاً في قطاع الأدوية. كما يوفر الإطار المقترح رؤى قيمة لصناع القرار، وقادة الصناعة، وأصحاب المصلحة لتعزيز القدرة التنافسية والاستدامة في سوق عالمي متقلب.