

**Arab American University  
Faculty of Graduate Studies  
Department of Administrative and Financial Sciences  
Ph.D. Program in Strategic Management**



**“Open Innovation Strategy in Palestinian SMEs: An Assessment of  
Antecedents, Risks, and Corporate Governance Solutions”**

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**This Dissertation Was Submitted in Partial Fulfilment of the  
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Management**

**Palestine, July /2025**

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Arab American University  
Faculty of Graduate Studies  
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## Dissertation Approval

### “Open Innovation Strategy in Palestinian SMEs: An Assessment of Antecedents, Risks, and Corporate Governance Solutions”

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## **Declaration**

I declare that, except where explicit reference is made to the contribution of others, this dissertation is substantially my own work and has not been submitted for any other degree at the Arab American University or any other institution.

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## **Dedication**

In the name of Allah.

To my great teacher, Prophet Mohammed.

To my country, Palestine, and its beloved capital, my birthplace, and the delight of my heart, Jerusalem.

To the great martyrs and prisoners, living examples of sacrifice.

A heartfelt letter to my dear parents

Dear beloved brothers and sisters.

To my beloved wife Ola, whose persisting hope and assurance gave light to my path.

To my wonderful kids: Sara, Jamal, Yara.

To the whole family, that symbolizes love and generosity.

To my colleagues who started and finished their doctoral studies together.

I humbly dedicate this dissertation.

Yousef Jamal Mohammed Hussein

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I sincerely thank my friends and coworkers for their unwavering encouragement and support.

Finally, I would like to extend my sincere thanks to my family, wife and children, who have been my pillar of strength throughout these years, showering me with unconditional love and encouragement. Their belief in me made this success possible.

Many thanks, Yousef Jamal Mohammed Hussein

# **Open Innovation Strategy in Palestinian SMEs: An Assessment of Antecedents, Risks, and Corporate Governance Solutions”**

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**Dr. John Lipinski**

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## **Abstract**

**Introduction:** This study investigates the adoption of open innovation strategies among Palestinian Small and Medium Enterprises (SMEs), which play a vital role in national economic development. Despite their significance, these enterprises face considerable challenges in embracing innovation due to limited resources, political instability, and market restrictions. The research aims to identify the key antecedents, risk factors, and corporate governance mechanisms that influence the successful implementation of open innovation strategies in the unique context of West Bank - Palestine.

**Methodology:** A quantitative research design was employed using a structured questionnaire distributed to SME owners, managers and employees in the West Bank. Data was analyzed using Structural Equation Modeling (SEM) to validate the conceptual framework and test the proposed hypotheses about the relationships among innovation strategy, risks, and governance solutions.

**Result:** The analysis revealed that commitment-based human resource practices, inter-departmental connectedness, and decentralized decision-making positively impact open innovation adoption. Key risk factors, such as limited internal innovation capacity, weak external networks, and technological barriers were found to hinder innovation efforts. However, the study confirmed that effective corporate governance solutions, particularly those promoting knowledge sharing, ethical values, and structured decision-making, significantly mitigate these risks. Furthermore, corporate governance mechanisms were shown to moderate the relationship between antecedents and innovation success, reinforcing their importance in fragile economic settings.

**Practical Implications:** This research offers strategic guidance for SME leaders and policymakers. It emphasizes the need for investment in internal capabilities and collaborative networks, supported by formal and informal governance systems. The

findings underscore that robust governance frameworks can protect SMEs from the inherent risks of open innovation and improve their ability to compete and grow within a challenging environment like Palestine.

Keywords: Open Innovation, SMEs, Corporate Governance, Risk Management, Innovation Strategy.

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## List of Definitions of Abbreviations

No.	Abbreviations	Title
1.	SMEs	Small and Medium Enterprises
2.	R&D	Research and Development
3.	MNCs	Multinational Corporations
4.	UAE	United Arab Emirates
5.	ICT	Information and Communications Technology
6.	RO	Research Objectives
7.	RQ	Research Questions
8.	OI	Open Innovation
9.	OIS	Open Innovation Strategies
10.	HR	Human Resource
11.	RBV	Resource-Based View
12.	H	Hypothesis
13.	IT	Information Technology
14.	CRM	Customer Relationship Management
15.	ERP	Enterprise Resource Planning
16.	MOL	Ministry of Labour
17.	PCBS	Palestinian Central Bureau of Statistics
18.	HTMT	Heterotrait-Monotrait
19.	SEM	Structural Equation Modeling
20.	CR	Composite Reliability
21.	AVE	Average Variance Extracted
22.	VIF	Variance Inflation Factor
23.	$R^2$	Coefficient of Determination
24.	$Q^2$	Predictive Relevance
25.	$f^2$	Effect Size
26.	RF	Risk Factors
27.	CGS	Corporate Governance Solutions
28.	ANT	Antecedents
29.	CBHR	Commitment-based HR
30.	IDC	Inter-departmental Connectedness

31.	CDM	Centralization of Decision-making
32.	Q	Question
33.	Std.	Standard Deviation
34.	LED	Leadership
35.	IIC	Internal Innovation Capability
36.	NR	Network and Relationships
37.	STR	Strategy
38.	TM	Technology Management
39.	CUL	Culture
40.	KNW	Knowledge
41.	VAL	Values
42.	GRT	Groupthink
43.	DM	Decision-making
44.	IP	Inbound Practices
45.	OP	Outbound Practices
46.	PLS-SEM	Partial Least Squares Structural Equation Modeling
47.	FCGS	Formal Corporate Governance Solutions
48.	ICGS	Informal Corporate Governance Solutions
49.	RMSE	Root Mean Square Error
50.	MAE	Mean Absolute Error
51.	#	Number
52.	%	Percentage
53.	$\alpha$	Cronbach's alpha

# Chapter One: Introduction

## 1.0 Introduction and Background

Small and Medium Enterprises (SMEs) represent a substantial proportion of businesses globally and play a pivotal role in job creation and economic development (Chege & Wang, 2020). In recent years, there has been growing recognition of the importance of SMEs in adopting open innovation to remain competitive, especially as they face mounting pressure from larger firms with greater innovation resources (Bertello et al., 2022). Open innovation enables SMEs to engage in collaborative networks, share costs, and reduce the risks associated with innovation by utilizing external expertise and technology (Annamalah et al., 2022).

Nevertheless, SMEs also face many challenges when adopting open innovation. Unlike large firms with dedicated research and development (R&D) departments, SMEs often struggle to allocate sufficient resources for innovation activities, making it challenging to manage the risks of open innovation (Lee et al., 2010). Additionally, SMEs are frequently constrained by limited access to capital and expertise, making them more vulnerable to risks such as intellectual property theft, knowledge spillovers, and dependency on external partners (Deng et al., 2013; Raza-Ullah & Eriksson, 2017). Corporate governance solutions are essential in helping SMEs navigate these risks, ensuring that they maintain strategic control over innovation processes while benefiting from open innovation (Laursen & Salter, 2006).

Innovation has become a cornerstone for organizations aiming to sustain a competitive edge in the rapidly develop business landscape. In this context, open innovation has emerged as a strategy to replace traditional, closed innovation models, which relied heavily on internal research and development (Grama-Vigouroux et al., 2020). This shift is particularly relevant for firms in technology-driven industries, where product cycles are short, competition is intense, and the ability to innovate rapidly can be a significant advantage and enables organizations to integrate external ideas, and partnerships into their operations, fostering a more flexible and collaborative innovation environment (Lin & Lekhawipat, 2023; Marshall et al., 2021; Yulianto & Supriono, 2023). Closed innovation models emphasized maintaining strict boundaries around company knowledge and intellectual property (Chesbrough, 2003).

However, while open innovation offers clear advantages, it also introduces unique challenges and risks, especially for SMEs (Oduro, 2020). Understanding the antecedents of open innovation is important to its successful adoption. For SMEs, these antecedents include but are not limited to commitment-based human resources practices, inter-departmental connectedness, and centralization of decision-making, which collectively influence their capacity for open innovation. Huber et al. (2020) note that SMEs often operate with limited resources, such as restricted budgets, smaller staff, and less-developed technological infrastructures, making it difficult for them to adopt open innovation practices on the same scale as larger firms. The limited resource base and flexibility of SMEs underscore the importance of robust governance mechanisms and risk management strategies when adopting open innovation (Crema et al., 2014). Furthermore, SMEs face heightened risks in open innovation environments, such as knowledge leakage, dependency on external partners, and intellectual property concerns (Raza-Ullah & Eriksson, 2017).

Effective corporate governance can help SMEs protect their intellectual property, secure fair contracts, and manage their partnerships in a way that safeguards their strategic interests (Shezi, 2013). Additionally, governance frameworks are essential for establishing trust and transparency, which are critical in open innovation ecosystems where firms must share sensitive information with external entities (Umirzakovich, 2024). As SMEs strive to balance the benefits of open innovation with the associated risks, structured governance solutions provide a roadmap for navigating these challenges, ensuring that their innovation efforts contribute to both competitiveness and long-term sustainability (Le Breton–Miller & Miller, 2006).

Globally, open innovation has appeared as a transformative approach, characterized by its reliance on both internal and external ideas to drive business innovation. Popularized by Henry Chesbrough in the early 2000s, this framework has been widely adopted across industries, especially by multinational corporations (MNCs) seeking to enhance efficiency, reduce costs, and improve market responsiveness (Chesbrough, 2003). Chesbrough represents a shift from traditional models, where proprietary knowledge was confined within organizational boundaries for internal development.

Open innovation instead promotes collaboration with various partners, including suppliers, customers, universities, and competitors, to accelerate new product development and other innovation initiatives (Vanhaverbeke & Chesbrough, 2014). While

MNCs have driven much of the momentum behind open innovation, SMEs are also increasingly adopting this model to remain competitive and leverage limited resources effectively (Nesse & Opsahl, 2023). For SMEs, open innovation provides access to external expertise, markets, and technologies that they might not be able to develop independently. By collaborating with other firms, research institutions, and external innovators, SMEs can accelerate their innovation processes despite having fewer internal resources than larger companies (Urbinati et al., 2020).

In regions such as North America and Europe, it is now central to the R&D strategies of leading tech firms like IBM, Microsoft, and Google (Prause et al., 2021). These companies have created global ecosystems of innovation by sharing technological platforms and collaborating with external developers and entrepreneurs. This approach allows them to broaden their reach and access innovative solutions beyond their internal capabilities, highlighting open innovation's worldwide potential as a business transformation driver (West & Bogers, 2014).

In the Middle East, the adoption of open innovation has been slower compared to more developed economies, primarily due to institutional challenges, a scarcity of innovation resources, and political instability (Sindakis & Aggarwal, 2022). However, countries like the United Arab Emirates (UAE) and Saudi Arabia have made substantial progress by investing heavily in technology and innovation infrastructure (Crupi & Schilirò, 2023). Initiatives like the UAE's Vision 2021 and Saudi Arabia's Vision 2030 are examples of ambitious national agendas that prioritize innovation as a driver of economic diversification. These efforts have encouraged partnerships between local firms and international tech companies, fostering open innovation in sectors such as renewable energy, healthcare, and smart cities (Canton, 2021).

Despite these advancements, open innovation remains underutilized among SMEs in the region. Many Middle Eastern SMEs are hesitant to adopt this approach due to a lack of expertise, inadequate regulatory frameworks, and concerns over intellectual property security (Ismail Albalushi & Naqshbandi, 2022). In addition, unlike larger corporations, SMEs often have fewer resources to dedicate to innovation activities, making them less resilient to the risks associated with open innovation practices. This resistance to adopting open innovation strategies can hinder regional SME growth, leaving them vulnerable to international competition and limiting their capacity to contribute to local economies (Foss & Saebi, 2017).

The Palestinian economy is characterized by a high concentration of SMEs, which play a vital role in employment and local economic resilience (Tabbaa, 2020). However, the socio-political challenges facing Palestine, such as restricted access to markets, limited infrastructure, and political instability pose significant barriers to growth and innovation for Palestinian SMEs (Dahadha, 2022). These constraints make it difficult for Palestinian businesses to adopt modern management and innovation practices, including open innovation.

Nonetheless, open innovation presents a viable strategy for Palestinian SMEs to enhance their competitiveness by accessing external resources and knowledge networks, potentially bypassing some of the infrastructural and political limitations they face (Sultan & van Dijk, 2023). There are examples of Palestinian businesses that have successfully utilized open innovation strategies, in the information and communications technology (ICT) sector, partnerships with global tech companies have enabled Palestinian startups to participate in global innovation ecosystems, thereby promoting economic growth and skills development (Badwan & Awad, 2022).

In summary, open innovation holds significant potential for SMEs globally, particularly in constrained environments like Palestine. By addressing the antecedents and challenges of open innovation, this research aims to provide valuable insights into how SMEs can leverage collaborative strategies to enhance their competitiveness and resilience. With the right governance frameworks and institutional support, Palestinian SMEs can integrate into global innovation ecosystems, driving economic growth and innovation in the region.

## **1.1 Study Significance and Justification**

The study addresses a critical and underexplored area in both academic research and practical application. SMEs play a pivotal role in fostering local economic development, creating jobs, and driving innovation, particularly in fragile economies (Enaifoghe & Ramsuraj, 2023) like Palestine. Despite their importance, Palestinian SMEs encounter distinctive socio-political obstacles, such as constrained market access, ongoing political instability, and insufficient infrastructure, which hinder their ability to adopt and benefit from modern innovation practices like open innovation (Dahadha, 2022; Tabbaa, 2020).

This research is significant because it seeks to bridge an existing gap in literature by focusing on the adoption of open innovation within SMEs in politically and economically constrained regions. While much of the current literature on open innovation is concentrated on developed economies or MNCs, little attention has been given to its applicability in emerging markets or conflict-affected areas (Chesbrough, 2003; Lee et al., 2020; Mortara & Minshall, 2011; Urbinati et al., 2020). By exploring the antecedents, risks, and governance solutions specific to the Palestinian context, this study will contribute to a more inclusive and context-sensitive understanding of open innovation.

From an academic perspective, this research contributes to advancing the theoretical framework of open innovation by focusing on the antecedents, risks, and corporate governance solutions specific to the context of Palestinian SMEs. These elements are critical for understanding and addressing the unique challenges and opportunities that SMEs face in constrained environments (Foss & Saebi, 2017; Laursen & Salter, 2006). By examining how these factors shape the adoption and sustainability of open innovation strategies, the study enriches the discourse on innovation in emerging and conflict-affected economies.

Furthermore, the research aims to develop a tailored framework to guide SMEs in managing the risks linked with open innovation. This framework will address specific governance challenges, providing practical insights that ensure SMEs can effectively navigate the complexities of open innovation while safeguarding their strategic interests. Beyond its theoretical contributions, this framework will serve as a valuable resource for researchers and practitioners seeking to foster sustainable innovation practices in fragile economic contexts.

From a practical perspective, this study provides actionable insights for Palestinian SMEs seeking to enhance their competitiveness through open innovation. The research will identify key drivers and barriers to open innovation adoption, offering practical solutions to mitigate risks and maximize benefits. For example, by leveraging partnerships with international firms, development agencies, and academic institutions, Palestinian SMEs can access external resources and integrate into global innovation ecosystems, thereby overcoming local constraints (Sultan et al., 2020). The findings will also have implications for policymakers and international development organizations supporting Palestinian economic development.

## 1.2 Problem Statement

The adoption of open innovation strategies has been widely studied in developed economies and among MNCs, where resources, infrastructure, and supportive ecosystems enable firms to capitalize on both internal and external knowledge sources effectively (Chesbrough, 2003; Laursen & Salter, 2006). Research has established the potential of open innovation to enhance competitiveness, foster collaboration, and reduce innovation costs (West & Bogers, 2014). However, the focus on large, resource-rich organizations in stable economies leaves significant gaps in understanding how open innovation can be effectively adopted and managed by SMEs, particularly in economically and politically constrained contexts.

In the Palestinian economy, where SMEs dominate the business landscape and play a critical role in employment and economic resilience (Tabbaa, 2020), the adoption of open innovation faces unique challenges. These include socio-political instability, restricted market access, inadequate infrastructure, and limited financial and human capital (Dahadha, 2022). Current literature largely overlooks these contextual constraints, providing insufficient guidance for SMEs in fragile economies seeking to leverage open innovation strategies (Chesbrough, 2003; Lee et al., 2020; Mortara & Minshall, 2011; Urbinati et al., 2020).

Furthermore, there is limited research addressing the antecedents necessary for effective open innovation adoption, the risks these firms face, and the governance mechanisms required to mitigate such risks in these settings. This gap in the literature is problematic because SMEs in conflict-affected and resource-constrained regions, such as Palestine, are at a heightened disadvantage in competing with international firms. Without strategies tailored to their unique circumstances, these businesses are at risk of stagnation, further marginalization in global markets, and diminished contributions to local economic development.

The lack of research on the antecedents, risks, and governance solutions for open innovation in Palestinian SMEs leaves both theoretical and practical questions unanswered. Addressing these gaps is important to developing frameworks that not only advance academic understanding but also offer actionable insights for SMEs, policymakers, and international development organizations (Raji et al., 2024). This study will investigate these underexplored dimensions, contributing to both the scholarly

discourse on open innovation and the practical empowerment of Palestinian SMEs to innovate and thrive despite their challenging environment.

### **1.3 Research Objective and Questions**

The primary aim of this thesis is to assess the adoption of open innovation strategies among Palestinian SMEs, focusing on the antecedents, risks, and corporate governance solutions to enhance their capacity for innovation and resilience within a constrained socio-political environment.

#### **1.3.1 Research Objectives (RO)**

This research specifically investigates the factors influencing open innovation practices in Palestinian SMEs, emphasizing the unique challenges posed by the socio-political context. The following specific research objectives have been set:

- RO1:** To identify and analyze the antecedents that influence the open innovation strategies in Palestinian SMEs.
- RO2:** To investigate the risk factors faced by Palestinian SMEs in implementing open innovation.
- RO3:** To assess the corporate governance solutions aimed at enhancing the open innovation practices in Palestinian SMEs.
- RO4:** To examine how risks impact antecedents in Palestinian SMEs.
- RO5:** To analyze how corporate governance solutions influence antecedents in Palestinian SMEs.
- RO6:** To evaluate how risk factors moderate the relationship between antecedents and the adoption of open innovation strategies in Palestinian SMEs.
- RO7:** To assess how corporate governance solutions moderate the relationship between antecedents and the adoption of open innovation strategies in Palestinian SMEs.

#### **1.3.2 Research Questions (RQ)**

The following research questions have been formulated to address the study objectives:

- RQ1:** What is the direct impact of antecedents on the adoption of open innovation strategies in Palestinian SMEs?
- RQ2:** What is the direct impact of risk factors faced by Palestinian SMEs when adopting open innovation practices?

- RQ3:** What is the direct impact of corporate governance solutions on open innovation in Palestinian SMEs?
- RQ4:** How do risk factors impact the antecedents in Palestinian SMEs?
- RQ5:** How do corporate governance solutions influence the antecedents in Palestinian SMEs?
- RQ6:** How do risk factors moderate the relationship between antecedents and the adoption of open innovation strategies in Palestinian SMEs?
- RQ7:** How do corporate governance solutions moderate the relationship between antecedents and the adoption of open innovation strategies in Palestinian SMEs?

#### **1.4 Conceptual Framework**

The conceptual framework of this study seeks to analyze the interrelationships among antecedents, risk factors, and corporate governance solutions in the context of Palestinian SMEs, aiming to explain the mechanisms influencing the adoption and success of open innovation strategies. This framework aims to test the direct and moderating effects of these components on the adoption of open innovation practices in Palestinian SMEs, offering insights into innovation dynamics in resource-constrained and politically unstable environments. It forms the foundation for hypothesis development, research design, and empirical analysis throughout the study. Table 1.1 presents a summary of the conceptual and operational definitions of the research variables, along with the sources and measurement scales used for each construct.

Table (1.1): Conceptual and Operational Definitions

<b>Construct</b>	<b>Type of Construct</b>	<b>Conceptualization</b>	<b>Operationalization</b>	<b>Source/ Author(s)</b>	<b>Scale</b>
Antecedents	Independent Variable	Organizational factors that affect Open Innovation Strategies.	21 indicators are categorized into three dimensions: (a) Commitment-based HR Practices, (b) Inter-departmental Connectedness, and (c) Centralization of Decision-making.	Popa et al. (2017) & Menon et al. (1997)	Five-point Likert scale
Risk Factors	Moderator Variable	Factors that may handicap or stop the adoption of Open Innovation strategies in SMEs.	26 indicators across six dimensions: (a) Internal Innovation Capability, (b) Network and Relationships, (c) Technology Management, (d) Leadership, (e) Strategy, and (f) Culture.	Subtil de Oliveira et al. (2018)	Five-point Likert scale
Corporate Governance Solutions	Moderator Variable	Mechanisms that help mitigate risks and enhance organizational effectiveness in implementing open innovation strategies.	24 indicators across four dimensions: (a) Knowledge, (b) Values, (c) Groupthink, and (d) Decision-making.	Maharaj (2009a)	Five-point Likert scale
Open Innovation Strategies	Dependent Variable	Refers to practices in which organizations use both internal and external sources of knowledge and ideas to advance their innovation processes.	8 indicators divided into two dimensions: (a) Inbound OI, and (b) Outbound OI.	Popa et al. (2017)	Five-point Likert scale

### 1.4.1 Conceptual Definitions

**Antecedents:** refer to the conditions that exist prior to and influence the adoption of open innovation strategies within Palestinian SMEs. These factors create the necessary environment or preconditions that improve and facilitate the initiation of open innovation practices. They include Commitment-based Human Resources Practices, Inter-departmental connectedness, and Centralization of decision-making.

**Risk Factors:** These are the challenges or obstacles that may impede the successful implementation of open innovation practices within Palestinian SMEs. They include Internal Innovation Capability, Network and Relationships, Technology Management, Leadership, Strategy, and Culture

**Corporate Governance Solutions:** These are formal and informal mechanisms designed to mitigate risks and enhance the enabling factors for open innovation adoption. They include Knowledge, Values, Groupthink, and Decision-making.

**Open Innovation Strategies:** Open innovation refers to the practice of organizations using external and internal sources of knowledge and ideas to advance their innovation processes. This encompasses both Inbound and Outbound Open Innovation approaches.

### 1.4.2 Operational Definitions

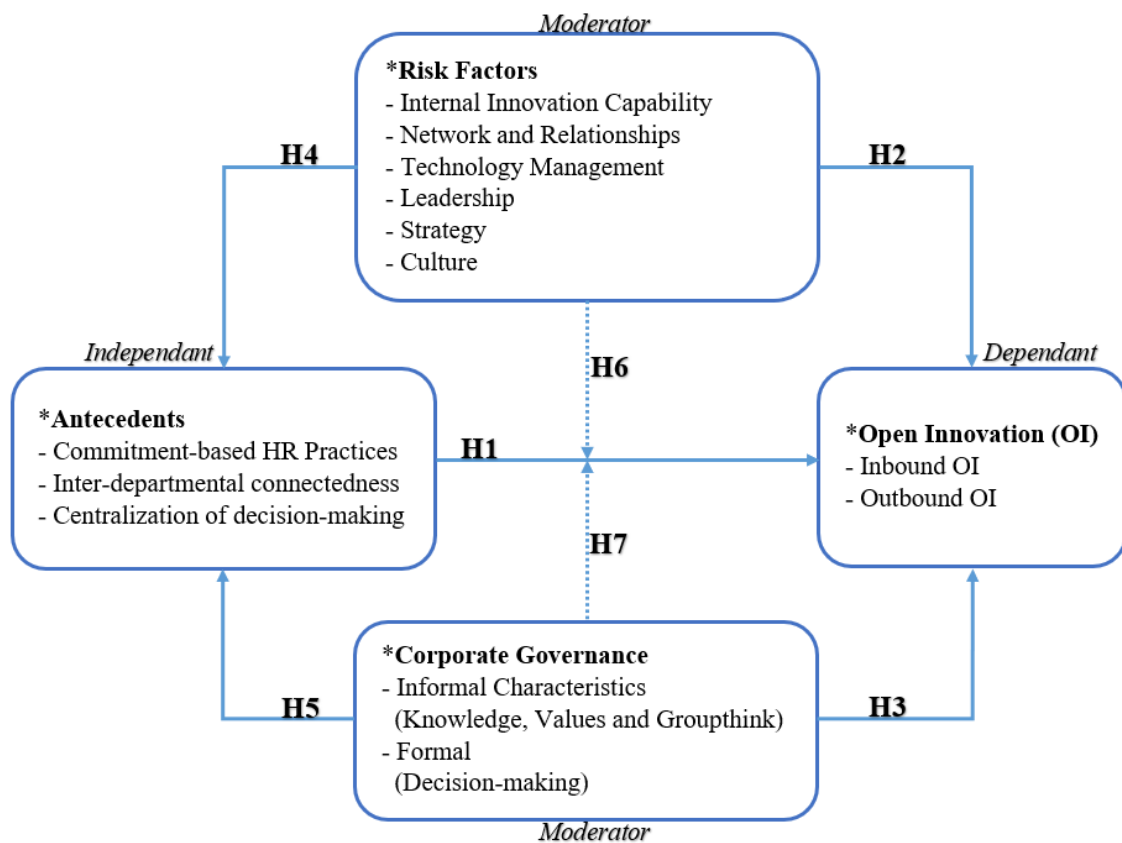
**Dependent Variable - Open Innovation Strategies:** An empirical study in SMEs conducted by Popa et al. (2017) explored the Open Innovation Strategies employed by SMEs to advance their innovation processes. The study identifies 8 indicators divided into two key dimensions of open innovation: (a) Inbound OI and (b) Outbound OI. Each indicator measured using a five-point Likert scale, ranging from (5) strongly agree to (1) strongly disagree, to evaluate the extent to which SMEs adopt these Open Innovation strategies.

**Independent Variable - Antecedents:** An empirical study in SMEs conducted by Popa et al. (2017) and Menon et al. (1997) explored the antecedents influencing the adoption of Open Innovation Strategies. The study identifies 21 indicators, which are categorized into three key dimensions: (a) Commitment-based Human Resources Practices, (b) Inter-departmental Connectedness, and (c) Centralization of Decision-making.

**Moderator Variables - Risk Factors:** will be assessed through 26 indicators, distributed across six dimensions. These indicators were utilized and validated by Subtil de Oliveira et al. (2018). The six dimensions include: (a) Internal Innovation Capability, (b) Network and Relationships, (c) Technology Management, (d) Leadership, (e) Strategy, and (f) Culture.

**Corporate Governance Solutions** will be assessed through 24 indicators, distributed across four dimensions. These indicators were utilized and validated by Maharaj (2009a). The four dimensions include: (a) Knowledge (b) Values, (c) Groupthink, and (d) Decision-making.

### 1.4.3 Conceptual Model



## 1.5 Study Hypothesis

- H1:** Antecedents positively influence the open innovation strategies in Palestinian SMEs.
- H2:** Risks negatively impact the open innovation strategies in Palestinian SMEs.
- H3:** Corporate governance solutions positively influence the open innovation strategies in Palestinian SMEs.
- H4:** Risks negatively impact the antecedents in Palestinian SMEs.
- H5:** Corporate governance solutions positively influence the antecedents in Palestinian SMEs.
- H6:** Risk factors significantly moderate the relationship between antecedents and the adoption of open innovation strategies in Palestinian SMEs.
- H7:** Corporate governance solutions significantly moderate the relationship between antecedents and the adoption of open innovation strategies in Palestinian SMEs.

## 1.6 Study Limitations

While this research has been carefully designed and employs a thoughtful methodology to explore the adoption of open innovation strategies in Palestinian SMEs, certain limitations must be acknowledged. Identifying these limitations is essential for ensuring transparency and providing a foundation for further research to address these gaps in the future and enhance the robustness of the findings. The key limitations of this study are outlined below:

**Scope Limitations:** The study focuses solely on SMEs in Palestine, limiting its applicability to other industries, larger organizations, or SMEs operating in different geopolitical and economic contexts (Pereira et al., 2022). Additionally, the study does not explore the interaction between other potential variables beyond the antecedents, risks, and corporate governance solutions outlined in the conceptual model.

**Methodological Constraints:** This study utilizes a quantitative research approach, which, while effective for identifying patterns and relationships, may simplify the complexities inherent in the dynamics of Palestinian SMEs. Quantitative methods might not fully capture the nuanced interactions between antecedents, risks, and corporate governance solutions in the context of open innovation. Additionally, relying on structured survey instruments could introduce response biases, such as social desirability

bias or limited elaboration due to predefined question formats, potentially affecting the depth and validity of the findings (Wolf et al., 2021).

**Generalizability of Findings:** The results of this study are context-specific and may not be directly generalizable to SMEs in other regions or industries, especially those operating in stable political and economic environments (Hughes & Mustafa, 2017). The unique socio-political challenges faced by Palestinian SMEs may lead to findings that are not fully applicable in other settings.

**Conceptual Model Boundaries:** While the conceptual model integrates antecedents, risks, and corporate governance solutions, it does not account for external factors such as global economic conditions or regulatory changes, which may also influence open innovation adoption.

## 1.7 Structural Outline

**Chapter One – Introduction:** introduces the context and background of the study in this chapter, focusing on the challenges faced by Palestinian SMEs in adopting open innovation strategies within a complex socio-political environment. It outlines the justification for the study by emphasizing the need for tailored frameworks that address antecedents, risks, and corporate governance solutions. The problem statement highlights the gap in existing research regarding open innovation in fragile economies, leading to clearly defined research aims, objectives, and questions. This chapter also acknowledges the study's limitations.

**Chapter Two – Literature Review and Hypothesis Development:** This chapter reviews existing literature on open innovation strategies and their relevance to SMEs, particularly in emerging economies. It examines antecedents, risk factors, and corporate governance solutions that influence the adoption of open innovation. Relevant theories, models, and prior research are explored to identify key gaps in the literature, especially concerning SMEs operating under resource constraints and political instability, as seen in Palestine. Additionally, the chapter provides the foundation for hypothesis development by linking theoretical concepts to the study's variables, forming a basis for testing the relationships between antecedents, risks, corporate governance, and the adoption of open innovation strategies.

**Chapter Three – Methodology:** This chapter describes the research design and methodology adopted to explore the interplay among antecedents, risks, and corporate

governance solutions in shaping open innovation strategies in Palestinian SMEs. It details the rationale for employing a quantitative approach, data collection, and analysis techniques. The chapter also discusses strategies to mitigate potential methodological biases and limitations while ensuring the reliability and validity of the study.

**Chapter Four – Results:** This chapter presents the findings derived from the data analysis. It highlights the direct and interactive effects of antecedents, risks, and corporate governance solutions on the adoption of open innovation strategies. Statistical outcomes are discussed concerning research objectives and questions, with visual aids such as tables and graphs used to enhance clarity.

**Chapter Five – Discussion:** This chapter interprets the research findings in light of existing literature, offering a critical analysis of how antecedents, risks, and corporate governance solutions interact to influence open innovation practices in Palestinian SMEs. Practical insights for SMEs in Palestine are provided, including strategies to mitigate risks and enhance the effectiveness of open innovation. The study's limitations are addressed, and recommendations for future research are proposed.

**Chapter Six – Conclusion and Recommendations:** The final chapter summarizes the study's key findings and contributions to both theory and practice. It offers actionable recommendations for Palestinian SMEs to adopt and sustain open innovation strategies effectively. Broader implications for policymakers and practitioners in similar fragile economies are discussed, and potential directions for future research are suggested.

## **Chapter Two: Literature Review**

### **2.0 Introduction**

This chapter explores the theoretical underpinnings and existing research relevant to the open innovation (OI) strategies in Palestinian small and medium enterprises (SMEs). It examines key concepts, antecedents, risk factors, and corporate governance mechanisms shaping the adoption of OI in developing economies. The review aims to establish a foundational understanding of OI practices and their applicability within the Palestinian context, offering insights into the interplay of internal and external innovation dynamics.

### **2.1 Conceptual Foundations**

#### **2.1.1 Antecedents**

Understanding the antecedents of organizational performance and innovation is essential for small and medium enterprises (SMEs), particularly in resource-constrained contexts like Palestine. Key antecedents include: commitment-based HR practices, inter-departmental connectedness, and Centralization of Decision-making (Popa et al., 2017).

Commitment-based human resource strategies build an organizational culture that enables open innovation. Such practices include stimulating employee engagement, freedom, and trust, and creating an environment conducive to knowledge-sharing and collaboration (Çera et al., 2024). This also dictates that SMEs, such investment in training, equitable remuneration, and clearly defined career trajectories are expected to increase employees' commitment which could, in turn, increase their likelihood of participating in innovation activity (Susanto, 2022). This is especially true of the Palestinian environment as most resources are indeed scarce.

Commitment-based human resources policies also create a psychological safety net in teams such that employees can voice their opinions without fear of reprimands, this being vital in inducing creativity and risk-taking, which are essential elements of open innovation (Kyambade et al., 2024). This is to say, by giving priority to trust and depending on it, and collaborative efforts in problem-solving, such priorities minimize cultural and economic obstacles to innovation among Palestinian SMEs. Diversity and inclusion in human resource practices will enhance the diversity of opinions and ideas, further improving the organizational capacity for creativity (Khoury & McNally, 2016).

Inter-departmental connectedness refers to the degree of interaction and collaboration among various organizational units (Zhang et al., 2023). It is a critical antecedent of OI because it facilitates the exchange of knowledge, ideas, and expertise across functional boundaries (Fu et al., 2024). A high degree of connectedness ensures that departments can collaborate seamlessly, reducing silos and fostering a cohesive approach to innovation (Uzuegbunam & Geringer, 2021). This is particularly important in Palestinian SMEs, where informal networks often play a significant role in business operations.

Inter-departmental cohesion might also call for the use of tools such as cross-departmental teams, regular interdepartmental meeting schedules, and digital collaboration platforms (Hingorani & Swami, 2024). This makes effective communication and sharing knowledge in terms of real-time sharing essential for OI because of its dynamic environment (Xu et al., 2023). Creating and nurturing culture becomes, apart from bestowing economic advantages, opening up productivity in the sense of reward to teamwork and shared problem-solving, thus breaking down traditional silos and providing greater fluidity between integrating outside information as well as resources within (Heerdink, 2011). In Palestinian SMEs, informal networks frequently supplement formal organizational structures, highlighting the need for deliberate strategies to enhance departmental collaboration.

A high concentration of decision-making can greatly influence the possibilities of the organization to engage in open innovation (Yang et al., 2015). It means that it is the way how much decision-making is gathered at the upper management levels (Altamimi et al., 2023). While a high centralization might have an explicit reference for directing decision-making, thus reducing uncertainty, the same does not positively affect the innovation or the degree of intragroup collaboration where it thwarts the flow of outside knowledge into the group (Srisathan et al., 2023).

On the other hand, decentralization means that employees at all levels may give ideas and help to add innovative solutions from different perspectives that bring about creativity and responsiveness in the organization. In the case of Palestinian SMEs, great attention should be given to finding a balance of centralization and decentralization. On one hand, excessive centralization may cut flexibility, making it impossible to react quickly to fast-changing conditions in the market; decentralization, however, can bring about a lack of strategic coherence (Cäker & Siverbo, 2014). Small and medium-sized enterprises can adopt a hybrid model for centralized strategic decisions and decentralized

tactical and innovative decisions. This balance ensures that they remain agile as an organization while maintaining a strategic focus (Hokmabadi et al., 2024).

In addition, decentralization leads towards the empowerment of frontline staff that is generally fast enough to go along with shifts in the marketplace and with the client's desires (Siddiqui & Göransson, 2024). This appreciates the organization's capacity to innovate and adapt in response to external streams of knowledge (Santos-Vijande et al., 2016). Stimulating the participatory culture among Palestinian SMEs can overcome social barriers to innovation and create a more participatory and adjustable keynote among preferences.

### **2.1.2 Risk Factors**

Adopting an open innovation (OI) strategy entails various risk considerations that deter successful adoption, especially in the premises of SMEs. The elements include internal innovation capacity, networks and partnerships, technology management, leadership, strategy, and company culture. Each factor can significantly affect the outcomes of OI initiatives while requiring meticulous management to mitigate possible hazards (Naqshbandi & Tabche, 2018).

The very essence of internal innovative capacity lies in generating, developing, and implementing imaginative ideas using available resources (Ukko et al., 2016). SMEs with insufficient innovation capacities find it difficult to assimilate external knowledge into their internal processes effectively. This is a general problem among Palestinian SMEs where economic conditions prevail (Hermawati, 2020).

The reliability of an SME's networks and connections with external people significantly decides how much it can influence collaborative innovation (Watson et al., 2018). According to Pittaway et al. (2004) poorly managed or weak networks restrict the scope of collaboration, and the opposing situation in which too much reliance on external networks causes organizational degradation of internal innovations. The unpredictable socio-political environment, as well as fragmented marketplaces, create barriers to the establishment of strong networks of Palestinian SMEs (Abuznaid, 2014). Hence, firms need to invest in the establishment of strong networks based on trust, use of technology for collaboration, and engagement with local and global partners.

The management of technology is a key risk aspect, which can be defined as acquiring, implementing, and integrating technology crucial to innovation. Poor

technology management leads to obsolescence and blockage of any innovative outcome (Allain et al., 2011). Palestinian SMEs' problems include high costs, limited technical abilities, and inadequate access to advanced technological infrastructure. All of these add an excessive weight to the risk in a local context (Abdalhalim & Halkias, 2021). One must face these challenges with planned investment in scalable technology and partnerships with technology providers for increased access and capacity.

Leadership is critical regarding the extent to which an organization is open to innovations (Aragón-Correa et al., 2007). Those leaders who do not pay attention to developing trust for experimentation and aligning their teams under shared objectives in risk-taking activities jeopardize the commitment to open innovation. That is why effective leadership can make a difference in those organizations, particularly SMEs in Palestine that require resilience and adaptability to cope with uncertainty and make possible these wonderful innovations due to different socio-economic conditions (Miao & Nduneseokwu, 2025). The leaders should adopt transformational and inclusive approaches so that their teams will be inspired, realizing a common vision, and allowing people to take the lead in establishing new processes of innovation.

Such an approach needs to be quite carefully articulated to ease the rough path of open innovation (Crema et al., 2014). It does not specify goals so SMEs risk aligning on their innovation projects with higher-level business strategies which are very likely to be wasted energy and opportunity costs. This particular aspect concerns a lot of Palestinian SMEs, which fall in the order of balancing between the present survival and the sustained occurrence of innovation in changes in market conditions (Sivam et al., 2019). A well-thought-out approach to implementing open innovation would have to include internal and external aligning objectives toward innovative prospects thus creating metrics for measuring progress and adapting to changing conditions.

The culture of an organization deeply affects the effectiveness of open innovation. A risk-averse culture or change would hinder collaborative innovation and knowledge-sharing initiatives (Zou et al., 2024). Generally, Palestinian SMEs face cultural barriers to adopting open innovation cultures due to conventional business processes and limited access to foreign markets. Such problems demand the introduction of initiatives that will build a culture with cooperation, innovation, and continuous learning as its core (Barjak & Heimsch, 2023). This can be through leadership intervention in culture change, engaging employees, and diverse thinking and experience.

### 2.1.3 Corporate Governance

Corporate governance is very vital for effectiveness in open innovation techniques, especially for SMEs with operations in different challenging settings like that of Palestine. Governance mechanisms are classified into informal and formal attributes, both of which have distinct roles in adopting and implementing OI (Sinani et al., 2008). Examples of informal attributes are expertise, values, and groupthink that indirectly affect organizational behavior and decision-making. Formal governance, on the other hand, is built on systematic procedures of decision-making that bear transparency and responsibility.

These informal factors also have a significant role in the effectiveness of corporate governance on open innovation (X. Wang et al., 2024). Knowledge as one core element contains leadership and employee capability in understanding, managing, and thus proving using information effectively. Knowledge sharing adds to a firm's absorptive ability, which is a crucial factor for absorbing external and internal innovation efforts (Lin, 2007). Tacit knowledge is the strongest driving force for innovation in Palestinian SMEs. These companies have mostly remained underdeveloped for complete institutional structures. It can be offered through informal mentoring, peer learning, and cross-functional collaboration within SMEs in the use of tacit knowledge for OI projects (Harris, 2009).

But not in writing formal effects, it also influences the cultural ethical underpinning of an organization. Robust tenets suggestive of well-environmental collaboration, trust, and transparency are crucial in fostering an Open Innovation Environment. Palestinian SMEs do face some discouragements in propagating innovation-fit values due to their traditional business systems and societal conventions. However, establishing values such as inclusion, ethical behavior, and commitment to continuous improvement could positively shape organizational behavior and could create an enabling environment for creativity. Here's where leaders play a major role (Paul, 2024).

Groupthink is the potential risk of informal governance wherein a unit prefers consensus to critical thought. This is likely to result in inhibition of creativity and poor decision during innovative processes (Shaukat, 2024). An SME in Palestine has centralized leadership and group decision-making must round this risk by developing cognitive diversity, promoting constructive dissent, and creating a space where employees feel secure from challenges in public settings about dominant views in the organization.

According to a study by Federer (2024), these methods will thus not only reduce the risk of groupthink but will also enrich the organization's innovation initiatives through consideration of a broad spectrum of opinions and ideas.

The effective resolution of challenges within the field of open innovation requires structured decision-making processes (Saebi & Foss, 2015). Decision-making frameworks provide clarity, accountability, and guidance for innovation activities (Stilgoe et al., 2020). Boards of directors, advisory organizations, and specified reporting lines can evidence that an innovative project is aligned with the organizational purpose and the capacities of its resources, hence reducing the chances for inefficiencies (Schultz et al., 2013).

Formal governance is vital for Palestinian small and medium enterprises because of the harsh business environment resulting from political instability, and resource constraints, coupled with fluctuations in the market. With systematic decision-making practices, SMEs can evaluate and prioritize innovative endeavors, allocate resources towards the initiatives, and set specific performance measures for success assessment. Project evaluation criteria that are aligned with the company's overall strategy and local market conditions could support SMEs in risk management while concentrating efforts on high-impact projects (Guertler & Sick, 2021).

Formal governance improves joint actions with external partners by promoting openness as well as building confidence (Barrane et al., 2021). This is even more compelling to Palestinian SMEs that want to touch foreign markets, sponsors, and research organizations. Agreements, common goals, and performance assessment mechanisms created a platform for fruitful cooperation enabling SMEs to effectively tap external resources and know-how (Brunswick & Vanhaverbeke, 2015).

Organizational governance systems, formal or informal, are crucial for effective open innovation approaches in Palestinian SMEs. Informal characteristics such as knowledge, values, and groupthink management set up the cultural and ethical architecture needed for innovation, and formal structures provide the clarity, accountability, and strategic alignment required to navigate complex innovation processes. These two governance mechanisms can be adopted by Palestinian SMEs to build a resilient framework to solve their specific problems and to reap the benefits of OI.

#### **2.1.4 Open Innovation (OI)**

Open innovation includes internal and external knowledge channels that help speed up the invention process inside the organization (Ritala & Stefan, 2021). Finding and deciphering these precursors to open innovation for small and medium enterprises (SMEs) in developing economies like Palestine becomes essential for innovation against market-related challenges. OI has become a new model for managing innovation in organizations, emphasizing the utilization of both internal and external sources to speed up innovation and create a delivery value proposition (Anshari & Almunawar, 2022).

This is very applicable to small and medium enterprises, especially in developing economies such as Palestine, where open innovation offers quite a feasible way of saving resources and branching out into world knowledge. The two basic types of open innovation, namely, the inward and outward innovation types, will serve divergent yet complementary roles to formulate an innovation strategy for the organization (Kutvonen, 2011; Leitão et al., 2020; Sisodiya et al., 2013).

Inbound open innovation is about using external knowledge, ideas, or technology to improve the internal process of innovation (Sisodiya et al., 2013). This has allowed SMEs to benefit from external resources in terms of relations with institutions and through partnerships with suppliers and customers and taking advantage of their innovation network. In most cases, Palestine portrays resource limitations and constraints to global access which thereby reflects inbound open innovation as a mode through which SMEs could obtain precious information and experience lines that are otherwise inaccessible (Gentile-Lüdecke et al., 2020).

That is where the entire proposition for an inbound open innovation is compromised by the absorptive capacity that the organization has to understand, assimilate, and exploit that information from external sources (El Maalouf & Bahemia, 2023). For Palestinian SMEs, enhancing absorptive ability is thus associated with creating internal capabilities through staff training, knowledge-sharing systems, and a culture of learning. The establishment of digital collaboration platforms and participation in industry-university alliances may also help SMEs adopt external inputs in their innovation processes (Kurdve et al., 2020). Also, the systematic and transparent participative decision-making process to assess and rank external inputs ensures that they comply with and are aligned with the organization's strategic goals and resource capacities.

Outbound OI means disseminating internal knowledge, ideas, or technologies to other organizations to meet commercial or collaborative objectives (Kutvonen, 2011). This gives SMEs a chance to take advantage of intellectual assets that are idle or underutilized, enhance their presence in the market, and foster collaborative innovation. Outbound OI can act as a remedy for geographic market fragmentation and help out with international linkages in either providing overseas partners or clients, thereby increasing competitiveness for Palestinian SMEs (Costa & Moreira, 2022).

Implementation of an outbound OI requires a structured approach to Intellectual Property (Lin & Lekhawipat) management, trust, and openness in partnerships. Secondly, in the Palestinian case, where legal provisions on IP protection may be scant and weak because of low resource levels, informal methods like trust-based partnerships and reciprocal exchanges with partners are paramount. Solid partnerships with external parties including suppliers, industry networks, and research institutions should enable SMEs to develop their trust and promote the sharing of knowledge between parties. Clear agreements between the parties involved on the knowledge-sharing protocols and ways of guaranteeing proprietary technologies "as clear risk mitigation strategies".

Inbound and outbound open innovation practices are interdependent activities that multiply often to optimize innovation potential (Leitão et al., 2020). The knowledge obtained via inward open innovation can further improve and disseminate new revenue streams or strategic alliances through outward open innovation (Culpan, 2014). Palestinian SMEs can derive benefits from this by developing feedback loop internal innovations for external collaboration and then vice versa. This dynamic strategy thus helps SMEs to circumvent the limiting resource and fragmented market barriers and so improves their innovation results (Enkel et al., 2018).

Open innovation, including both inward and outbound faces, is the framework for Palestinian SMEs to face challenges, grab opportunities, and increase their innovative capabilities. Inbound open innovation focuses more on the assimilation of external knowledge, while outbound open innovation focuses more on the use of internal resources to foster collaboration and expansion into the market. By building absorptive capacity, adapting strategic decision-making frameworks, and nurturing confidence with external partners, SMEs can more effectively initiate open innovation strategies and achieve sustainable competitive advantages.

## **2.2 Theory Building and Hypotheses Development**

### **2.2.1 Antecedents and Open Innovation**

Several antecedents have a major influence on the open innovation (OI) model consideration by SMEs. These aspects are concerned with the evaluation of the organization's handling of external and internal data. Centralization of decision-making, inter-departmental connectedness, and commitment-based HR practices are some key prerequisites that act as the foundation upon which Palestinian SMEs can build their future innovations. These antecedents promote SMEs in overcoming their resource constraints and create a highly innovative and collaborative work culture. (Martínez-Costa et al., 2019)

Relationships that exist between antecedents and open innovation are easier to assess through theoretical frameworks such as the Resource-Based View (RBV) and Dynamic Capabilities Theory. In RBV, a firm holds a competitive advantage through the management of rare, valuable, unique, and non-replaceable resources (J Barney, 1991). There is nevertheless a significant idea behind this sort of open innovation because it allows an industrial network to foster innovation, using knowledge, intellectual property, and cooperative ties to create the innovation, which will otherwise not be renewed (Zobel, 2017). Dynamic capabilities theory is a business studies theory that explains how companies can constantly change and redesign their resources in response to the outside world (Teece et al., 1997). Dynamic capabilities development-the acquisition and assimilation of new knowledge, making strategic alliances, and responding quickly to market changes are critical for successful open innovation in Palestinian SMEs.

Such empirical studies show the importance of antecedents in forming open innovation strategies. Research further proves that HR practices promoting dedication and teamwork significantly increase an organization's ability to identify, absorb, and apply external knowledge (Cohen & Levinthal, 1990). Inter-departmental inter-connectivity enhances a culture emphasizing team effort and facilitates the demolishing of organizational limitations, whereby knowledge is systematically exchanged (Hingorani & Swami, 2025). Nevertheless, centralization of decision-making can be worrisome because high hierarchies might make it difficult to achieve the required freedom in an open innovation atmosphere (Foss et al., 2015). All these ties are necessary to be well

understood by Palestinian SMEs when prospective open innovation is considered a long-term strategy to grow their businesses.

To understand the antecedents of open innovation for improved innovation performance and business sustainability in Palestinian SMEs. Previous studies have found that besides the fact that entrepreneurial mindsets influence absorptive capacity, this is also a strong predictor of innovation performance and the sustainability of the business. Thus, we will define absorptive capacity as the capacity of an entity to identify, receive, and utilize external knowledge, acting as a bridge between the results of innovation and entrepreneurial mindset. Furthermore, comprehensive strategic planning has shown to be an essential prerequisite to strategic business innovation among Palestinian manufacturing SMEs.

Strong planning systems build people's abilities and decision-making powers-built systems, which can promote innovation. Several studies have provided substantiation for the connections between these antecedents and the outcomes of open innovation (OI) strategies (Nguyen, 2022; Popa et al., 2017) Thus, organizations that supplement healthy policies with friendly organizational culture and flexible decision-making practices are likely to externalize knowledge absorption processes and innovation in new valuable products. Therefore, organizations seem to develop a more favorable environment of knowledge (El-Kassar & Singh, 2019). Relational capital is determined to positively influence a firm's strategic orientations, including value acquired through counting external organizations, and in the end, serves as a prerequisite for open innovation by granting easy access to external resources and expertise.

The successful adoption and implementation of open innovation projects in Palestinian SMEs significantly correlate with decentralized decision-making, commitment-based HR policies, and interdepartmental connection. This relationship is important from the point of view of the RBV and the Dynamic Capabilities Theory, as they provide insight into how value systems on the internal utilization of resources and adaptive readiness spread into the innovation and knowledge integration domain.

*H1: Antecedents positively influence the open innovation strategies in Palestinian SMEs.*

### **2.2.1.1 Commitment-based Human and Open Innovation**

The HR strategies have put employee engagement objectives into their practices for keeping a workforce motivated to innovate for the sake of the organization. As guided

by the RBV, an employee's creative capabilities, and commitment toward open innovation become vital assets that might allow the organization to sustain a competitive advantage (J Barney, 1991). These tactics enhance employees' willingness to share knowledge; this is important to open innovations (Matošková, 2023). There are commitment-based HR practices present in most SMEs in Palestine, which serve to create motivation among their employees to support innovation projects; hence, commitment-based HR practices are directly associated with the RBV.

Commitment-based HR practices are an array of techniques, including opportunities for promotion, rewards based on performance, training, and development, and nurturing a good organizational climate. Employees who receive frequent training and recognition for their accomplishments are more likely to remain engaged and take an active part in innovation projects (El-Kassar & Singh, 2019). These approaches further foster psychological ownership, which engenders a sense of accountability for performance in the organization and motivation for experimenting with new ideas and technologies (Abbas et al., 2022).

Creating an employee engagement and information-sharing culture can be one of the contributions of commitment-based HR policies to open innovation in the Palestinian SME context. Employees are more geared toward taking part in knowledge-sharing activities and contributing to the appropriate innovation efforts of the business when they perceive their value and encouragement (El-Kassar & Singh, 2019). Furthermore, because they contribute to the creation of an open culture and utilize outside sources of knowledge, HR practices that push for collaboration and continuous learning also improve open innovation. Setting up mentorship programs, encouraging collaborations with cross-functional teams, and growing an environment for learning inside and outside the organization of Palestinian SMEs could benefit them through these means.

A congruency between HR policies and business goals on innovation also improves the capacity of an organization to absorb extra-organizational knowledge and transform it into innovation processes at the organizational level (Minbaeva et al., 2002). This congruence further improves the capacity of an SME to adjust quickly to the requirements of changing markets and creates flexibility in responding to emerging technologies. Palestinian SMEs can, therefore, realize a higher productivity level, longer-run innovation, and higher retention of employees through the introduction of commitment-based HR policies in their organizational strategy.

*H1a: Commitment-based Human Resources Practices positively influence the open innovation strategies in Palestinian SMEs.*

### **2.2.1.2 Inter-departmental Connectedness and Open Innovation**

Inter-departmental connectedness refers to the degree of cooperation and communication across multiple departments within any organization (Hingorani & Swami, 2024, 2025). Dynamic Capabilities Theory states that interdepartmental connectedness is the most effective means for firms to respond to external knowledge flows and to rearrange their internal processes (Teece et al., 1997). The purpose of this interdepartmental connectedness is to provide knowledge transfer and ease the breaking of silos for innovation processes. These studies have concluded that interdepartmental linkages help creativity by making it easier for different knowledge domains to interact and jointly generate solutions, thereby supporting and legitimizing OI efforts (Pertusa-Ortega et al., 2010; Surie & Hazy, 2006).

Close cooperation between various departments within an SME allows them to combine diverse perspectives and areas of expertise, which contribute to greater creativity and problem-solving. Empirical studies suggest firms scoring high on interdepartmental interaction are more successful with innovation because their employees are better able to absorb new ideas and technologies into their existing business processes (Pertusa-Ortega et al., 2010; Surie & Hazy, 2006) In other ways, dismantling the silo facilitates the transfer of knowledge and empowers the firm to implement OI initiatives more effectively (Mohanty et al., 2024).

Moreover, inter-departmental connectedness reinforces internal feedback loops that enhance organizational learning and decision-making. Effective communication among departments facilitates the early detection of problems and inefficiencies in innovation processes, enabling proactive resolution missions (Pisano, 1997). This ensures that information acquired from the outside is not just assimilated but dissipated within the company. Empirical evidence shows that firms with a high degree of inter-departmental collaboration have a greater likelihood of successful implementation of OI strategies since they can efficiently convert any external inputs into beneficial innovation projects (Bouncken et al., 2018).

One cannot discount the role of company culture and leadership in promoting inter-departmental connectedness. Employees are thus empowered to share knowledge

and cooperate in a culture that promotes multidisciplinary initiatives, open communications, and cross-functional teams (Attah et al., 2024). Furthermore, aiding connectivity and fast knowledge sharing across many functional domains is facilitated by digital transformation and present-day communication systems (Olaniyi et al., 2024). For Palestinian SMEs, strengthening inter-departmental connectivity is more vital than ever since they are resource-constrained and require effective use of information and cooperation in problem-solving.

***H1b:** Inter-departmental connectedness positively influences the open innovation strategies in Palestinian SMEs.*

### **2.2.1.3 Centralization of Decision-making and Open Innovation**

The organizational decision-making system is a significant influence on the successful application of any open innovation (OI) effort. Decision-making centralization concentrates power and control on higher organizational levels and limits the autonomy of lower-level personnel to make important decisions (Fory et al., 2021). On the contrary, decentralization distributes decision-making and promotes the initiative and sharing of ideas among employees at all levels, which is crucial to innovation. According to the Dynamic Capabilities Theory, it is said that decentralization enables being agile and responding faster to external shifts and innovation opportunities (Teece et al., 1997).

An extensive centralized decision-making structure may considerably inhibit the introduction of OI by limiting employee participation regarding innovation matters and dampening responsiveness toward market demands (Park et al., 2024). The restriction of decision-making powers to upper management would stifle ideas put forth by employees and external partners, leading to lost opportunities for innovation (Jansen et al., 2006). By hindering the adoption of innovative methodologies by Palestinian SMEs that otherwise would have limited access to external information sources and technological advancements, excess centralization undermines the ability of these firms to compete effectively in volatile markets.

Liberalization encourages the promotion of innovation, knowledge diversity, and organizational flexibility, which allows corporations to respond promptly to emergent situations. The common tendency for decision-making power distributions is to build aggressiveness in employees toward work engendering levels of engagement and openness to trying new ideas (Torgaloz et al., 2023). Decentralization allows employees

to involve to a greater extent in open innovation initiatives, which also promotes cooperation with other stakeholders, such as clients, vendors, and academic institutions (Wang et al., 2020). Evidence suggests that decentralized organizations are more likely to succeed in innovation because they can tap into the diverse views and collective intelligence of their employees (Chi et al., 2021).

For Palestinian small and medium enterprises, being able to strike an ideal balance between centralization and decentralization is critical (Lanaj et al., 2013). For Palestinian small and medium enterprises, being able to strike an ideal balance between centralization and decentralization is critical (Foss et al., 2015). A hybrid governance type, where strategic direction is provided by senior management while innovation is driven by decentralized teams, is postulated to be the best structure for executing OI initiatives in Palestinian SMEs effectively.

***H1c:** Centralization of decision-making negatively influences the open innovation strategies in Palestinian SMEs.*

## **2.2.2 Risks and Open Innovation Strategies**

There are many opportunities for Palestinian SMEs from OI; however, there are also major risks preventing them from effectively implementing and executing OI strategy: among which weak leadership, strategies that do not match, cultural resistance, less-than-optimal network management, technical management-related challenges, and insufficient internal innovation capabilities. In Palestine and elsewhere, these risks are compounded by sociopolitical instability and resource constraints, which in turn enhance organizational vulnerabilities (Althalathini et al., 2020). Institutional Theory and Dynamic Capabilities Theory shed light on the role of risks in impacting OI processes and outcomes.

Risk-averse organizations and cultural resistance are barriers to OI adoption among Palestinian SMEs (Arundel et al., 2019). Besides, the institutional theory argues that an organization's cultural development is informed by both external and internal standards (Scott, 2005). As a result of outdated business practices and minimal exposure to global innovation trends, Palestinian SMEs create a culture that arguably inhibits experimentation and collaboration. Overcoming these cultural hurdles is a vital step toward creating a facilitative atmosphere for OI.

Financial constraints pose a significant challenge to the introduction of open innovation among Palestinian SMEs. Lack of access to adequate financing and investment opportunities deters SMEs from doing research and development (R&D) work and cooperating with external innovation partners (Mazzucato, 2011). Given the volatile state of the economy, SMEs mostly give preference to short-term survival rather than innovation activities that would require larger investments in the long run. Because of financial constraints, SMEs find it difficult to associate with knowledge-sharing networks, recruit qualified staff, and acquire sophisticated machinery, which is an ingredient of an effective open innovation initiative (Lazonick & Mazzucato, 2013).

External risks such as legislative limitations and regulatory hurdles also pose challenges for open innovation practices in Palestinian SMEs. According to (North, 1990), industry regulations, government policies, and legal frameworks all have a considerable bearing on how enterprises innovate under institutional theory. In Palestine, it is the unclear regulations and inefficient bureaucracy that obstruct open innovation, thus making it very hard for SMEs to steer through complicated compliance requirements and obtain the necessary measures and permits for innovation projects. On the contrary, hazy regulations of intellectual property protection dissuade SMEs from open innovation practices, for they may have perceived the risks of losing their competitive advantage due to weaker enforcement of IP rights (Gassmann et al., 2010).

Trade restrictions, coupled with a political situation taking place, proved to threaten further open innovation practices. In Palestine, it causes the breakdown of supply chains, changes market conditions, and limits access to international markets (Kleynhans & Kruger, 2014). As such, it becomes difficult for most SMEs to develop long-term innovation partnerships with multinational companies, universities, and research institutions. Instability in trade and economic policies restricts the prospects for the external cooperation of Palestinian SMEs regarding knowledge sharing, keeping foreign investors from cooperating with Palestinian SMEs. Because of all these failures, including a poor internal capacity for innovation, improper networking management, poor technology management problems, ineffective leadership failure, misalignment of strategic objectives, and resistance due to culture among many others, open innovation initiatives were finally adopted and engaged by Palestinian SMEs.

Both Institutional Theory and Dynamic Capabilities Theory have been employed to support organizational adaptation as a permanent safeguard against risks. This was

done through the creation of visionary leadership for innovative quests, the calming of networks, and the building of flexible skills.

*H2: Risks negatively impact the open innovation strategies in Palestinian SMEs.*

### **2.2.2.1 Internal Innovation Capability and Open Innovation**

The main risk that comes with open innovation is that most of this internal innovation capability will not be found within the organization, thus affecting the firm's capacity to integrate and absorb external knowledge. Dynamic Capabilities Theory states that the organization's ability to innovate is determined by how well internal resources have been reallocated toward external opportunities (Teece, 2007). Palestinian SMEs constantly encounter challenges stemming from insignificant resource complications, limited access to properly skilled personnel, and a poor state of research and development. Such internal incompetence consequently generates an ineffective application of external knowledge, low absorptive capacity, and missed opportunities for collaboration (Lichtenthaler & Lichtenthaler, 2009).

Savitskaya et al. (2010) have identified a lack of internal innovation capacity as one of the major deterrents to open innovation, hence diminishing the organization's ability to assimilate and internalize external knowledge. Dynamic capabilities theory states that a company's capacity to innovate is determined by how well it can redesign its internal resources to seize external opportunities (Teece, 2007). Resource constraints, limited access to skilled workers, and a general lack of R&D focus are common challenges faced by Palestinian SMEs. Given these factors, gaining from external collaborative efforts and innovative initiatives becomes quite challenging, as they negatively affect absorptive capacity (Kostopoulos et al., 2011).

A systematic approach to creating the first internal innovation capabilities must be based on knowledge management systems, training of personnel, and continuous learning culture. More typically, SMEs that invest in R&D and skills development help develop a more inventive workforce, which is critical for interfacing external ideas with internal processes (Laforet, 2011). In addition, companies endowed with strong internal innovation capabilities engage effectively with academia, research centers, and industry partners, thus better positioning them to exploit open innovation opportunities (Bougrain & Haudeville, 2002).

***H2a:** Internal Innovation Capability negatively impacts the open innovation strategies in Palestinian SMEs.*

#### **2.2.2.2 Networks and Relationships and Open Innovation**

Given that companies must sustain open innovation through strong involvement with various external actors, including suppliers, customers, institutions, and innovation colonies (Dodourova & Bevis, 2014), this is especially true. Not well-defined or nurtured networks also become sources of opportunities lost and joint ventures gone wrong. Institutional theory posits that for firms to create competent networks, they must adapt to the institutional constraints imposed upon them by the altering external environment in context with market dynamics and regulatory frameworks (Scott, 2005).

Political instability and economic turmoil vastly undermine such networks in Palestine, leading to the gradual decay of partner confidence and trust. Without the proper measures put in place, small and medium-sized businesses run the risk of becoming closed to outside input and thus unable to embark on innovative projects. Effective networking strategies are crucial in this context for SMEs to maneuver around these obstacles.

It has been shown that proactive actors in innovation ecosystems with strategic partners are better positioned to manage external environmental uncertainties (Gassmann et al., 2010). Groups of SMEs that develop good relationships with important stakeholders can develop their technological capabilities and gain access to critical resources, making them more competitive (Pittaway et al., 2004).

The social capital and trust that exists in networking cannot be ignored. The sharing of information is easy and the transaction costs are less due to networks based on long-term alliances and mutual trust (Filiari et al., 2014). Palestinian SMEs need to build mutual trust and show confidence in their cooperation to carry on with this effort and growth. Alternative routes for sustaining innovation in politically and economically volatile environments are alliances with global organizations and technology-enabled networking platforms (Nambisan et al., 2019).

***H2b:** Networks and Relationships negatively impact the open innovation strategies in Palestinian SMEs.*

### **2.2.2.3 Technology Management and Open Innovation**

Technology management in a company greatly affects the extent to which open innovation (OI) tactics are utilized within the company. When organizations manage efficiently their IT infrastructures, they may find that they are optimizing operational efficiencies, maintaining their competitive advantage, and integrating external knowledge. Instead, inadequate technology management brings serious hurdles to innovation since it limits businesses from accessing new technology opportunities (Enkel et al., 2009). As dictated by Dynamic Capabilities Theory, where technology needs to adapt to changing business environments, organizations must continually improve their technology assets so that they can realize a competitive edge with markets that are becoming ever more dynamic (Teece et al., 1997).

Managing technology for innovation takes on exceptionally big challenges, especially with Palestinian SMEs. Lack of finance, greatly increased costs for purchasing sophisticated technologies, and lack of trained labor disqualifies these companies from putting OI plans into place or sustaining them (Khan et al., 2022). Palestinian SMEs are at odds with using up the technology that they have since they will not be spending sufficiently on technology infrastructure, which eventually leads to no efficiency there would be in operation as well as declining competitiveness in the market (Alshamaila et al., 2013). As technology develops, organizations that do not improve their technology skills will find it difficult to sustain innovative processes as well as market relevance.

Recently, the development of IT capabilities and digital transformation has been a key factor in the design of sound management plans for technology. Empirical research shows that organizations deploying cloud infrastructures, developing structured IT governance frameworks, and instituting continuous technical learning programs generally perform better in innovation-related activities (Bharadwaj, 2000). Such companies, where technology is managed efficiently and effectively, will find it easier to participate in knowledge-sharing activities that bolster their open innovation initiatives through smooth communication with external stakeholders (Westerman et al., 2014). Such an environment would be created where organizations would be able to place high investments in IT along with digital upskilling for employees to make sure that such knowledge can be absorbed and applied.

Intellectual property protection and cybersecurity are both critical elements in the management of OI technology. Where technology management is failing, it becomes an

opportunity for security lapses that could lead to data breaches threatening intellectual property and decreasing confidence levels with outside innovation partners (Rauter et al., 2018). Generally, Palestinian SMEs rank low in cybersecurity measures for the protection of collective innovation endeavors and confidential information due to their limited resources. Establishing secure IT frameworks and legal measures for intellectual property would enhance technology-oriented OI processes.

In conclusion, poor technology management poses hurdles to the successful implementation of OI strategies in that it constricts access to new technologies, inhibits collaborative efforts, and heightens the risk of technical obsolescence. Palestinian SMEs must strategically invest in IT governance, digital transformation projects, and technology infrastructure to overcome innovation constraints and enhance their competitive edge.

***H2c:** Technology Management negatively impacts the open innovation strategies in Palestinian SMEs.*

#### **2.2.2.4 Leadership and Open Innovation**

Misalignment of internal strategic leadership within the organization further threatens the execution of open innovation by businesses. Ineffective leaders set a negative example for innovation outcomes through poor judgment and unwillingness to evolve, thereby taking their people along without a vision (Moore, 2012). On the contrary, they become actors for innovation by creating complementarity and a vision according to Transformational Leadership Theory (Al-Husseini et al., 2021).

Palestinian SMEs were much restricted in their open innovation activities due to managers clashing with conflicting agendas and resource constraints that deterred moving ahead with these projects. Initiatives that move away from the goals of innovation waste funds, create inefficiency, and lack focus.

Opposition to change combined with the predominant traditional management methods of decision-making have aggravated leadership issues in SMEs. It has been established that transformational leaders nurture an open innovation environment through increased risk-taking and knowledge-share culture (Bass, 2006). However, managers in Palestinian SMEs are unable to support OI activities since most of the time they are more concerned about their short-term financial survival and not concerned about the long-term implementation of the innovation strategy (Northouse, 2025).

The leadership development initiatives contribute instantly to shaping the innovative mindsets of SME executives. Companies that invest money in leadership development are more likely to advance leaders who can boldly and strategically align open innovation with corporate-level objectives (Avolio & Yammarino, 2013). Also, the formation of cross-functional leadership teams inside organizations can help to share decision-making responsibilities and instill a collaborative approach to innovation management (Yukl, 2013).

*H2d: Leadership negatively impacts the open innovation strategies in Palestinian SMEs.*

### **2.2.2.5 Strategy and Open Innovation**

The greatest determinant of an organization's capacity to embrace open innovation (OI) successfully is strategic alignment. If innovation projects bear an intrinsic relationship to the overall business model, a properly formulated business strategy would enable firms to deploy resources coherently and competitively (Minbaeva, 2013). On the other hand, when the corporate objectives become estranged from innovation goals, strategic misalignment severely blunts OI adoption attempts. More often than not, this misalignment results in the inefficiencies of resource allocation and failure to appropriately leverage silver-lining external expertise and technological advancements (Pisano, 2015). Strategically incongruent goals may confine businesses from exploiting OI for sustainable growth, particularly for Palestinian small and medium enterprises (SMEs) that are often related to infrastructural and financial limitations.

The balancing of long-term innovation goals with those of short-term survival is one of the most prominent issues standing in the path of Palestinian SMEs. Many of these businesses have a short-term approach to financial stability rather than investing in long-term innovation due to the uncertainties in the economy (Hossain & Kauranen, 2016). Without a thorough innovation strategy, they can only sporadically engage in innovation activities that do not lead to any long-term business results (Keskin et al., 2013). It is this missing strategic direction that causes OI activities to be downplayed in priority or not generate noteworthy competitive advantages.

For the majority of small businesses, innovation roadmaps must be put in place to align the business objectives and strategies with respective open innovation principles. Such adaptability should incorporate data-driven decision frameworks, strategic adaptability, and measurable innovation aspirations (Dodgson, 2008). The scorecard

performance evaluation systems should be integrated with indicators for innovation. Thus, SMEs may constantly assess and adjust OI initiatives to align with broader commercial targets. Strategic agility-fostering culture, which allows radical shifts to the innovation strategy because of shifts in the marketplace, makes companies well-placed for long-term success in innovation (Clauss et al., 2019).

Developing the strategic alignment that may be attained by opening innovation is even more beneficial through cooperation with external institutions. Be it with institutions of academic learning or renowned industry leaders or through government institutions, collaborations allow SMEs to tap into much insightful information and strategic direction leading to realistic and effective innovation strategies (Gassmann, 2004). Such external knowledge networks will help Palestinian SMEs overcome internal strategy limitations and acquire critical input for adopting successful OI.

*H2e: Strategy negatively impacts the open innovation strategies in Palestinian SMEs.*

#### **2.2.2.6 Culture and Open Innovation**

Where there is a strong culture of resistance to change, the adoption of open innovation may be severely limited. Experimentation and teamwork are not encouraged in risk-averse cultures, stifling innovation potential (Arundel, 2017) Simply put, the very cultural norms of an organization instill deep-rooted barriers toward innovative practices (Scott, 2005). The conservative business environments of many Palestinian SMEs, where orthodox practices tend to be more appreciated than new ideas, further hinder the adoption of OI strategies.

Open innovation is about being prepared for risks and sharing knowledge, which is hampered by an unyielding company culture (Hofstede et al., 1991). In an organization where pathological procedures and hierarchy reign supreme, employees cannot come up with new ideas or work in groups for innovation (West & Bogers, 2014) Cultural barriers inhibit the proper functioning of open innovation mechanisms, preventing firms from tapping into external expertise and forming beneficial alliances.

Their SME leaders should set policies to sustain the growth of an atmosphere conducive to innovation through transparency, flexibility, and continuous learning to overcome existing cultural barriers. It is through leadership that organizational culture is affected, and transformational leaders who support innovation are strong enough to change it (Bass, 2006). Employees will get support for open innovation and their

successful implementation through cross-functional team collaboration, reward programs, and training initiatives (Dodgson, 2008).

*H2f: Culture negatively impacts the open innovation strategies in Palestinian SMEs.*

### **2.2.3 Corporate Governance Solutions and Open Innovation Strategies**

Open innovation (OI) policies require a corporate governance framework to serve as a solid compass for their effective adoption and implementation (Mu & Wang, 2022). These governance practices are supposed to support frameworks and control processes to traverse the complicated dynamics of open innovation cultivated in a culture that is collaborative, transparent, and accountable. For example, the corporate governance solutions for Palestinian SMEs must contend with issues ranging from market fragmentation and socio-political volatility to resource limitations, enabling these businesses to tap know-how both from internal and external fronts more efficiently.

The theories linking corporate governance to organizational innovation in small and medium enterprises include the resource-based view (RBV), stewardship theory, and agency theory. Knowledge governance is the structure and processes through which knowledge is created, shared, and used by the organization effective knowledge governance ensures that knowledge assets are transformed into strategic resources fostering innovation, according to the RBV (J Barney, 1991).

By establishing an intellectual property-focused governance system, Palestinian SMEs could forge ties with external entities, such as universities and industrial networks, and improve communication across departments. SMEs would enhance their innovation performance and absorption capacity by aligning their knowledge governance system with corporate governance solutions.

Corporate governance places a premium on corporate leadership, which has proven a prerequisite for innovation within the firm. The Transformational Leadership Theory states, 'Transformational leaders instill creativity and empower the people's pursuit of innovation through a unified vision', drawing strong interrelations among goal, vision, and innovation (Bass & Avolio, 1994). For leaders in Palestinian SMEs, effective internal and external collaboration stands for governance interlaced with ethics, trust, and the embrace of difference. This style of leadership relates governance to strategic objectives for innovation in a way that allows non-disruptive flexibility to respond to complexity and volatility.

Governance and corporate policies, whether formal procedures for decision-making processes and performance oversight or informal things such as culture and leadership values enhance the presence and effectiveness of open innovation strategies in Palestinian SMEs. The literature mentions Agency Theory, Stewardship Theory, and Resource-Based Views as a rationale for aligning governance mechanisms with innovation objectives to ensure effective teamwork, sharing of information, and attaining sustainable competitive advantage.

*H3: Corporate governance solutions positively influence the open innovation strategies in Palestinian SMEs.*

### **2.2.3.1 Formal Governance and Open Innovation**

Among various government tools, such as formal open decision-making procedures, strict board observation, and open performance metrics, organizational innovation cultures have been strengthened (Alzoubi & Aziz, 2021). Agency Theory claims that, in correspondence with the ideas above, the governance structures need to align the interests of managers and stakeholders to prevent incurring hazards from opportunistic behavior (Jensen & Meckling, 2019). Regarding Palestinian SMEs, innovation projects are all discussed under governance in the context of achieving the objectives of the organization, resource allocation, and transparent handling of external parties' involvement. Such frameworks enhance the cooperation and trust that are foundational to Open Innovation.

Such structured frameworks for decision-making are essential to the effectiveness of any OI activity because they establish clear authority, responsibility, and evaluation processes. According to Mahajan (2024), centralized decision-making avenues of formal governance guarantee convergence of strategic directions of resource allocation as well as investments for initiatives that concern innovation with the organization's ultimate objectives. Within formalized avenues for approving processes and defining innovation funding rules, SMEs may systematize the assessment of the potential new ideas from outside and come up with the best incorporation method among their operations. Performance indicators thus enhance governance by offering measurable criteria for assessing the success of OI efforts and ensuring that the allocated resources are used, while their innovation goals are met.

Governance frameworks that promote ethical standards and accountability systems minimize the risk of poor management of OI projects. Transparent governance practices encourage the build-up of lasting relationships with external parties and create an enabling environment for innovation (Sulkowski et al., 2018). Ekechi et al. (2024) argue that governance frameworks incorporating adaptive learning mechanisms and frequent reviews ultimately guarantee that SMEs can change their OI strategies based on changing market conditions.

*H3a: Formal Corporate governance solutions positively influence the open innovation strategies in Palestinian SMEs.*

### **2.2.3.2 Informal Governance and Open Innovation**

One of the primary contributions of the aforementioned corporate culture, leadership philosophy, and group norms regarding strategy on OI-informal governances (Klein et al., 2019) is the definition used: stewardship theory emphasizing internal motivation, teamwork, and trusting qualities for successful organizational outcomes. Forms of informal governance, including transparent culture, creative leadership with high dedication, and shared organizational values, create an atmosphere for information exchange and experimentation (Wang & Noe, 2010). Indeed, this is important for Palestinian SMEs wherein informalities would unite their teams altogether and create associations to face the resource market constraints. Such high levels of employee involvement and trust-based relationships are expected in organizations that foster informal governance, which are important prerequisites for the realization of OI.

Since trust means open communication, information sharing, and collaborative problem-solving, the employees can take part in those innovation projects without fear of pushback from bureaucracies (Torfing, 2013). Flattened hierarchies and decentralized decision-making promote further knowledge-sharing by reducing hierarchical barriers and allowing direct connections between employees at different levels (Nahapiet & Ghoshal, 1998). That is why, despite the reality of unstable conditions, Palestinian SMEs are beneficiaries of flexible governance systems through which employees manage changes in the market while upholding partnerships for innovation.

Informal governance endows firms with flexibility in decision-making and adaptability to change, being one of the important benefits. Informal governance allows dynamism and situational thinking in decision-making, unlike its opposite, a rigid formal

governance framework, wherein an organization can change its innovation design faster due to market changes (Adler & Kwon, 2002).

The Palestinian SMEs, constrained mostly by economic and legal problems, would rather use informal governance to move smartly through uncertainty, seize new opportunities, and try out new business models, free from the compulsion of lengthy procedures typical of bureaucratic setups. Companies within the same frame will also be capable of operating with outside partners such as suppliers, industry professionals, and research institutes. As Luna-Reyes et al. (2008) stated, trust-based networks assist other organizations in adapting new technologies and innovative solutions through better inter-organizational communication. For Palestinian SMEs, informal networks may provide alternative avenues to knowledge, capital, and the issuing of innovative ecosystems beyond the formalities of contracts.

Informal governance systems greatly enhance open innovation, promoting cooperation, trust, and adaptability within the organization. For small and medium-sized businesses in Palestine, formal governance systems are often obstructed by resource and legal considerations; informal governance may serve as an avenue for more innovation. SMEs encourage corporate culture, decentralized decision-making, and joint leadership that fosters knowledge-sharing and experimentation, leading to sustainable innovation outcomes in the long run.

***H3b:** Informal Corporate governance solutions positively influence the open innovation strategies in Palestinian SMEs.*

#### **2.2.4 Risk Factors and Antecedents**

The implementation of open innovation (OI) programs largely depends on certain critical antecedents such as commitment-based HR practices, inter-departmental connectedness, and decision-making centralization. However, several external constraints, including weak internal innovation capability, poor network and relationship management, technology management issues, ineffective leadership, misaligned strategies, and cultural resistance, significantly limit the effective deployment of these antecedents.

In Palestinian SMEs, where socio-political and economic adversities are common, understanding how these risk factors influence antecedents is crucial to fostering a conducive environment for open innovation. The Resource-Based View (RBV) and

Dynamic Capabilities Theory provide a theoretical framework within which these risks hinder the development and utilization of antecedents essential for OI adoption.

According to (Luna-Reyes et al., 2008), resistance to change, influenced by culture and technical constraints, negatively affects antecedents. Institutional Theory suggests that inadequate internal and external institutional support significantly impacts organizations (Scott, 2005). Conventional cultural norms that discourage risk-taking and innovation hinder organizational commitment and teamwork—critical elements in Palestinian SMEs.

Additionally, technological risks, obsolescence, and infrastructural inadequacies weaken companies' ability to adopt tools and systems that enhance inter-departmental connectivity and employee innovation. Poor internal capabilities, disconnected networks, cultural opposition, and leadership deficiencies further impact crucial antecedents such as commitment-oriented HR practices, inter-departmental cohesion, and decision-making frameworks. RBV, Dynamic Capabilities Theory, and Institutional Theory all highlight the necessity of mitigating these risks to foster an environment conducive to innovation and to facilitate the effective implementation of OI strategies.

*H4: Risk factors negatively impact the antecedents in Palestinian SMEs.*

#### **2.2.4.1 Internal Innovation Capability and Antecedents**

Internal innovation capability is a fundamental driver of an organization's ability to develop commitment-based HR strategies and sustain an innovation-friendly environment. According to the Resource-Based View (RBV), firms that cultivate unique and valuable internal resources, such as employee expertise and knowledge-sharing mechanisms, gain a competitive advantage in innovation (J Barney, 1991). However, a lack of internal innovation capability in Palestinian SMEs significantly constrains their ability to establish the necessary antecedents for open innovation (OI), such as HR commitment, inter-departmental connectedness, and effective decision-making.

A strong internal innovation capability allows firms to prioritize employee engagement, continuous learning, and proactive problem-solving, all critical aspects of commitment-based HR practices (Azevedo et al., 2021). Organizations that struggle with limited resources, weak innovation infrastructures, and restricted access to training programs often fail to cultivate an HR strategy that supports knowledge-sharing and collaborative innovation (Lengnick-Hall & Lengnick-Hall, 2002). Palestinian SMEs,

facing financial and market constraints, frequently lack structured training initiatives and career development opportunities, leading to low employee motivation and reduced commitment to innovation. Without internal innovation capacity, firms fail to create an environment where employees feel empowered to contribute to OI strategies.

For establishing effective precursors to OI interdepartmental connectivity and companies' strategic decision making-internal information development, integration, and usage are essential (García-Morales et al., 2006). Organizations lacking adequate internal innovation capabilities face problems in enabling cross-functional collaboration, thereby curbing the ability to share knowledge across departments effectively (Nguyen et al., 2018). The absence of adequate internal innovation capacities hinders communication and knowledge transfer, weakening the implementation of OI projects among Palestinian SMEs that usually have hierarchical structures and operational silos.

Generating absorptive capacities: The building of systems to effectively absorb and utilize outside information (Cohen & Levinthal, 1990) Encouraging information-sharing cultures promotes cooperative workplaces where staff members are encouraged to share their ideas (Mazzei et al., 2016). Invest in leadership-mediated innovation Ko and Ma (Ko & Ma, 2019): argue that leadership support is necessary to encourage commitment-based HR practices and strategic innovation alignment. By contrast, businesses' ability to develop HR-reliant innovation strategies, foster interdepartmental collaboration, and build decision-making frameworks supportive of OI is seriously limited by a deficit in internal innovation capabilities. For Palestinian SMEs to enhance their execution capabilities for OI initiatives, strengthening internal innovation mechanisms must be given the utmost priority.

***H4a:** Internal Innovation Capability negatively impacts the antecedents in Palestinian SMEs.*

#### **2.2.4.2 Networks and Relationships and Antecedents**

Networks and connections represent an important channel for fostering innovation, collaboration, and knowledge transfer among SMEs. Although interdepartmental connectivity enables improved collaboration internally, external linkages and strong networking infrastructure must support corporate operations for the inbound of new ideas and technologies. According to the Dynamic Capabilities Theory, businesses would be able to compete and innovate by alternately reconfiguring and integrating their

internal and external resources (Teece, 2007). Nevertheless, in the case of Palestinian SMEs, open innovation faces serious constraints due to fragmented markets, weak external networks, and lack of trust among actors (Gupta & Govindarajan, 2000). These impediments reduce the chances available to companies for laying down the grounds for OI by blocking access to new information on one hand and curtailing chances for collaboration with suppliers, research institutes, and external partners on the other.

Strong networks enhance an organization's capacity to collaborate, grant access to outside expertise, and facilitate knowledge transfer. Firms actively maintaining contacts with universities, industry specialists, and innovation centers stand to gain new research and ideas from other areas for embedding best practices into their innovation strategies (Debackere & Veugelers, 2005). Connected companies are also likely to be accessed into cooperative research programs, funding opportunities, and market outreach opportunities-gains that increase commitment to HRM schemes and overall decision frameworks. However, these advantages have been largely unrealized for Palestinian SMEs because of structural impediments to the establishment and sustenance of fast external networks.

The real fundamental challenges facing Palestinian SMEs are the political and economic volatility conditions that inhibit access to markets and erode confidence among potential innovative partners, such as becoming slightly more distant from each other than the institutions already are (Al-Tabbaa & Ankrah, 2016). Establishing lasting valuable relationships with external stakeholders is that much harder because of institutional gaps and disparate economic structures. Innovation opportunities are beyond reach; knowledge-sharing initiatives are derailed because of a lack of trust-based cooperation and access to government funding programs and research institutions impedes companies' ability to tap external R&D for innovation. Regarding the situation of Palestinian SMEs, they lack institutional support compared to the larger economies where public-private innovation ecosystems thrive (Baldwin & Von Hippel, 2011).

***H4b:** Networks and Relationships Negatively Impact the Antecedents in Palestinian SMEs.*

#### **2.2.4.3 Technology Management and Antecedents**

Technology management is the underlying practice that improves the adoption of open innovation (OI) initiatives in business. Open innovation is thus supported by effective technology management through external collaborations, interdepartmental

cooperation, and knowledge sharing for innovation-led growth. Continuous technological development will enable firms to seize new opportunities and respond to the changing market, as dictated by Dynamic skills Theory, which accentuates the necessity for technological flexibility (Teece, 2007). In the case of many Palestinian SMEs, technological barriers such as limited access to modern infrastructure, high implementation costs, and the unavailability of qualified personnel impede the development of prerequisites for open innovation.

Limited access to modern technological resources is one of the most significant impediments to technology-driven innovation in Palestinian SMEs. These companies face increasing competition due to antiquated IT systems, underinvesting in digital transformations, and underutilizing automation, cloud computing, and AI-driven analytics. Such constraints hamper the firms' ability to develop inter-department connectivity requirements for OI. Without effective digital communication and information exchange platforms, inter-department cooperation remains plagued by internal silos (Enkel et al., 2009). Inability to build technological platforms that could effectively curb the SMEs' efforts to learn from outside their environment and nurture organized decision-making mechanisms and HR systems.

Adoption of new technologies incurs heavy expenditures and can, therefore, be seen as a further obstacle. With SMEs often operating under severe financial constraints, investing in new technologies is often very hard for them, thereby discouraging innovation-friendly ecosystem growth (Love & Roper, 2015). Without adequate investment in necessary systems such as customer relationship management (CRM) software, enterprise resource planning (ERP), and data analytics platforms designed for strategic innovation towards customers, companies face depletion of their well-formed plans. This absence results in lesser data-based decision-making, thus entrenching organizations' capacity to align innovation aspirations toward business objectives.

Further innovation activities, a lack of qualified people who were trained in technology development. Without proper training programs and advanced technical upskilling, employees fail to utilize technology effectively, which leads to inefficient processes and poor integration of digital technologies into business operations (Westerman et al., 2014).

***H4c: Technology Management negatively impacts the antecedents in Palestinian SMEs.***

#### **2.2.4.4 Leadership and Antecedents**

Open innovation is all about strategic decision-making, knowledge sharing, and organizational culture, importantly all these being hugely driven by an effective leader. Strong leaders encourage, empower, and steer teams to embrace innovations and achieve strategic breakthroughs according to transformational leadership theory (Bass & Avolio, 1994). Thus, when a leader builds a joint vision and a conducive atmosphere toward innovation, the members of an organization engage in problem-solving, experimentation, and cross-functional cooperation. However Palestinian employees continue to face wholly pedagogic challenges, such as resource constraints, erratic markets, and short-term survival requirements, and this hinders all the development of open innovation antecedents.

One of the problems that the leaders of Palestinian SMEs contend with is the excessive centralization of decision-making. Most organizations are hierarchical in management and this prevents employees from having the liberty to experiment with new ideas and participate in innovative projects by confining strategic power at the upper echelons (Simons, 1994). According to their engagement in innovation, it is the outcome of the deprivation from the leaders of the delegation of power to employees which undermines the effectiveness of HR commitment-based policies and inter-departmental cooperation, things which should facilitate the easy transfer of information necessary for idea generation and innovation. These centralized decision-making systems also create problems along the lines of adaptive learning given that it prevents an organization from designing a route to respond quickly to external technical innovations and new market trends.

A lack of culture for taking risks has also been an obstacle related to leadership for most Palestinian SMEs. Those leaders prioritize stability instead of experimenting, and therefore several times the leaders also dissuade their employees from the trial-and-error innovation process due to fear of monetary losses or process disruption (Weick & Sutcliffe, 2011). Without using the leadership methods that adopt measured risk-taking, innovative problem-solving, and knowledge-sharing, organizations will never develop the interdepartmental connectedness and decision-making flexibility that is needed when it comes to adopting OI. Transnational leadership is needed to combat very rigid and anti-risk organizational cultures for it invites empowerment and collaboration among employees (Gong, 2017).

Furthermore, succession planning and leadership development are usually ignored in Palestinian SMEs. Most companies do not have formal leadership training programs, so decision-makers in such organizations lack the skills necessary for managing innovation-based shifts (Dess & Picken, 2000). Setting effective HR structures and decision-making processes directed to innovation for such organizations is not possible without visionary leaders who endorse long-term strategies for innovation. SMEs that invest in leadership development on the other hand develop a continuous learning and agility culture that increases the likelihood of establishing and sustaining innovation-driven antecedents.

*H4d: Leadership negatively impacts the antecedents in Palestinian SMEs.*

#### **2.2.4.5 Strategy and Antecedents**

For any open innovation (OI) project to succeed, strategic alignment is essential. Clear strategies ensure that innovation activities and business objectives are in tune with each other, acting as a roadmap for innovation pursuits. By misalignment of strategy, we mean the time when the overriding ambition of the organization does not match the innovative aspirations. Such hindrances may raise the question of sustainability, direct resource misallocation, and innovation programs that lack focus when innovation is not part of the larger strategic framework of that organization (Cai et al., 2024).

Strategic misalignment is often an exacerbating factor for Palestinian SMEs that lack managerial and financial resources. With the ever-changing nature of the economy, many SMEs are left with no alternative but to prioritize short-term operational stability rather than medium- to long-term investments in innovation (Johnson et al., 2024). Lacking an OI-specific long-term strategic vision, firms are thus likely to underinvest in commitment-driven HR practices and interdepartmental collaboration mechanisms, as well as key knowledge-sharing systems that are important antecedents to OI. Divergent priorities could also lead to poor decisions, impeding the potential for companies to quickly identify and act on emerging opportunities in dynamic markets.

In another important perspective, small and medium enterprises face their inability to maintain strategic agility over changes happening in the market and the improvements in technology. Companies that manage to implement successful open innovation strategies have to be flexible and adaptable in building relationships, interfacing with external information, and changing their course when needed (Grewal & Tansuhaj, 2001).

However, due to the bureaucratization of decision-making procedures and inflexible organizational structures, it sometimes becomes a hindrance for Palestinian SMEs to nicely align their business plans to the innovation demands. The strategic misalignments of these businesses often complicate the way any OI initiative is held in place during its lifetime, resulting in fragmented innovation initiatives that do not lead to sustainable competitive advantages (Govindarajan & Trimble, 2010).

In short, Palestinian SMEs should develop structured innovation roadmaps that match the company objectives with the goals of OI to overcome strategic misalignment. This would include developing quantifiably measurable performance metrics establishing clear priorities for innovation, and further creating a culture that fosters internal strategic adaptation (Chatman et al., 2014). In addition, such partnerships with external entities like research institutes, business leaders, and innovation hubs can yield insightful information and strategic advice that could allow SMEs to enrich their innovative tactics and solidify their market position as well (Salavou et al., 2004).

*H4e: Strategy negatively impacts the antecedents in Palestinian SMEs.*

#### **2.2.4.6 Culture and Antecedents**

Change-resistant cultures impede the adoption of open innovation in SMEs, and such organizations may have been modeled under conventional business arrangements. Since innovation-friendly antecedents require experimentation, cross-functional cooperation, and external partnerships, which run contrary to a risk-averse organizational culture (Arundel, 2017). According to institutional theory, an organization's approaches toward innovation, decision-making, and knowledge-sharing are rooted deeply in cultural norms and values (Scott, 2005). However, under Palestinian SMEs, although they adopt many techniques inherent to innovation in approach, in most cases business traditions trump: it is difficult for companies to implement new types of technology, agile work structures, and collaborative techniques into their operations.

One of the major effects of a very rigid organizational culture is employee unwillingness to engage in knowledge-sharing activities. People in hierarchical, risk-averse cultures with little incentive to hazard failure may also find it difficult to promote new ideas owing to the opposition of senior management (Hofstede et al., 2010). Commitment-based HR practices that would facilitate employee ownership, innovation, and career development have been made difficult by such cultural inertia. Whenever firms

do not have an open and inclusive innovation culture, it makes the human resource bases of OI weak because they cannot inspire the staff to be involved in cross-functional problem-solving and continuous learning.

Company culture also influences inter-departmental connectedness. Companies that have silos or strict hierarchies find it hard to communicate effectively across departments-Moreover, the lack of internal linkage inhibits any knowledge exchange in these firms, thus weakening the ability of the organization to absorb external knowledge into its internal innovation ongoing processes (Cohen & Levinthal, 1990). This makes any internal unification required for cross-function collaboration and group innovation projects hard to build for many Palestinian SMEs, which are under conventional top-down management structures.

Cultural conservatism often encourages a centralized approach to decision-making where senior leadership maintains full control over strategic objectives. The impediment to decisions leaves organizations incapable of pursuing adaptive, innovation-oriented strategies that depend on contributions to knowledge (Hofstede et al., 1991). Companies that possess cultures of innovation and flexibility, on the other hand, empower their employees to make decisions at all levels of the organization and to contribute to strategic innovation discussions.

Palestinian SMEs must, therefore, work on fostering an innovative corporate culture that embraces transparency, flexibility, and innovative problem-solving to overcome cultural barriers. This requires leadership to create an environment that inspires employees to experiment, share knowledge, and collaborate on projects. Switching the conservative cultural norms to a more dynamic and innovation-oriented frame can be achieved with the help of organizational change programs, enhanced leadership skills, and innovation-centric rewards (Bass, 2006).

***H4f:** Culture negatively impacts the antecedents in Palestinian SMEs.*

### **2.2.5 Corporate Governance Solutions and Antecedents**

Establishing strong corporate governance solutions provides a solid infrastructure for open innovation (OI) initiatives by advocating commitment-oriented HR practices, inter-departmental connectivity, and centralized decision-making structures. Governance systems indeed make possible cooperation, risk sharing, and strategic alignment between the organization's aims and innovation-related objectives (Bridoux & Stoelhorst, 2022).

In light of specific sociopolitical instability in Palestine and a lack of resources, strong corporate governance solutions stand necessary to enhance the viability of OI initiatives.

Governance solutions comprehend causes well-using theories, namely the Resource-Based View (RBV), Agency Theory, and Stewardship Theory. Employees are allowed by such corporate governance solutions to have employee-centric rules in the corporation; hence aligning organizational HR processes with organizational targets (Biliaev, 2024). Stewardship theory bases its foundation strongly on the governance systems that align employee behaviors with corporate goals using intrinsic incentives, trust, and teamwork (Davis et al., 1997). These governance principles are those that foster equitable compensation, career development, and employee empowerment to strengthen the culture of an engaging workplace within Palestinian SMEs, thereby strengthening the available conditions for open innovations.

The various effective structures of governance help improve internal coherence through open communication, accountability, and cross-functional collaboration (Lockwood et al., 2010). The basis of competitive advantage in a resource-based view lies within the organization, such as organizational coherence and information exchange. Within Palestinian SMEs, governance tools such as multi-functional task forces, structured reporting systems, and regular team meetings encourage the sharing of information and break down silos in organizations. The capability of an organization to absorb and assimilate external knowledge is considered one of the most important factors under an open innovation strategy and is then enhanced by strengthening governance.

Corporate governance creates systematic decision-making processes, which leads to maximal resource allocation and synchronization of innovative initiatives with the long-term objectives of the organization (Munari & Sobrero, 2003). Agency theory corroborates the importance of governance as a means of satisfying managerial and stakeholder expectations since it indicates the advantages of establishing decision-making procedures that are consistent with the organization in the long run (Jensen & Meckling, 2019).

Examples of governance strategies that support effective decision-making in Palestinian SMEs are board supervision, stakeholder involvement, and performance evaluations. Such mechanisms make possible wise decisions about partnerships, innovation projects, and resource distribution. Ultimately leadership has a critical impact on corporate governance outcomes. As per the transformational leadership theory, leaders

activate innovation by building a common goal, inspiring staff members, and creating a cooperative culture (Bass & Avolio, 1994).

Corporate governance solutions play a role in establishing necessary antecedents for open innovation strategies in Palestinian SMEs. The governance processes are those that ensure the preparedness of companies for collaborative innovation by fostering commitment-based HR practices, interdepartmental communication, and better decision-making frameworks. Since its application can improve management procedures and foster timely collaborative inventions in line with corporate open innovation frameworks, governance solutions can find functionality here. Stewardship Theory, RBV, Agency Theory, and Transformational Leadership Theory provide some conceptual frameworks to understand the role of governance in the optimization of resource management, the establishment of organized collaboration, and the cultivation of an innovative corporate culture.

***H5:** Corporate governance solutions positively influence the antecedents in Palestinian SMEs.*

#### **2.2.5.1 Formal Corporate Governance Solutions and Antecedents**

Every time a leadership body is formed for innovation, formal governance processes play a huge role. These processes include clear decision-making protocols, mechanisms for performance measurement, and regulatory frameworks that ensure accountability and transparency (Alzoubi & Aziz, 2021). Agency theory maintains that any governance should align the interests of the stakeholders with the actions of management to deter opportunistic behavior and facilitate the long-term success of innovations (Jensen & Meckling, 2019). Formal governance frameworks encouraging innovation initiatives in Palestinian SMEs guarantee proper resource allocation, open external cooperation, and the strategic alignment of innovation with business objectives.

Moreover, firm human resource policies that bridge personnel management and business strategy contribute to organizational effectiveness supported by formal governance systems. RBV states that the ongoing development of internal human capital is imperative for sustaining competitive advantage. Consequently, formal governance systems that promote Palestinian SMEs through knowledge-sharing programs, performance-based reward systems, and organized staff training will be beneficial.

Adoption of these governance mechanisms will foster employee commitment and engagement, arguably two primary preconditions for open innovation.

Interdepartmental communication is endorsed by formal governance through established reporting processes, cooperation protocols across different departments, and periodic performance assessments (Bui & Krajcsák, 2023). These mechanisms of governance bolster the agility of Palestinian SMEs to swiftly react to the changing dynamics of the market. Thus, organized governance systems strengthen the antecedences by facilitating knowledge transfer, ensuring accountability, and nurturing an innovative organizational culture.

***H5a:** Formal Corporate Governance Solutions positively influence the antecedents in Palestinian SMEs.*

#### **2.2.5.2 Informal Corporate Governance Solutions and Antecedents**

Necessarily, informal governance also includes driving open innovation. This is where the corporates have an angle in the innovation process- internal corporate culture, and leadership style, which can come across as group norms (Köhler et al., 2022). To develop the shared innovational outcomes, then, the Stewardship Theory emphasizes the trust shared ideals and intrinsic motivation (Bollinger & Smith, 2001; Davis et al., 1997). Knowledge sharing and experimentations-informal governance like transparent corporate culture, leadership dedication to innovation, and common organizational favorable objectives (Zbucnea & Leon, 2015). It is especially relevant for Palestinian SMEs, where dependence and intimacy of teams become crucial in overcoming resource constraints.

Such informal governance fosters teamwork and empowerment among employees, which leads to a more committed workforce. Leadership philosophies that emphasize professional trust, knowledge exchange, and participatory decision-making will encourage employees to take part in innovation projects (Simons, 2002). Trust relationships and lowered hierarchical barriers in an organization promote the sharing of tacit knowledge for greater efficiency in OI techniques (Nahapiet & Ghoshal, 1998).

Another aspect of informal governance is that it can further the responsiveness and flexibility of decision-making. They bring about informal governance methods that are not rigid and formal governing frameworks to adapt adaptable changes whenever there are market uncertainties (Adler & Kwon, 2002). It nurtures openness and participatory communication resulting in higher organizational adaptability which means

ever-ready in terms of resilience for Palestinian SMEs, gearing towards open innovation strategies.

***H5b:** Informal Corporate Governance Solutions positively influence the antecedents in Palestinian SMEs.*

### **2.2.6 Risk Factors, Antecedents, and Open Innovation Strategies**

The interrelationships among risk factors, antecedents, and open innovation (OI) practices are marked by extreme complexity. To implement OI practices, Palestinian SMEs need centralized decision-making, interdepartmental connectivity, and HR policies based on commitments. Nevertheless, the adoption of OI is moderated by several risk factors, including limited resources, network vulnerabilities, leadership challenges, and cultural resistance (Roldan Bravo et al., 2022). These risk factors are equally capable of strengthening or undermining the ability of these antecedents to foster creativity. An understanding of how risk counts will inform several theoretical perspectives relevant to OI implementation, namely, the Institutional Theory, Contingency Theory, and Dynamic Capabilities Theory.

Commitment-based HR policies are critical for instilling creativity and determination within a team. Nonetheless, implementation of OI practices may depend on low implementation through tight budgets and high employee turnover (Nayak et al., 2022). Dynamic Capabilities Theory says that firms should be actively changing their HR policies to reduce risk and maintain innovative capability (Teece, 2007). These financial constraints mean that Palestinian SMEs avoid making staff training and development investments that would stimulate HR-led innovation. If they cannot invest in human resources, then such businesses will find it hard to nurture a workforce for which OI efforts can be based.

Inter-departmental connectedness means collaborative creativity and knowledge sharing. However, it is often hindered by poor communication and weak networks (Scott, 2005). According to institutional theory, interdepartmental relationships are influenced by certain organizational norms and others by institutional constraints. In Palestine, the fragmented markets and political turbulence halt the efforts toward internal cooperation and knowledge sharing, which inhibits SMEs from maintaining innovation-driven cooperation. More resilient organizations can sustain interdepartmental connectivity and enhance their OI strategies, even in the light of external disruptions.

Centralization of decision-making is yet another important requirement for aligning corporate resources with innovation objectives. This alignment may sometimes be threatened by cultural resistance, leadership problems, and a lack of strategic vision (Appelbaum et al., 2015). Contingency theory states that organizational effectiveness depends upon alignment between its internal practices and external environmental conditions (Donaldson, 2001). Decision-making processes within Palestinian SMEs are hindered by inefficiencies that operate against their benefit and competing managerial objectives, leading to a lesser contribution towards supporting OI. To enhance their innovative capacity, SMEs should therefore work towards flexible decision-making systems that embrace environmental variables.

Lastly, the turbulence and volatilities of the market, coupled with technological obsolescence and sociopolitical instability, further complicate the OI adoption. Therefore, it dampens major risks while promoting appropriate use of the antecedents in the implementation of OI (H. Wang et al., 2024). The Dynamic Capabilities Theory provides a vigorous requirement for agility in structures (Teece et al., 1997). If SMEs effectually adopt risk management practices and flexible organizational structures, it will foster an even stronger influence of the antecedents on the OI strategies. In such an environment, companies can embrace innovation through proactive methods that address external uncertainties.

All these risk factors significantly moderate the relationship of the antecedents, that is, commitment-based HR practices, interdepartmental connectedness, and decision-making processes, with the effective implementation of OI strategies within Palestinian SMEs. Reduction of these risks would enhance the efficacy of the antecedents to promote OI adoption is pointed out by the contingency theory, institutional theory, and dynamic capabilities theory.

***H6:** Risk factors significantly moderate the relationship between antecedents and the adoption of open innovation strategies in Palestinian SMEs.*

#### **2.2.6.1 Risk Factors, Commitment-Based HR, and Open Innovation Strategies**

They're committed to the belief that HR policies based on employee commitment are useful in creating a culture of employee engagement, knowledge-sharing, and innovation in organizations. Helping employees open themselves to innovation (OI) projects is the HR tool set, which includes career development, employee training, and

incentive-based performance systems. Knowledge sharing, interdepartmental connectivity, and strategic decision-making are greatly aided by employees who take part in collaborative learning and problem-solving. However, due to budgetary constraints, shortage of proper resources, and high turnover rates of staff, adverse effects may diminish the influences emanating from commitment-based HR systems on the adoption of OI (Nayak et al., 2022).

According to the Dynamic Capabilities Theory, a renewed HR strategy is required for every organization to mitigate innovation risk and retain capable employees who would bring innovations (Teece, 2007). By complying with HR development and employee retention schemes on a proactive basis, SMEs could build resilient and innovative teams that competently support OI initiatives. Nonetheless, ensuring sufficient finances for formal HR programs is a challenge because Palestinian SMEs remain within resource-constraining conditions. The weak funding of training, digital upskilling, and knowledge-sharing programs erodes employee engagement, consequently limiting the ability of firms to deploy human capital in sustaining long-term innovation activities.

Another issue witnessed by Palestinian SMEs is the high turnover rate of skilled employees. Its effects are often adverse to opportunities for improving career advancement and market pressures outside the labor sphere. At such high turnover rates, businesses will find increasing difficulties in retaining knowledge of innovations and developing a staff base with deep institutional knowledge about the organization. Due to inadequate human resources for integrating outside knowledge and trying new business models, OI tactics become fragmented and ineffective (Minbaeva et al., 2002). If no correct HR processes are included in that, employee retention, teamwork, and continuity of knowledge do not make magic and bring these in place without more emphasis being placed on them.

Lamentably for most organizations, these practices cannot facilitate the continuity toward innovative teams flexible enough to adapt to changing market demands. Organizations with inflexible, underdeveloped HR systems will often fail to foster an environment of openness, flexibility, and risk-taking-critical attributes for OI adoption (García-Morales et al., 2012). Palestinian SMEs should thus pay attention to joining their HR policies with open-ended innovation frameworks to keep their employees interested, knowledgeable, and active with continuous innovation initiatives.

***H6a: Risk factors significantly moderate the relationship between Commitment-based HR and the adoption of open innovation strategies in Palestinian SMEs.***

### **2.2.6.2 Risk Factors, Inter-Departmental Connectedness, and Open Innovation Strategies**

Interdepartmental connectedness is quite essential in enlarging organizational learning, strengthening cross-functional cooperation, and facilitating knowledge-sharing because they are the lifeblood through which open innovation (OI) is spread. Organizations can bring different functional skills into play in individual departments using effective collaboration. In addition, departments could combine various discipline contributions and thus produce synergy to lead to innovation. Notably, fragmentation in the markets, political unpredictability, as well as a weak link of networks are some of the internal and external factors that greatly hinder the effectiveness of interdepartmental collaboration, and thereby organization faces difficulties maintaining effective innovation processes (Scott, 2005).

According to institutional theory, both external institutional influences and internal organization structures determine the level of interdepartmental connectivity. Typical institutional limitations include economic fragmentation, sociopolitical instability, and lack of legislation backing innovation, all of which tend to inhibit internal collaboration and diminish the effectiveness of knowledge-sharing systems in Palestinian SMEs. Operating in an uncertain environment does not support businesses to align interdepartmental collaboration with OI strategies while retaining strong internal connectedness. Cross-departmental information becomes difficult to obtain for employees, affecting decision-making and reducing the efficacy of innovative processes.

In Palestine, a considerable number of SMEs suffer severely because of the lack of technology infrastructure and limited access to collaborative digital tools and platforms, which allow for real-time knowledge sharing and communication (Barghouthi, 2024). Employees, without these tools, in a very specific manner, keep departmental separate; therefore, the organization's capacity to integrate knowledge from outside into its operations for OI adoption is compromised. Some SMEs have a bureaucratic system that inhibits transparency due to the rigid structures that discourage teamwork and drive less engagement from employees in innovative initiatives (Silva et al., 2025).

By contrast, political and economic instability, creating continuous disturbances in the life of the organization, discourages internal collaboration by dwindling trust from business partners and unstable market conditions (Hadjielias et al., 2022). Poor internal networks and rigid collaborative frameworks may result in low employee engagement,

issues with knowledge retention, and poor innovation practices. Conversely, companies with flexible frameworks promoting interdepartmental connectivity can address network risks for better alignment of innovation initiatives with corporate objectives.

***H6b:** Risk factors significantly moderate the relationship between Inter-Departmental Connectedness and the adoption of open innovation strategies in Palestinian SMEs.*

### **2.2.6.3 Risk Factors, Centralization of Decision-Making and Open Innovation Strategies**

Centralized decision-making systems are used to ensure efficiency, goal alignment, and control over resources in organizations. Such frameworks would enable companies to impose innovation strategies across the entire company, standardize procedures, and speed up decision-making processes (Mehta & Hirschheim, 2007). An increase in uniformity and accountability results from centralization, but it also breeds inflexible bureaucratic bureaucracies that hinder creativity, flexibility, and responsiveness in employees. Firms must be flexible, cooperative, and open to outside information in open innovation (OI) situations. Such inflexible, centralized decision-making tactics frequently do not.

The contingency theory claims that both external conditions require organizations to adapt their governance model schemes, which means there is no single structure of decision-making that fits all (Donaldson, 2001). External concerns of political ambiguity, economic climate changes, and lack of institutional backing force Palestinian SMEs to use a more flexible and adaptive decision-making framework (Donaldson, 2001). Many SMEs are still centralized, limiting their ability to harness outside knowledge sources into their innovation strategy and react quickly to threats from outside.

This is excessive centralization in Palestinian SMEs, which inhibits bottom-up innovation and is a huge demerit. Employees and middle managers do not have the freedom to suggest or attempt to implement creative solutions if everything is decided in the upper echelons of management (Kraus et al., 2018). This brings forth the inability of the enterprise to employ cross-departmental problem-solving hacks and grassroots creativity, which are both of critical significance in the successful adoption of OI. Furthermore, such centralization structures often result in decision-making delays, which prevents organizations from effectively seizing market opportunities and responding to new technology changes (Felin & Powell, 2016).

Too many centralized governance frameworks have another disadvantage: the leadership priorities are not congruent with innovation objectives. Many senior executives in Palestinian SMEs are unwilling to take the plunge to go to very bold, innovative ideas because they would rather make consistent profits in the short-term than invest their revenues into long-term innovation (Matzler et al., 2015). The hierarchical concentration of decision-making power strengthens the cultural resistance that accompanies the traditional business environment in which moving toward decentralized decision-making becomes difficult for collaborations with external partners or knowledge exchange with external stakeholders (Scott, 2005).

In order to achieve the balance between structure and nimbleness, Palestinian SMEs must adopt hybrid methods of decision-making, combining decentralized innovation autonomy with centralized monitoring. Such governance solutions, for example, innovation committees, delegated authority frameworks, and data-driven decision-making processes can achieve that balance between innovator agility and strategic alignment (Gulati & Singh, 1998). Investing in digital enterprise decision-making systems will improve access to real-time data to allow companies to act flexibly and well-informed but still maintain centralized control over strategic objectives.

***H6c:** Risk factors significantly moderate the relationship between the Centralization of Decision-making and the adoption of open innovation strategies in Palestinian SMEs.*

### **2.2.7 Corporate Governance Solutions, Antecedents, and Open Innovation Strategies**

Governance solutions are vital for Palestinian SMEs, which face many obstacles in the implementation of Open Innovation (OI) programs. Organizational capabilities-development, such as commitment-related HR practices, interdepartmental connectivity, and decision-making frameworks-are being identified as needing governance mechanisms, including structured decision-making, leadership alignment, and effective resource management (Rosyafah & Pudjowati, 2024). These governance products foster a conducive environment for free and open innovation by lessening the consequences of operational inefficiencies, obsolete technology, and scant resources. Governance systems intervene in the moderation between antecedents and the adoption of an OI strategy, as elaborated by Agency Theory, Stewardship Theory, and Dynamic Capabilities Theory.

The best corporate governance framework is one that has rules and procedures that enhance the environment for commitment-based HR practices and influence organizational structure and accountability. In Agency Theory, good governance practices nurture the culture of trust and cooperation through organizational performance control and stakeholder alignment with the interests of stakeholders (Jensen & Meckling, 2019). In this manner, governance solutions provide organizational-level mechanisms for Palestinian SMEs to invest strategically in staff engagement, training, and development. Given the financial constraints many SMEs face, appropriately designed governance structures facilitate the development of a capable, motivated, and innovative workforce able to drive OI initiatives.

It has been shown that the governance framework of organizations fosters cooperation and openness across various functions in an organization, thus improving interdepartmental connectedness. Stewardship Theory emphasizes that cooperation and trust among members promote the flow of information and teamwork (Davis et al., 1997). Governance tools, such as cross-functional committees and established communication protocols, assist Palestinian SMEs in further breaking down silos in the organization, thus promoting effective interdepartmental communication. Therefore, this enhanced connectedness brings advantages for OI-adopting companies when sharing internal knowledge and increasing the possibility of integrating external innovation prospects.

Effective governance systems streamline decision-making and ensure complementarity between the resources of organizations and their innovation objectives. The Dynamic Capabilities Theory serves to illustrate the importance of resource reconfiguration and adaptation in dynamic environments (Teece, 2007). Well-structured decision-making processes and performance evaluation procedures improve strategic direction and transparency for Palestinian SMEs, enabling them to invest in innovation effectively. Governance solutions mitigate risks of misstated strategic intent or inefficient internal operations and therefore increase the involved success chances of open innovation implementations.

There is governance for companies, prescribing control over knowledge transfer, alleviation of the technology obsolescence threat, and management of intellectual property issues. Governance systems, such as those for intellectual property management, have improved capacity for successfully acquiring, assimilating, and using knowledge-towards developing organized knowledge-sharing rules (Daraojimba et al., 2023). Adopting open innovation, however, remits for Palestinian SMEs as modern technology

is often out of reach, moreover governing frameworks align flows of both internal and external information with their innovation goals. It allowed businesses to perceive hindrances and thus collaborate with external partners relatively easily, by such governance frameworks that have made networks outside much stronger. It indicates, per institutional theory, that it supports organizations to deal with external forces such as market fragmentation and regulatory restraints from outside (Scott, 2005).

The strong governance frameworks would further foster access to external resources and joint innovation initiatives by creating greater trust and transparency in dealings with suppliers, customers, and research institutions. Corporate governance solutions significantly influence all aspects of the open innovation activities in Palestinian SMEs. Based on improvement in the HR practices associated with commitment-the most general-and its structural elements, governance frameworks facilitate cross-functional teamwork, shorten time to make decisions, and enhance information and network management with more emphasis towards OI. The agency, stewardship, dynamic capabilities, and institutionalization theories elucidate how governance is significant in removing barriers toward open innovation while enhancing sustainable innovation practices.

*H7: Corporate governance solutions significantly moderate the relationship between antecedents and the adoption of open innovation strategies in Palestinian SMEs.*

#### **2.2.7.1 Corporate Governance, Commitment-Based HR, and Open Innovation Strategies**

Centralized decision-making structures, if appropriate and skillfully employed, must be ensured for the organization's effectiveness, resource optimization, and goal alignment. Centralization that is theoretically maintained aligns the corporation to a coherent business strategy amongst departments, imposes regulatory innovation priorities, and provides systematic allocative behavior for resources. In such cases, centralized decision-making can ensure the degree of consistency and stability that ensures the alignment of open innovation (OI) initiatives with long-term business objectives (Appelbaum et al., 2015). Such rigid institutions become obstacles to innovation in a fast-changing environment when their efficiency is compromised by ineffective leadership, conflicting managerial priorities, and cultural inertia.

A contingency theory approach, as professed by (Donaldson, 2001). argues that decision-making processes vary and should be adapted to external environmental variables. Such relatively pronounced centralization characterizes decision-making in most Palestinian SMEs, with top management verging upon absolute authority in that regard. Despite providing some forms of control and risk management, the bureaucratic inefficiencies cascading from such an approach foster resistance to change and slow decision-making, further compromising the capabilities of the firm to adopt and implement OI practices. Moreover, excessive centralization inhibits employee participation in innovation activities, thereby forestalling a firm's potential for cross-functional cooperation and bottom-up creativity.

The above considerations suggest that there are other hard questions. These could be any inability of the highly centralized organization to still adjust against outside threats and uncertainties. Because of changing regulatory circumstances, variable markets, and unstable sociopolitical environments, Palestinian SMEs must provide flexible and adaptive decision-making processes. Often, in terms of its rigors, a centralized approach won't give the space to react quickly to these external forces. This rigidity may stem from a company's capacity to spot innovation opportunities due to delays in making strategic pivots (Kuhn et al., 2017). Centralization has another negative influence on the central characteristic of open innovation, the participation of external partners.

*H7a: Corporate governance solutions significantly moderate the relationship between Commitment-based HR and the adoption of open innovation strategies in Palestinian SMEs.*

#### **2.2.7.2 Corporate Governance, Inter-Departmental Connectedness, and Open Innovation Strategies**

There are important structural elements of accountability, communication, and collaboration they contain, which make them useful for the improvement of inter-departmental connectedness. The success of the OI initiative is dependent on various aspects of a project such as collaboration across functional areas, strategy alignment, and the exchange of knowledge, all possible because having inter-department connections would take care of the circulation of vital know-how across various organizational units. The absence of organized governance systems shows no guarantees, however, that operational silos have inbuilt communication systems failing to forge connections

between such functions and dispersing poor accountability patterns, which in turn, kill interdepartmental relations and, finally, innovation across operations in micro-sized firms.

Stewardship theory states that firms bestow their maximum potential to flourish when their top management nurtures a collaborative context where responsibility, trust, and teamwork matter (Davis et al., 1997). By ensuring that business adopts collaborative leadership styles, this trust-based governance mechanism propagates staff members' engagement in cross-departmental projects and knowledge sharing. Governance frameworks provide mixed-source department engagement, closing the knowledge gap to avoid disarticulated teams within Palestinian SMEs that have limited managerial oversight and restricted resources, often leading to nonproductive knowledge sharing.

For SMEs adopting governance structures (cross-functional task forces, collaborative innovation committees, and transparent reporting methods), this means improved interdepartmental cooperation and seamless information flow. In addition to convening different teams around innovative objectives, these systems also ensure inclusive and transparent decision-making. Conversely, inter-departmental connectedness predominantly impacts OI adoption when governance mechanisms set explicit definitions of roles, duties, and reporting structures. The rationale is that people will be encouraged and willing to engage in collaborative-interdepartmental problem-solving (Donaldson, 2001).

Governance frameworks lock interdepartmental connectivity in for the long haul and shield it from various external threats. A multitude of Palestinian SMEs operate in unstable markets where internal cooperation may be disrupted by political agitation, regulatory changes, and economic uncertainties (Gulati & Singh, 1998). The governance mechanisms assist organizations in sustaining their knowledge-sharing endeavors, even in turbulent times, by enhancing communicative processes and ensuring participative engagement across functions. This aspect is very crucial for open innovation that thrives on adaptive learning and the seamless transfer of knowledge among various organizational units.

***H7b: Corporate governance solutions significantly moderate the relationship between Inter-Departmental Connectedness and the adoption of open innovation strategies in Palestinian SMEs.***

### **2.2.7.3 Corporate Governance, Centralization of Decision-Making, and Open Innovation Strategies**

While ensuring operational efficiency, the aim should be to align all decision-making procedures with innovation goals guided through an appropriate formal governance framework. Centralized decision-making ultimately allows for maintaining strategic consistency, managing resource allocation, and mitigating risks. However, over-centralization can take a toll on organizational agility and timely responses to money-making opportunities in the marketplace. It is stated in Dynamic Capabilities Theory (Teece, 2007). that firms need to continuously readjust their governance structures to remain competitive in ever-changing environments. The context would suggest that strict governance frameworks in Palestinian SMEs are usually unable to cope with external uncertainty, hence, limiting them from generating an appropriate portfolio of open innovation (OI) strategies.

Unclear governance structures leading either towards high centralization of decision-making or strategic misalignment together constitute two major challenges facing, primarily, Palestinian SMEs. This imbalance discourages innovation by restraining employees from engaging in strategic discussions, causing execution issues concerning the innovation strategies at hand, and resulting in collaborative problem-solving issues (Kraus et al., 2018). Contrarily, high levels of centralization can delay innovation pathways by focusing decision-making on the very highest levels of management, excluding operational staff from input in the implementation of new ideas

These ways enable companies to bring down barriers to innovation and data-driven and innovation-oriented decision-making by focusing on provided corporate governance programs such as board oversight, structured decision-making procedures, and stakeholder engagement by having the capacity for flexibility in ascertaining that decision processes do not become so rigid or bureaucratic that they make strategic control impossible. Governance mechanisms help SMEs find balance in both centralization and flexibility needed in innovation-driven projects by integrating the opinions of external stakeholders and organized approval procedures (Donaldson, 2001).

Governance solutions, on the other hand, would bring transparency and accountability along the process of decision-making. With organized governance strategies like innovation councils cross-functional leadership teams and regular strategy reviews, businesses can evaluate risk, allocate resources better, and foster well-informed

decision-making. These governance frameworks ensure that decision-making remains aligned with both the strategic business objectives and OI priorities by bridging the gap between central leadership authority and decentralized innovation needs (Cheema & Rondinelli, 2007).

***H7c:** Corporate governance solutions significantly moderate the relationship between the Centralization of Decision-making and the adoption of open innovation strategies in Palestinian SMEs.*

## **Chapter Three: Methodology**

### **3.0 Introduction**

This chapter outlines the methodological strategy utilized in this research investigation. The document begins with an exposition of the research design and its justification, followed by a delineation of the chosen population and sampling methodologies. The chapter subsequently delineates the data-gathering methods, encompassing the instruments employed and the procedures adhered to. It subsequently elucidates the data analysis strategies employed to interpret the collected information. The study also addresses ethical considerations and procedures to assure validity and reliability.

### **3.1 Research Design**

The research design utilizes quantitative and cross-sectional methodology. This design decision aligns effectively with the study's objectives and conceptual framework, which seek to investigate the factors influencing open innovation strategies in Palestinian SMEs. It positions Antecedents as the independent variable, representing the drivers and barriers influencing the adoption of open innovation practices, Risks are integrated as moderating variables, highlighting the challenges and obstacles SMEs face during the implementation process, Corporate Governance Solutions function as moderating variables, offering mechanisms to address antecedents and enhance the open innovation strategies, the Open Innovation Strategy serves as the dependent variable, capturing the outcomes and overall success of these efforts.

Together, these components provide a comprehensive framework to examine the interplay between antecedents, risks, and governance solutions in shaping the adoption of open innovation strategies in the SME context.

A quantitative methodology is especially suitable for this research as it facilitates testing defined hypotheses and analyzing correlations among variables through statistical methods (Myers et al., 2013). Furthermore, it is optimal as it enables the collection and analysis of substantial data volumes, promoting objective measurement and hypothesis testing (Ghanad, 2023).

The cross-sectional strategy, entailing data collection at a singular moment, is very appropriate for our study for multiple reasons. This method entails gathering data from

the target population at a singular moment, enabling researchers to examine the correlations between variables without necessitating prolonged data collection (Setia, 2016). The cross-sectional technique is pragmatic and viable, facilitating data gathering from several organizations across various sectors within a realistic schedule and budget (Jesson, 2001). This is especially significant considering the study's objective to offer a thorough perspective on open innovation strategies across diverse business kinds and sizes.

### **3.2 Study Population and Settings**

The target audience for this study consists of Small, and Medium Enterprises (SMEs) functioning in Palestine, particularly in the West Bank. Studies consistently highlight the importance of SMEs and their crucial contribution to the economy, as they represent over 90% of all enterprises in several countries (Mujahed et al., 2022). SMEs are integral to the Palestinian economy, constituting more than 98% of all enterprises and making substantial contributions to employment and economic development (Makkawi, 2023).

According to the PCBS (2018) Population, Housing, and Establishments Census, Palestine has 142,383 economic firms, comprising 13.5% in the industrial sector, 54.9% in the domestic trade sector, and 31.0% in the service sector. 0.6% in the construction sector. These firms employ up to 424,852 individuals. Economic businesses, categorized by size, consist of small enterprises (96%), medium companies (2.6%), and large enterprises (1.4%). Many social enterprises are family-owned. Many of these exhibit low production or operate seasonally. Merely 137 economic businesses employ more than 100 individuals (MOL, 2025).

By the conclusion of 2023, the projected population of Palestine was around 5.55 million, consisting of about 2.82 million males and 2.73 million females, resulting in a sex ratio of 103.2 males per 100 females (PCBS, 2023), as illustrated in Table 3.1.

PCBS (2023) As of mid-2023, the population of the West Bank of Palestine was estimated at 3.29 million, comprising around 1.68 million males and 1.62 million females, resulting in a sex ratio of 103.7 males for every 100 females. In the same year, the population of the Gaza Strip was estimated at 2.26 million, comprising 1.14 million males and 1.11 million females.

Table (3.1) Estimated Population in Palestine by Region and Sex, End-Year 2021-2023

<b>Year/Region</b>	<b>Females</b>	<b>Males</b>	<b>Both Sex</b>
Palestine	2,729,908	2,818,549	5,548,457
West Bank	1,616,150	1,675,256	3,291,406
Gaza Strip	1,113,758	1,143,293	2,257,051

Table 3.2 depicts the demographic distribution among Palestinian governorates. By the end of 2023, Hebron was the most populous city in the West Bank of Palestine, with an anticipated population of 832,702. Conversely, Jericho possessed the smallest population, estimated at 55,762. The chosen sample populations of Nablus, Ramallah, and Jenin totaled 1,165,760, accounting for 35.4% of the West Bank's population and 21% of Palestine's overall population (PCBS, 2023).

Table (3.2) Population of Palestine by governorate, end of 2023

<b>City</b>	<b>Population</b>	<b>City</b>	<b>Population</b>
Hebron	832,702	Deir al-Balah	323,425
Gaza	758,134	Rafah	279,135
Jerusalem	497,482	Bethlehem	356,405
North Gaza	451,451	Tylkarim	204,726
Khan Yunis	444,906	Qalqilya	128,385
Nablus	435,608	Salfit	86,890
Ramallah and Al-Bireh	373,747	Tubas and the Jordan Valley	69,502
Jenin	356,405	Jericho	55,762

### 3.3 The Palestinian SMEs Setting

The stratification was based on two key characteristics: enterprise size and location. For enterprise size, the sample was divided into small enterprises, and medium enterprises as follows:

Table (3.3) Westbank of Palestine governorate distribution regarding the location

<b>Small</b>	<b>Medium</b>	<b>Large</b>
Less than 19 employees	From 20 to 49 employees	More than 50 employees

The location stratification covers most of the Palestinian SMEs located in the West Bank, including the northern, central, and southern of the Westbank. Table 3.4 illustrates the West Bank of Palestine governorate distribution regarding the location.

Table (3.4) Westbank of Palestine governorate distribution regarding the location

<b>Governorate</b>	<b>Location</b>	<b>Number of Governorate</b>
Jenin	Northern of Westbank	6
Tylkarim		
Nablus		
Qalqilya		
Salfit		
Tubas		
Ramallah	Central of Westbank	3
Jericho		
Jerusalem		
Hebron	Southern of Westbank	2
Bethlehem		

Table 3.5 provides data on employment for Palestinians aged 15 and above revealing marked differences by region and gender. In the West Bank, overall employment stands at 84.3%, with males (86.8%) consistently more employed than females (73.0%). Governorates such as Jerusalem and Ramallah & Al-Bireh lead with high employment percentages of 93.5% and 90.2%, respectively, while areas like Bethlehem and Jenin report lower rates of 74.8% and 79.9% (PCBS, 2020).

Table (3.5) Percentage of Employed Persons Aged 15 Years and above from Palestine by Governorate and Sex, 2020

<b>Governorate</b>	<b>Male Employed Persons</b>	<b>Female Employed Persons</b>	<b>Total Employed Persons</b>	<b>Location</b>
Jenin	85.3%	53.1%	79.9%	Northern of Westbank
Tylkarim	88.7%	77.1%	86.2%	
Nablus	85.9%	72.6%	83.2%	
Qalqilya	91.6%	69.2%	87.5%	
Salfit	82.0%	67.7%	79.9%	
Tubas	90.0%	78.9%	87.6%	
Ramallah	91.1%	86.9%	90.2%	Central of Westbank
Jericho	87.0%	80.5%	85.4%	
Jerusalem	94.9%	85.7%	93.5%	
Hebron	84.2%	68.8%	81.4%	Southern of Westbank
Bethlehem	75.7%	71.3%	74.8%	

Based on the employment for Palestinians aged 15 and above reveals marked differences by region and gender and the demographic distribution among Palestinian governorates, the population sample is estimated as follows:

Table (3.6) Estimated Employed Person per Governorate

<b>Governorate</b>	<b>Total Employed Persons</b>	<b>Population</b>	<b>Estimated Employed Person</b>
Jenin	79.90%	356,405	284,768
Tylkarim	86.20%	204,726	176,474
Nablus	83.20%	435,608	362,426
Qalqilya	87.50%	128,385	112,337
Salfit	79.90%	86,890	69,425
Tubas	87.60%	69,502	60,884
Ramallah	90.20%	373,747	337,120
Jericho	85.40%	55,762	47,621
Jerusalem	93.50%	497,482	465,146
Hebron	81.40%	832,702	677,819
Bethlehem	74.80%	356,405	266,591

### 3.4 Study Sample

This cross-sectional, quantitative study of SMEs in the West Bank of Palestine encompassed all employees inside Palestinian SMEs to offer a holistic view across diverse organizational tiers. A stratified random sampling method was utilized to choose a suitable sample from this population. This strategy was selected for its capacity to encapsulate the variability of the SME sector while preserving randomness within each stratum (Shao et al., 2021).

A stratified random sampling method was chosen to ensure the sample accurately represented the diversity across various organizational tiers. The stratification was based on two critical factors: enterprise size and location, allowing the study to capture the inherent variability within the SME sector while maintaining randomness within each subgroup.

The recommended minimum sample size of 384 for the SME employees was determined while considering a marginal error of 5%, a confidence level of 95%, and an estimated response distribution of approximately 50% from the total employed persons of 424,852 in the Palestinian SMEs in West Bank. This calculation was performed using the following formula derived from the Raosoft® Application:

$$x = Z(C/100)^2 r(100-r)$$

$$n = N x / ((N-1)E^2 + x)$$

$$E = \text{Sqrt}[(N - n)x / n(N-1)]$$

**Where:**

- n is the sample size.
- N is the population size.
- Z is the Z-value (1.96 for 95% confidence level).
- r is the estimated proportion of the population (0.5 if unknown).
- E is the margin of error (alpha, 0.05).

### 3.4.1 Sampling Strategy and Sample Size Determination

The sampling strategy was meticulously designed to proportionally reflect the distribution of employed people across the West Bank's governorates. Each governorate's estimated sample size was determined by its share of the total employed population. For example, Jenin, accounting for 9.95% of the employed population, contributed an estimated 38 respondents, while Hebron, representing 23.69%, contributed 91 respondents. Other governorates such as Nablus (49), Tylkarim (24), Qalqilya (15), Salfit (9), Tubas (8), Ramallah (45), Jericho (6), Jerusalem (62), and Bethlehem (36) were similarly allocated, culminating in a total sample of 384 as shown in Table 3.7.

Table (3.7) Estimated Employed Persons and Sample Allocation by Governorate in the West Bank

<b>Governorate</b>	<b>Estimated Employed Person</b>	<b>% form Total Employed Person</b>	<b>Estimated Sample</b>
Jenin	284,768	9.95%	38
Tylkarim	176,474	6.17%	24
Nablus	362,426	12.67%	49
Qalqilya	112,337	3.93%	15
Salfit	69,425	2.43%	9
Tubas	60,884	2.13%	8
Ramallah	337,120	11.78%	45
Jericho	47,621	1.66%	6
Jerusalem	465,146	16.26%	62
Hebron	677,819	23.69%	91
Bethlehem	266,591	9.32%	36

This distribution was further refined by grouping governorates into distinct locations. Northern, Central Northern, and Southern Westbank with totals of 143, 114, and 127 respectively as presented in Table 3.8. This stratified approach, based on both enterprise size and geographic location, ensures that the sample accurately represents the diverse employment landscape within Palestinian SMEs.

Table (3.8) Distribution of Estimated Sample by Governorate Location in the West Bank

<b>Governorate</b>	<b>Estimated Sample</b>	<b>Location</b>	<b>Total</b>
Jenin	38		
Tylkarim	24		
Nablus	49	Northern of Westbank	143
Qalqilya	15		
Salfit	9		
Tubas	8		
Ramallah	45	Central of Westbank	114
Jericho	6		
Jerusalem	62		
Hebron	91	Southern of Westbank	127
Bethlehem	36		

### 3.4.2 SMEs in Palestine:

According to PCBS (2018), the total number of 100,041 SMEs, Palestinian companies, is presented in Table 3.9. The highest distribution number is for the companies employed from 1 to 4, with a number of 88,446, which is included in the small enterprise distribution.

Table (3.9): Number of Operating Establishments\* Companies in West Bank of Palestine by Main Economic Activity and Employment Size Group, 2017

ISIC	Economic Activity	Employment Size Group					فئات حجم العمالة		المجموع Total	النشاط الاقتصادي	رمز النشاط
		+100	99-50	49-20	19-10	9-5	4-1				
B	Mining and quarrying	0	3	10	42	139	103	297	التعدين واستغلال المناجم	باء	
C	Manufacturing	26	66	324	807	2,097	11,310	14,630	الصناعات التحويلية	جيم	
D	Electricity, gas, steam and air conditioning supply	4	4	8	6	5	19	46	إمدادات الكهرباء والغاز والبخر وتكييف الهواء	دال	
E	Water supply; sewerage, waste management and remediation activities	1	0	1	6	11	131	150	إمدادات المياه والنشطة الصرف الصحي وإدارة النفايات ومعالجتها	هاء	
F	Construction	7	6	44	69	115	335	576	الإشادات	واو	
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	10	26	187	474	2,155	51,257	54,109	تجارة الجملة والتجزئة (التجزئة) وإصلاح المركبات ذات المحركات والدراجات النارية	زاي	
H	Transportation and storage	0	5	50	106	220	514	895	النقل والتخزين	حاء	
I	Accommodation and food service activities	4	20	80	203	473	5,027	5,807	النشطة خدمات الإقامة والطعام	طاء	
J	Information and communication	7	13	33	66	88	381	588	المعلومات والاتصالات	ياء	
K	Financial and insurance activities	19	9	55	145	170	535	933	النشطة المالية والنشطة التأمين	كاف	
L	Real estate activities	0	1	8	11	23	248	291	النشطة العقارية	لام	
M	Professional, scientific and technical activities	1	3	29	90	362	3,122	3,607	النشطة المهنية والعلمية والتقنية	ميم	
N	Administrative and support service activities	4	5	21	27	82	1,175	1,314	نشطة الخدمات الإدارية والخدمات المساندة	نون	
O	Public administration and defence; compulsory social security	1	0	5	8	3	20	37	الإدارة العامة والدفاع والضمان الإجتماعي الإلزامي	سين	
P	Education	17	33	162	310	577	1,205	2,304	التعليم	عين	
Q	Human health and social work activities	22	9	59	154	255	3,945	4,444	النشطة صحة الإنسان والعمل الاجتماعي	فاء	
R	Arts, entertainment and recreation	0	2	22	97	239	1,536	1,896	الفنون والترفيه والتسلية	صاا	
S	Other service activities	1	11	61	100	327	7,520	8,020	النشطة الخدمات الأخرى	قاف	
T	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	0	0	0	0	0	1	1	نشطة الأسر المعيشية التي تستخدم أفراداً والنشطة الاسر المعيشية في إنتاج سلع وخدمات لاستخدامها الخاص	راء	
U	Activities of extraterritorial organizations and bodies	2	1	7	8	14	21	53	نشطة المنظمات والهيئات غير الإقليمية غير الخاضعة للولاية	شين	
	Not stated	0	0	0	0	2	41	43	غير مبين		
	<b>Total</b>	<b>126</b>	<b>217</b>	<b>1,166</b>	<b>2,729</b>	<b>7,357</b>	<b>88,446</b>	<b>100,041</b>	<b>المجموع</b>	<b>المجموع</b>	

\* Does not include Auxil. Activity Establishments

\* لا يشمل منشآت النشاط المساند

Two-thirds of the active establishments were situated in the West Bank. According to the findings of PCBS (2018), 108,488 establishments, accounting for two-thirds of the total, were in the West Bank, while the remaining 50,102 were in the Gaza Strip. The distribution of active establishments across the West Bank's governorates revealed that Hebron had the highest concentration, making up 24.7% of the total. Nablus followed in second place with 17.1%. In contrast, Jericho & Al-Aghwar and Tubas & Northern Valleys governorates recorded the lowest shares, at 1.5% and 1.9%, respectively as shown in Figure 3.1.

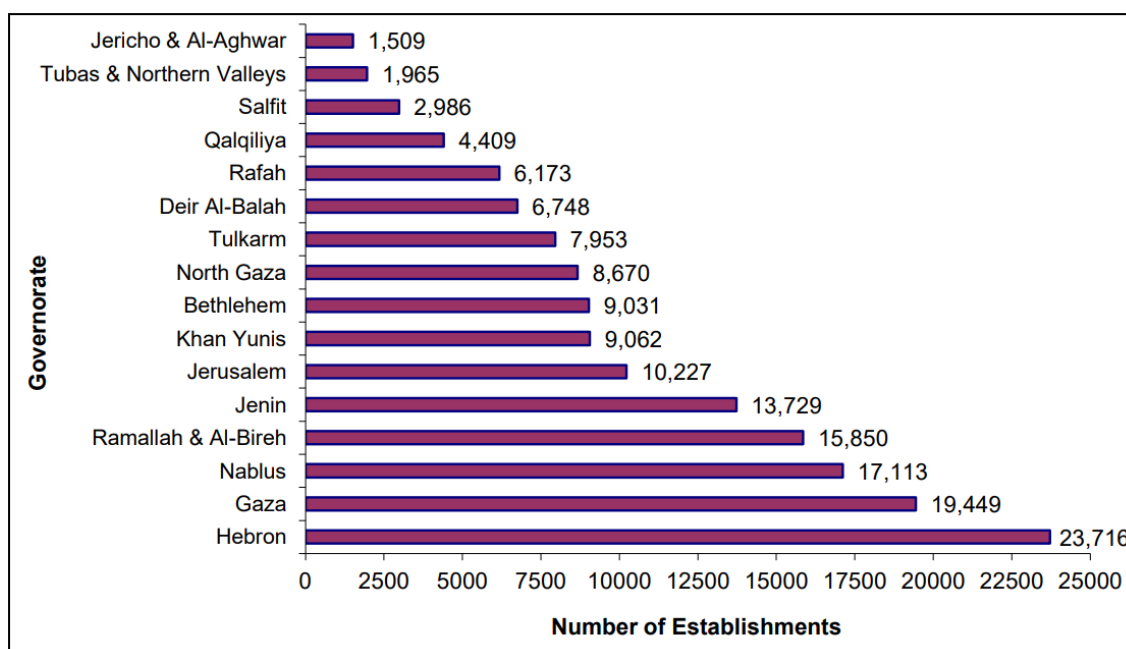


Figure (3.1) Number of Operating Establishments in Palestine by Governorate, 2017

Based on the number of operating establishments in Palestine by governorate (2017) in Figure 3.1 and the number of operating establishments companies in the West Bank of Palestine by main economic activity and employment size group (2017) in Table 3.9, the estimates stratified sample for the SMEs in the West Bank of Palestine according to governorates and location as the following:

Table (3.10) Number of SME employees according to governorates

Governorate	Number of SMEs	% of SMEs	Small	Medium
			Less than 19 employees	From 20 to 49 employees
Jenin	13,729	12.65%	12469	148
Tylkarim	7,953	7.33%	7223	85
Nablus	17,113	15.77%	15543	184
Qalqilya	4,409	4.06%	4004	47
Salfit	2,986	2.75%	2712	32
Tubas	1,965	1.81%	1785	21
Ramallah	15,850	14.61%	14395	170
Jericho	1,509	1.39%	1371	16
Jerusalem	10,227	9.43%	9288	110
Hebron	23,716	21.86%	21540	255
Bethlehem	9,031	8.32%	8202	97
<b>Total</b>	<b>108,488</b>	<b>100.00%</b>	<b>98532</b>	<b>1166</b>

Table 3.11 illustrates the number of stratified samples based on the SME's size and governorates in the West Bank of Palestine. Because the medium enterprise sample is very low, 10% of the total estimated sample allocated for the same and medium enterprise sample.

Table (3.11) Number of SMEs according to stratified sample size and governorates

Governorate	Estimated Sample	Small	Medium
		Less than 19 employees	From 20 to 49 employees
Jenin	38	34	4
Tylkarim	24	22	2
Nablus	49	44	5
Qalqilya	15	13	2
Salfit	9	8	1
Tubas	8	7	1
Ramallah	45	40	5
Jericho	6	5	1
Jerusalem	62	56	6
Hebron	91	82	9
Bethlehem	36	29	7
<b>Total</b>	<b>383</b>	<b>340</b>	<b>43</b>

### 3.5 Study Instruments

A structural digital survey questionnaire was created for this investigation. The questionnaire was originally constructed in English, utilizing known scales from pertinent research. A group of specialists evaluated the instrument to verify content validity. In response to their suggestions, essential adjustments were implemented to improve clarity and relevance. The participants from the chosen organizations received an electronic questionnaire through WhatsApp or email. The data collection period prolonged from the conclusion of April 2025 to the end of May 2025.

Since Arabic is the most spoken language in Palestine, the questionnaire was subsequently translated into Arabic using the back-translation approach to ensure semantic comparability. A multilingual expert translated the text from English to Arabic, followed by another bilingual expert translating it back to English. Discrepancies were addressed and rectified to guarantee precision and cultural relevance.

The resultant questionnaire was structured into sections, encompassing demographic data and other items employing a 5-point Likert scale to assess the fundamental constructs. The meticulous creation and translation procedure ensured that the instrument was culturally and linguistically equivalent to the target SME community in the West Bank of Palestine.

### **3.5.1 Instruments Layout**

The research utilizes survey data gathered from SMEs in diverse sectors within the West Bank of Palestine. The questionnaire consists of three primary sections, each intended to gather specific data about the participants:

**Section One:** provide clear instructions about the research and researcher, and how the participants navigate the questionnaire.

**Section Two:** The second segment of the structured questionnaire delineates the characteristics of respondents and firms to gather socio-demographic information. The profiles of the respondents encompass:

- Age of respondents,
- Gender: Male or Female,
- Educational level: nothing, high school, diploma degree, bachelor's degree, and master's or higher degree.
- Service Provider Sector: information technology, hospitality and tourism, financial services, insurance services, utilities and maintenance services, healthcare services, education and training services, manufacturing and engineering services, and retail and e-commerce services.
- Institution Location: northern west bank, central west bank, and southern west bank.
- Institution Operation: less than 2 years, from 3 to 6 years, from 7 to 10 years, and more than 10 years,
- Institution Size: Micro (less than 5 employees), small (from 5 to 19 employees), medium (from 20 to 49 employees), and large (more than 50 employees).

**Section Three:** Seventy-nine indicators employed across fifteen dimensions to assess the research variables, as illustrated in Table 3.12. In this portion, the researcher constructed a complete questionnaire consisting of four unique components, each based on existing studies to guarantee content validity and reliability. This comprehensive methodology facilitates a thorough analysis of the interconnections among antecedents, risk factors, corporate governance solutions, and the implementation of open innovation strategies in Palestinian SMEs.

**Antecedents Construct:** The initial segment utilizes 21 indications for assessing Antecedents, derived from Popa et al. (2017), Menon et al. (1997), and Y. Y. Chang et al. (2011) under three dimensions: Commitment-based HR Practices, Inter-departmental Connectedness, and Centralization of Decision-making.

**Risk Factors:** evaluated using 26 indicators categorized into six dimensions. These metrics were employed and validated by Subtil de Oliveira et al. (2018) and Dadfar et al. (2013). The six dimensions include: Internal Innovation Capability, Network and Relationships, Technology Management, Leadership, Strategy, and Culture.

**Corporate Governance Solutions** evaluated using 24 metrics categorized into four aspects. These metrics were employed and corroborated by Maharaj (2009a). The four dimensions encompass: Knowledge, Values, Groupthink, and Decision-making.

Table (3.12): Items for Measuring Constructs

Questionnaires	Dimensions	Indicators	Previous studies
<b>Antecedents</b>	Commitment-based HR Practices	10	Popa et al. (2017)
	Inter-departmental Connectedness	6	Menon et al. (1997)
	Centralization of Decision-making	5	Popa et al. (2017) & Chang et al. (2011)
	Leadership	4	
<b>Risk Factors</b>	Internal Innovation Capability	6	Subtil de Oliveira et al. (2018)
	Network and Relationships	4	
	Strategy	4	&
	Technology Management	4	Dadfar et al. (2013)
	Culture	4	
<b>Corporate Governance Solutions</b>	Knowledge	4	
	Values	6	Maharaj (2009)
	Groupthink	8	
	Decision-making	6	
<b>Open Innovation Strategies</b>	Inbound Practices	4	
	Outbound Practices	4	

### 3.6 Instrument Validity and Reliability

Reliability denotes consistency and stability of measurement throughout time, guaranteeing that the instrument accurately represents the variables it is designed to assess (Meyer, 2010). This study evaluate reliability by Cronbach's alpha, a prevalent statistical metric for assessing the internal consistency of items or scores in a questionnaire. Cronbach's alpha estimates the degree of positive correlation among items within a specific construct (Cronbach, 1951).

Cronbach's Alpha Coefficient: The dependability measurement scale often spans from 0 to 1. A Cronbach's alpha of 0.70 or higher is deemed acceptable for indicating sufficient internal consistency (Nunally & Bernstein, 1994). This indicates that the elements inside the same construct (Antecedents, Risk Factors, Corporate Governance Solutions, and Open Innovation Strategies) are assessing the same fundamental notion. An alpha coefficient below 0.70 indicates insufficient correlation among the scale items, necessitating potential modifications to the questionnaire items. A Cronbach's alpha of 0.90 or above signifies exceptional reliability, indicating that the items exhibit substantial

internal consistency and are closely interconnected, which is advantageous for constructs that are extremely particular and well-defined (Sharma, 2016).

The alpha coefficient computed for each main variable in the study (Antecedents, Risk Factors, Corporate Governance Solutions, and Open Innovation Strategies) to verify the reliability of the scales. Should the results demonstrate low reliability, a thorough examination of individual items undertaken, including the removal or revision of underperforming items. This guarantee that the questionnaire yields dependable and precise data for future analysis.

Validity, as defined by Cook and Beckman (2006), pertains to the extent to which an instrument accurately measures its intended construct. It pertains to the precision and suitability of the instrument in assessing the constructs that the researcher wants to investigate. Content validity for this research was established through the involvement of a panel of experts.

The researcher interviewed four experts to evaluate the content validity of the questionnaire. These comprised two specialists in strategic management and two academic authorities in research techniques, including a statistician. The experts offered critiques regarding the format, content, and clarity of the questionnaire items. Their ideas were meticulously incorporated to enhance the instrument, guaranteeing precise measurement of the targeted variables across many domains, including Antecedents, Risk Factors, Corporate Governance Solutions, and Open Innovation Strategies.

The construct validity of the questionnaire assessed via Convergent Validity and Discriminant Validity. Convergent validity was assessed by the Average Variance Extracted (AVE). Discriminant validity was evaluated utilizing the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio.

### **3.7 Ethical Consideration**

Maintaining the ethical integrity of this investigation was a paramount concern. The study complied with the ethical principles set forth by the Arab American University to guarantee that all procedures conformed to established research standards. Ethical approval secured from the university's ethics committee before the initiation of data collection to ensure compliance with ethical standards.

The questionnaire commenced with a detailed information sheet delineating the study's aim, objectives, and importance. This supplied to all participants to assist them in

making an educated decision regarding their participation. The information page indicated that participation was optional, and participants retained the opportunity to resign from the study at any point without facing any adverse consequences.

To safeguard the confidentiality and privacy of participants, no personally identifiable information, including names or personal data, was gathered. Participants were guaranteed that their responses would be confidential and that no unauthorized persons would access the data. All acquired data were securely saved on a password-protected computer, accessible solely to the researcher and their supervisor.

The study also complied with the principle of non-maleficence, guaranteeing that no harmful physical, emotional, or professional befall the participants. The questionnaire was meticulously crafted to exclude any sensitive or intrusive subjects that can induce discomfort. The inquiries concentrated exclusively on the pertinent variables, including antecedents, risk factors, corporate governance solutions, and open innovation strategies.

### **3.8 Data Collection**

The data-gathering approach for this cross-sectional quantitative study aimed to obtain a thorough overview of the SME landscape in the West Bank of Palestine at a specific moment. A structured questionnaire, the principal data collection tool, was distributed to a stratified random sample of SMEs, estimated employed individuals, and SME size based on Governorate location in the West Bank of Palestine.

An online survey disseminated by email and WhatsApp. The Arabic questionnaire mostly comprised closed-ended questions utilizing Likert scales to assess the constructs. Demographic data was gathered to facilitate subgroup analyses. The data collection period was confined to an eight-week interval to maintain the study's cross-sectional design, ensuring all responses were representative of the same temporal context.

Data collection occurred concurrently across many geographical regions and industry sectors to mitigate potential confounding variables. This method facilitated a thorough, quantitative evaluation of the SME sector, encompassing variances across diverse organizational levels and business attributes while preserving the integrity of the cross-sectional design.

### 3.9 Data Analysis

The data analysis for this study conducted using a series of quantitative techniques to provide a comprehensive understanding of the relationships between antecedents, risk factors, corporate governance solutions, and open innovation strategies. These methods include descriptive statistics, reliability testing, correlation analysis, and structural equation modeling (SEM), ensuring a robust examination of hypothesized relationships.

#### 3.9.1 Descriptive Statistics

The initial stage of the analysis involves the computation of descriptive statistics, including means, standard deviations, frequencies, and percentages for all demographic data and key study variables. This step provides an overview of the participant's characteristics, such as age, gender, and educational level. Also, the overview of the institution profile, such as the service provider sector, institution location, institution operation, and institution size. Additionally, it highlights trends or patterns in the data related to antecedents, risk factors, corporate governance solutions, and open innovation strategies, offering valuable insights into the general distribution of responses.

#### 3.9.2 Measurement Model Evaluation

The evaluation of the measurement model was conducted to confirm that the observed variables accurately represent the underlying constructs. This process involved three key stages:

- **Internal Consistency Reliability:** Internal consistency was assessed using Cronbach's alpha and Composite Reliability (CR). Cronbach's alpha values of 0.70 or higher were considered acceptable, while CR values exceeding 0.70 indicated strong reliability. This step ensured that the items within each construct (e.g., antecedents, risk factors, corporate governance solutions, and open innovation strategies) consistently measured the same underlying concept (Hair Jr et al., 2010).
- **Convergent Validity:** Convergent validity was evaluated using the Average Variance Extracted (AVE). An AVE value of 0.50 or higher was considered indicative of sufficient convergence, meaning that the items within each construct shared a substantial amount of variance. This confirmed that the indicators reliably represented their respective latent variables (Hair Jr et al., 2014).

- **Discriminant Validity:** Discriminant validity was assessed using the Fornell-Larcker criterion and Heterotrait-Monotrait (HTMT) ratio. The Fornell-Larcker criterion ensured that the square root of the AVE for each construct was greater than its correlations with other constructs. HTMT values below 0.85 further confirmed discriminant validity, indicating that constructs were distinct from one another (Fornell & Larcker, 1981). The last Discriminant Validity step is to measure the cross-loading, which shows how each question or indicator loads onto various dimensions (Chin, 1998b).

### 3.9.3 Structural Model Evaluation

The structural model was assessed to examine the proposed links and ascertain the model's overall predictive capability. This encompassed four essential phases:

- **Indicator Collinearity:** The collinearity among indicators was evaluated utilizing the Variance Inflation Factor (VIF). A VIF value under 5 signifies that multicollinearity is not an issue, hence guaranteeing the stability and dependability of the structural route estimations (Fornell & Bookstein, 1982).
- **Coefficient of Determination ( $R^2$ ):** The R-squared ( $R^2$ ) value was computed to assess the model's explanatory capacity. Cohen (2013) regarded  $R^2$  values of 0.25, 0.50, and 0.75 as weak, moderate, and considerable, respectively, reflecting the extent to which the independent factors accounted for the variance in the dependent variables.
- **Predictive Relevance ( $Q^2$ ):** Predictive relevance was assessed using the Stone-Geisser  $Q^2$  test, which evaluates the model's ability to predict endogenous constructs. A  $Q^2$  value greater than 0 indicated that the model had predictive relevance, confirming its usefulness for forecasting outcomes related to open innovation strategies (Hair Jr et al., 2017).
- **Effect Size ( $f^2$ ):** The f-squared ( $f^2$ ) analysis was performed to assess the effect size of each independent variable on the dependent variables. Values of 0.02, 0.15, and 0.35 were classified as small, medium, and large effect sizes, respectively, elucidating the relative significance of each predictor (Cohen, 1992).

### 3.9.4 Hypotheses Testing

The importance of direct, indirect, and total effects in the structural model assessed by standardized regression weights (beta coefficients) and p-values. A p-value

below 0.05 signifies statistically significant correlations between the variables. The moderating impacts of risk factors and corporate governance solutions evaluated using the bootstrapping method to validate their roles in connecting antecedent factors to open innovation (Hair Jr et al., 2017).

## **Chapter Four: Result**

### **4.0 Introduction**

This chapter presents the results of the statistical analysis conducted to examine the influence of Antecedents on the Open Innovation Strategy in Palestinian SMEs, with particular focus on the moderating roles of Risks and Corporate Governance Solutions in this relationship. The chapter is organized as follows: it begins with an overview of the respondents' demographic profiles to provide context for the sample characteristics. This is followed by a comprehensive evaluation of the measurement model, including assessments of reliability, convergent validity, discriminant validity, and model fit indices. The chapter concludes with an analysis of the structural model, highlighting both the direct effects and the moderating effects of Risks and Corporate Governance Solutions on the proposed relationships. Hypothesis testing is conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM).

### **4.1 Characteristics of Respondents**

A total of 384 respondents participated in the survey, representing a diverse range of backgrounds, roles, and organizational contexts within Palestinian SMEs.

Gender distribution among participants showed a predominance of male respondents, accounting for 53.4%, while females constituted 46.6% of the sample. In terms of age, the largest group (37.8%) fell within the 21 to 30 years age range, followed by 35.9% aged 31 to 40 years. Those under 20 years represented 5.5%, and participants over 40 years made up 20.8%, indicating a workforce largely composed of young to middle-aged professionals.

Regarding educational qualifications, a significant majority (71.4%) held a bachelor's degree. Respondents with master's or higher degrees and those with diploma degrees each constituted 9.9%, while only 3.4% had completed high school, and 5.5% reported having no formal qualifications. This suggests that most respondents are well-educated, aligning with the skill requirements often associated with innovation-driven sectors.

The distribution across service provider sectors highlighted that Manufacturing and Engineering Services were the most represented (27.6%), followed by Insurance Services (22.4%), and Retail and E-commerce Services (11.2%). Other sectors included

Healthcare, Education and Training (each 8.6%), Financial Services (6.8%), Utilities and Maintenance (6.0%), Hospitality and Tourism (5.2%), and Information Technology (3.6%). This sectoral diversity provides a broad view of innovation practices across different industries.

From a geographical perspective, respondents were distributed relatively evenly: 37.5% from the Northern West Bank, 33.1% from the Southern West Bank, and 29.4% from the Central West Bank. This regional coverage ensures a representative understanding of SMEs across the territory.

When examining institutional characteristics, the data revealed that 88.8% of respondents were from small enterprises (less than 19 employees), while 11.2% were from medium-sized institutions (20–29 employees). Most of these institutions had been operational for more than 3 years, with 29.4% in operation for 3 to 6 years, 24.2% for 7 to 10 years, and 26.8% for more than 10 years. Only 19.5% had been in operation for less than 2 years.

Table (4.1) Demographic variables of respondents' analysis

<b>Variables</b>	<b>Options</b>	<b>Frequency</b>	<b>Valid Percentage%</b>
<b>Gender</b>	Male	205	53.4%
	Female	179	46.6%
<b>Age</b>	Less than 20 years old	21	5.5%
	From 21 to 30 years old	145	37.8%
	From 31 to 20 years old	138	35.9%
	More than 20 years old	80	20.8%
<b>Education Degree</b>	Nothing	21	5.5%
	High School	13	3.4%
	Diploma Degree	38	9.9%
	Bachelor's Degree	274	71.4%
	Master's or Higher Degree	38	9.9%
<b>Service Provider Sector</b>	Information Technology	14	3.6%
	Hospitality and Tourism	20	5.2%
	Financial Services	26	6.8%
	Insurance Services	86	22.4%
	Utilities and Maintenance Services	23	6.0%

	Healthcare Services	33	8.6%
	Education and Training Services	33	8.6%
	Manufacturing and Engineering Services	106	27.6%
	Retail and E-commerce Services	43	11.2%
<b>Institution Location</b>	Northern West Bank	144	37.5%
	Central West Bank	113	29.4%
	Southern West Bank	127	33.1%
<b>Institution Operation</b>	Less than 2 years	75	19.5%
	From 3 to 6 years	113	29.4%
	From 7 to 10 years	93	24.2%
	More than 10 years	103	26.8%
<b>Institution Size</b>	Small (Less than 19 employees)	341	88.8%
	Medium (From 20 to 29 employees)	43	11.2%
<b>Total</b>		384	100.0%

## 4.2 Descriptive Statistics

This section provides an overview of the respondents' perceptions toward the constructs explored in the study, using descriptive statistical analysis. The data were measured using a 5-point Likert scale, where responses ranging from 1 to 2.9 were classified as reflecting a low level of agreement, 3 to 3.9 as a moderate level, and 4 to 5 as a high level of agreement.

Descriptive statistics specifically mean scores and standard deviations have been calculated to analyze the general trends in the responses for the constructs: Antecedents (ANT), Risk Factors (RF), Corporate Governance Solutions (CGS), and Open Innovation Strategies (OIS). These statistics establish an initial view of what the perception and level of engagement of Palestinian SMEs might be toward each dimension.

Full details are provided in Tables 4.2-4.5 of the responses sorted into positive, neutral, and negative categories for each construct and its dimensions. Such a representation provides a clearer picture highlighting which dimensions are strongly perceived by the respondents and which dimensions may pose some challenges or uncertainties to respondents. Understanding such parameters is crucial in interpreting the preparedness and capability of SMEs in Palestine to implement and sustain strategies for open innovation.

#### **4.2.1 Antecedent (ANT)**

Table 4.2 illustrates the descriptive statistical analysis of the Antecedent (ANT) construct, encompassing three primary dimensions: Commitment-based HR Practices (CBHR), Inter-departmental Connectedness (IDC), and Centralization of Decision-making (CDM). The overall construct revealed a high level of agreement, with a mean score of 4.057, a standard deviation of 0.645, and a positive response rate of 92.6%. These results underscore the respondents' strong consensus regarding the antecedents necessary to support open innovation in Palestinian SMEs.

- **Commitment-based HR Practices (CBHR)**

The CBHR dimension scored an overall mean of 4.066 (Std. = 0.685), with 90.6% of responses classified as positive. Most items in this dimension received high levels of agreement, with Q3 (Mean = 4.201, Std. = 0.599) and Q2 (Mean = 4.159, Std. = 0.581) achieving the highest positive response rates of 96.4% and 95.8%, respectively. These indicate strong perceptions of strategic HR alignment with innovation goals. However, slightly lower levels were observed in Q8 (Mean = 3.945) and Q6 (Mean = 3.997), which received positive response rates of 79.9% and 81.0%, respectively, suggesting areas for potential improvement in employee engagement and consistent HR practices across all units.

- **Inter-departmental Connectedness (IDC)**

The IDC dimension demonstrated strong performance across all indicators, with an overall mean of 4.076 and a positive response rate of 93.6%. The highest agreement was recorded for Q15 (Mean = 4.167, Std. = 0.539) and Q16 (Mean = 4.138, Std. = 0.564), with positive responses exceeding 95%. These results suggest that most departments in the surveyed SMEs maintain effective coordination and communication, which are vital for fostering innovation. The relatively consistent responses across this dimension reflect a robust level of organizational integration.

- **Centralization of Decision-making (CDM)**

The CDM dimension also exhibited high levels of agreement, with an overall mean of 4.029 and positive responses at 93.5%. The highest mean score in this dimension

was Q17 (Mean = 4.133, Std. = 0.565), while Q18 (Mean = 3.969) and Q20 (Mean = 3.956) had slightly lower scores, categorized as medium-level agreement. These findings imply that, although decision-making tends to be centralized, there is general satisfaction with leadership processes, though some flexibility and decentralization may further enhance innovation responsiveness.

Table (4.2) Antecedent Components, Dimensions, and Indicators: Mean, Standard Deviation, and Percentage

Construct	Q.#	Mean	Std.	% of Negative response	% of Neutral	% of Positive response	Level of Agreement
<b>CBHR</b>	Q1	4.112	0.587	1.8%	4.4%	93.8%	Medium
	Q2	4.159	0.581	1.8%	2.3%	95.8%	High
	Q3	4.201	0.599	2.3%	1.3%	96.4%	High
	Q4	4.221	0.626	2.1%	3.1%	94.8%	High
	Q5	4.034	0.679	5.7%	1.0%	93.2%	High
	Q6	3.997	0.760	3.4%	15.6%	81.0%	Medium
	Q7	3.971	0.702	5.2%	4.9%	89.8%	Medium
	Q8	3.945	0.842	6.0%	14.1%	79.9%	Medium
	Q9	4.034	0.716	6.0%	2.9%	91.1%	High
	Q10	3.982	0.752	8.1%	1.8%	90.1%	Medium
	<b>Overall</b>	4.066	0.685	4.2%	5.2%	90.6%	High
<b>IDC</b>	Q11	4.010	0.701	5.5%	5.2%	89.3%	High
	Q12	4.023	0.687	5.2%	2.9%	91.9%	High
	Q13	4.003	0.632	5.2%	1.0%	93.8%	High
	Q14	4.115	0.567	1.8%	3.9%	94.3%	High
	Q15	4.167	0.539	1.6%	1.3%	97.1%	High
	Q16	4.138	0.564	1.8%	2.9%	95.3%	High
		<b>Overall</b>	4.076	0.615	3.5%	2.9%	93.6%
<b>CDM</b>	Q17	4.133	0.565	1.6%	3.9%	94.5%	High
	Q18	3.969	0.599	4.2%	2.3%	93.5%	Medium
	Q19	4.031	0.692	4.9%	0.5%	94.5%	High

Q20	3.956	0.647	4.7%	2.9%	92.4%	Medium
Q21	4.055	0.678	4.2%	3.1%	92.7%	High
<b>Overall</b>	<b>4.029</b>	<b>0.636</b>	<b>3.9%</b>	<b>2.6%</b>	<b>93.5%</b>	<b>High</b>
<b>ANT</b>	<b>4.057</b>	<b>0.645</b>	<b>3.9%</b>	<b>3.5%</b>	<b>92.6%</b>	<b>High</b>

#### 4.2.2 Risk Factors (RF)

Table 4.3 presents the descriptive statistics for the Risk Factors (RF) construct, which encompasses six key dimensions: Leadership (LED), Internal Innovation Capability (IIC), Network and Relationships (NR), Strategy (STR), Technology Management (TM), and Culture (CUL). The overall mean score for the RF construct was 4.067, with a standard deviation of 0.641 and a positive response rate of 92.2%, reflecting a high level of agreement among respondents regarding the risk-related variables affecting open innovation strategies.

- **Leadership (LED)**

The Leadership dimension achieved a high overall mean of 4.135 (Std. = 0.579), with 94.7% of responses categorized as positive. The indicators consistently scored high, particularly Q24 (Mean = 4.143, Std. = 0.529) with a remarkable 97.7% positive response rate. These results suggest that leadership within Palestinian SMEs is viewed as supportive of innovation and capable of effectively managing associated risks.

- **Internal Innovation Capability (IIC)**

This dimension also exhibited strong results, with an overall mean of 4.118 (Std. = 0.578) and 94.1% positive responses. Items such as Q29 (Mean = 4.216) and Q28 (Mean = 4.143) highlight the organizations' confidence in their ability to internally generate and manage innovation. However, Q31 (Mean = 4.055) displayed a slightly lower positive response rate (89.1%) and a relatively higher level of neutral feedback (7.6%), indicating that some SMEs may still face challenges in maintaining a consistent innovation capacity.

- **Network and Relationships (NR)**

The NR dimension received an overall mean of 4.077 (Std. = 0.708), with 89.4% positive responses. While Q32 and Q33 performed strongly (Means of 4.193 and 4.135 respectively), Q34 registered a lower mean of 3.901 and a notable 22.1% neutral response

rate, suggesting uncertainty or variability in the quality or effectiveness of external partnerships and networks.

- **Strategy (STR)**

The STR dimension reflected a slightly lower agreement level, with an overall mean of 3.930 (Std. = 0.668) and 87.6% positive responses, placing it at the upper end of the "moderate" agreement range. Particularly, Q37 (Mean = 3.776) and Q39 (Mean = 3.909) showed reduced levels of confidence in strategic alignment with innovation, indicating that while SMEs recognize the importance of strategic planning, execution may vary across firms.

- **Technology Management (TM)**

With an overall mean of 4.099 (Std. = 0.603) and 95.8% positive responses, the Technology Management dimension emerged as one of the strongest areas. High mean scores for all indicators, particularly Q42 (Mean = 4.117) and Q43 (Mean = 4.125) reflect confidence in the use and management of technology to support innovation efforts.

- **Culture (CUL)**

The Culture dimension also demonstrated a high level of agreement, with an overall mean of 4.045 (Std. = 0.709) and 91.7% positive responses. Although most indicators scored well, Q47 (Mean = 3.914) showed a higher negative response rate (6.5%) and a slightly lower positive response (91.4%), indicating that organizational culture may still pose barriers in some cases, particularly concerning risk tolerance and innovation readiness.

Table (4.3) Risk Factors: Mean, Standard Deviation, and Percentage

<b>Construct</b>	<b>Q.#</b>	<b>Mean</b>	<b>Std.</b>	<b>% of Negative response</b>	<b>% of Neutral</b>	<b>% of Positive response</b>	<b>Level of Agreement</b>
	Q22	4.109	0.616	1.6%	7.0%	91.4%	High
	Q23	4.125	0.560	1.3%	3.9%	94.8%	High
<b>LED</b>	Q24	4.143	0.529	1.6%	0.8%	97.7%	High
	Q25	4.164	0.610	1.8%	3.1%	95.1%	High
	<b>Overall</b>	4.135	0.579	1.6%	3.7%	94.7%	High

	Q26	4.068	0.546	2.1%	3.9%	94.0%	High
	Q27	4.109	0.549	1.8%	3.1%	95.1%	High
	Q28	4.143	0.553	1.6%	2.9%	95.6%	High
<b>IIC</b>	Q29	4.216	0.585	1.3%	3.1%	95.6%	High
	Q30	4.115	0.528	1.3%	3.4%	95.3%	High
	Q31	4.055	0.708	3.4%	7.6%	89.1%	High
	<b>Overall</b>	4.118	0.578	1.9%	4.0%	94.1%	High
	Q32	4.193	0.685	3.4%	0.8%	95.8%	High
	Q33	4.135	0.656	3.6%	0.8%	95.6%	High
<b>NR</b>	Q34	3.901	0.805	3.9%	22.1%	74.0%	Medium
	Q35	4.078	0.685	3.6%	4.2%	92.2%	High
	<b>Overall</b>	4.077	0.708	3.6%	7.0%	89.4%	High
	Q36	4.047	0.665	3.6%	3.4%	93.0%	High
	Q37	3.776	0.738	4.2%	22.1%	73.7%	Medium
<b>STR</b>	Q38	3.990	0.638	4.4%	1.3%	94.3%	Medium
	Q39	3.909	0.630	5.5%	5.2%	89.3%	Medium
	<b>Overall</b>	3.930	0.668	4.4%	8.0%	87.6%	Medium
	Q40	4.044	0.532	2.6%	1.0%	96.4%	High
	Q41	4.109	0.641	3.1%	1.6%	95.3%	High
<b>TM</b>	Q42	4.117	0.629	2.9%	1.3%	95.8%	High
	Q43	4.125	0.609	2.3%	2.1%	95.6%	High
	<b>Overall</b>	4.099	0.603	2.7%	1.5%	95.8%	High
	Q44	4.026	0.778	5.5%	3.1%	91.4%	High
	Q45	4.141	0.792	5.2%	4.2%	90.6%	High
<b>CUL</b>	Q46	4.099	0.583	1.8%	4.7%	93.5%	High
	Q47	3.914	0.682	6.5%	2.1%	91.4%	Medium
	<b>Overall</b>	4.045	0.709	4.8%	3.5%	91.7%	High
<b>RF</b>		4.067	0.641	3.2%	4.6%	92.2%	High

### 4.2.3 Corporate Governance Solutions (CGS)

Table 4.4 presents a detailed analysis of the Corporate Governance Solutions (CGS) construct, composed of four dimensions: Knowledge (KNW), Values (VAL), Groupthink (GRT), and Decision-making (DM). The overall CGS construct demonstrated a high level of agreement, with a mean score of 4.135, a standard deviation of 0.585, and a positive response rate of 96.5%. These findings indicate a robust alignment among respondents on the governance practices essential for fostering open innovation in Palestinian SMEs.

- **Knowledge (KNW)**

The Knowledge dimension recorded an overall mean of 4.075 (Std. = 0.634), with 93.9% positive responses, indicating a high level of agreement. While Q48 (Mean = 3.984) was rated as a "medium" agreement, the remaining items scored in high range. Q51 (Mean = 4.112) had the strongest agreement, with a 96.1% positive response rate. These findings suggest that SMEs value knowledge-sharing systems and understand their importance in enhancing innovation capability, though there may be slight variability in knowledge infrastructure quality across organizations.

- **Values (VAL)**

The Values dimension emerged as one of the strongest within the CGS construct, with an overall mean of 4.153 (Std. = 0.566) and a remarkably high positive response rate of 97.4%. All indicators showed high levels of agreement, particularly Q56 and Q57, which reported the highest positive response rates (98.2% and 98.4%, respectively). These results demonstrate that ethical standards, shared values, and cultural norms are well embedded within the governance frameworks of these firms, reinforcing collective alignment in decision-making and strategic direction.

- **Groupthink (GRT)**

This dimension also showed consistently high agreement across all eight indicators, with an overall mean of 4.159 (Std. = 0.554) and 97.6% positive responses. High scores were noted across the board, especially Q62 to Q64, each exceeding a 98.2% positive response rate. Even Q65, which had the lowest score within this dimension (Mean = 4.049), still maintained a 93.2% positive response. These results imply that

respondents acknowledge the potential risks of groupthink but also recognize the safeguards in place to manage consensus-driven environments effectively.

- **Decision-making (DM)**

Decision-making capabilities within the surveyed SMEs were also highly rated, achieving an overall mean of 4.154 (Std. = 0.587) with 97.0% positive responses. Notably, Q68 and Q69 reported the highest agreement levels, with positive response rates of 97.9% and 98.2%, respectively. This indicates strong confidence in the governance mechanisms used to support informed and collaborative decision-making, a crucial enabler of open innovation practices.

Table (4.4) Corporate Governance Solutions Dimensions and Indicators: Mean, Standard Deviation, and Percentage

Construct	Q.#	Mean	Std.	% of Negative response	% of Neutral	% of Positive response	Level of Agreement
<b>KNW</b>	Q48	3.984	0.658	4.4%	2.1%	93.5%	Medium
	Q49	4.089	0.589	2.1%	4.7%	93.2%	High
	Q50	4.115	0.644	2.6%	4.7%	92.7%	High
	Q51	4.112	0.643	3.1%	0.8%	96.1%	High
	<b>Overall</b>	4.075	0.634	3.1%	3.1%	93.9%	High
<b>VAL</b>	Q52	4.185	0.578	1.8%	0.5%	97.7%	High
	Q53	4.057	0.543	2.3%	1.8%	95.8%	High
	Q54	4.180	0.671	3.4%	0.3%	96.4%	High
	Q55	4.193	0.559	1.6%	0.8%	97.7%	High
	Q56	4.151	0.524	1.6%	0.3%	98.2%	High
	Q57	4.154	0.521	1.6%	0.0%	98.4%	High
<b>Overall</b>	4.153	0.566	2.0%	0.6%	97.4%	High	
<b>GRT</b>	Q58	4.154	0.536	1.8%	0.0%	98.2%	High
	Q59	4.083	0.466	1.6%	0.0%	98.4%	High
	Q60	4.130	0.515	1.6%	0.5%	97.9%	High

	Q61	4.125	0.511	1.6%	0.5%	97.9%	High
	Q62	4.240	0.569	1.6%	0.0%	98.4%	High
	Q63	4.240	0.583	1.8%	0.0%	98.2%	High
	Q64	4.247	0.577	1.6%	0.3%	98.2%	High
	Q65	4.049	0.678	4.9%	1.8%	93.2%	High
	<b>Overall</b>	4.159	0.554	2.1%	0.4%	97.6%	High
<b>DM</b>	Q66	4.021	0.582	3.9%	0.3%	95.8%	High
	Q67	4.185	0.591	2.3%	0.5%	97.1%	High
	Q68	4.268	0.608	2.1%	0.0%	97.9%	High
	Q69	4.201	0.563	1.8%	0.0%	98.2%	High
	Q70	4.130	0.595	2.9%	0.3%	96.9%	High
	Q71	4.117	0.582	2.9%	0.8%	96.4%	High
	<b>Overall</b>	4.154	0.587	2.6%	0.3%	97.0%	High
<b>CGS</b>		4.135	0.585	2.4%	1.1%	96.5%	High

#### 4.2.4 Open Innovation Strategies (OIS)

Table 4.5 presents the descriptive statistics for the Open Innovation Strategies (OIS) construct, which are divided into two dimensions: Inbound Practices (IP) and Outbound Practices (OP). The overall OIS construct demonstrated a high level of agreement, with a mean score of 4.118, a standard deviation of 0.615, and a positive response rate of 95.3%. These results highlight the strong alignment of respondents regarding the importance and implementation of open innovation strategies in their organizations.

- **Inbound Practices (IP)**

The Inbound Practices dimension received an overall mean of 4.126 (Std. = 0.577), with a positive response rate of 96.4%, reflecting high agreement. All four items scored well above the threshold for high agreement. The highest-rated item was Q75, with a mean of 4.208 (Std. = 0.553) and a positive response rate of 98.4%, indicating widespread adoption of external ideas and technologies into organizational processes. Similarly, Q73 (Mean = 4.203) and Q74 (Mean = 4.060) showed strong support, with more than 95% of respondents acknowledging their relevance. These findings suggest

that SMEs in Palestine are effectively leveraging external knowledge and innovation sources to enhance internal capabilities.

- **Outbound Practices (OP)**

The Outbound Practices dimension also reflected strong agreement, with an overall mean score of 4.111 (Std. = 0.653) and a positive response rate of 94.1%. The highest agreement was found in Q77 (Mean = 4.258), showing that many SMEs are actively engaging in sharing innovations or technology externally, such as through licensing or collaboration. Q76 and Q78 also demonstrated high agreement, each exceeding 94% positive responses. However, Q79 (Mean = 3.966) had the lowest mean in this dimension and the highest negative response rate (5.7%), indicating that while outbound practices are widely accepted, some firms may be less consistent in their external innovation-sharing strategies.

Table (4.5) Open Innovation Strategies Dimensions and Indicators: Mean, Standard Deviation, and Percentage

Construct	Q.#	Mean	Std.	% of Negative response	% of Neutral	% of Positive response	Level of Agreement
<b>IP</b>	Q72	4.031	0.599	3.4%	2.3%	94.3%	High
	Q73	4.203	0.569	1.8%	0.3%	97.9%	High
	Q74	4.060	0.586	3.1%	1.8%	95.1%	High
	Q75	4.208	0.553	1.6%	0.0%	98.4%	High
	<b>Overall</b>	4.126	0.577	2.5%	1.1%	96.4%	High
<b>OP</b>	Q76	4.086	0.605	3.4%	0.3%	96.4%	High
	Q77	4.258	0.661	2.3%	2.9%	94.8%	High
	Q78	4.135	0.632	2.9%	2.3%	94.8%	High
	Q79	3.966	0.713	5.7%	3.6%	90.6%	Medium
	<b>Overall</b>	4.111	0.653	3.6%	2.3%	94.1%	High
<b>OIS</b>		4.118	0.615	3.0%	1.7%	95.3%	High

### 4.3 Evaluation of the Study Model

The evaluation of the study model was conducted through a structured approach, beginning with the assessment of data normality and followed by a two-step analysis framework: evaluation of the measurement model and the structural model. The measurement model assessment aimed to establish the reliability and validity of the constructs through three key stages: internal consistency reliability, convergent validity,

and discriminant validity. The structural model was then assessed to test the research hypotheses using four essential metrics: indicator multicollinearity, coefficient of determination ( $R^2$ ), predictive relevance ( $Q^2$ ), and effect size ( $f^2$ ).

This methodical approach ensures the robustness of the data analysis and supports accurate interpretation of the relationships among Antecedents (ANT), Risk Factors (RF), Corporate Governance Solutions (CGS), and Open Innovation Strategies (OIS) within Palestinian SMEs.

#### **4.3.1 Data Normality Evaluation**

To examine the normality of the data, both graphical and statistical methods were employed, focusing on skewness, kurtosis, and formal normality tests: the Kolmogorov-Smirnov and Shapiro-Wilk tests. Based on the thresholds set by Kim (2013) skewness values within  $\pm 2.0$  and kurtosis values below 7.0 are considered acceptable for assuming normality in a dataset.

Most variables exhibited skewness and kurtosis values that fell within these acceptable limits. For example, Q4 (Skewness = -1.100; Kurtosis = 4.411) and Q10 (Skewness = -1.559; Kurtosis = 3.677) were within acceptable limits. However, several items deviated considerably from normality. Notably, Q13 (Skewness = -1.998; Kurtosis = 7.530) and Q18 (Skewness = -2.475; Kurtosis = 10.611), exceeding the recommended thresholds and indicating pronounced non-normal distribution.

Further evaluation using the Kolmogorov-Smirnov and Shapiro-Wilk tests revealed that all items significantly deviated from normality, with p-values less than 0.001 across all variables. For example, Q22 recorded a Shapiro-Wilk statistic of 0.695 ( $p < 0.001$ ), while Q36 showed a lower statistic of 0.600 ( $p < 0.001$ ), both confirming non-normal distributions. This pattern was consistent across constructs and dimensions, as outlined in Appendix A.

Despite the significant results from the formal tests, the acceptable skewness and kurtosis values for a majority of the indicators suggest that the data distributions are generally suitable for Partial Least Squares Structural Equation Modeling (PLS-SEM), which does not require data to meet the assumptions of normality.

### 4.3.2 Internal Consistency Reliability

To ensure the reliability of the measurement model, internal consistency was assessed using Cronbach's alpha ( $\alpha$ ) and Composite Reliability (CR), both of which are established indicators of scale consistency. The accepted threshold for both metrics is a minimum of 0.70, indicating acceptable reliability (Hair Jr et al., 2010). The results, presented in Table 4.6, confirm that all first-order, second-order, and third-order constructs demonstrated strong internal consistency.

- **First-Order Constructs**

Among the first-order constructs, values of Cronbach's alpha ranged from 0.762 to 0.963, and CR values ranged from 0.849 to 0.966, exceeding the recommended threshold in all cases. The overarching construct Antecedents (ANT) achieved  $\alpha = 0.914$  and  $CR = 0.925$ , with its dimensions showing solid reliability: Commitment-based HR Practices (CBHR) ( $\alpha = 0.817$ ,  $CR = 0.861$ ), Inter-departmental Connectedness (IDC) ( $\alpha = 0.829$ ,  $CR = 0.876$ ), and Centralization of Decision-making (CDM) ( $\alpha = 0.914$ ,  $CR = 0.940$ ).

The Risk Factors (RF) construct also demonstrated excellent internal consistency ( $\alpha = 0.941$ ,  $CR = 0.947$ ), supported by reliable sub-dimensions: Leadership (LED) ( $\alpha = 0.861$ ,  $CR = 0.906$ ), Internal Innovation Capability (IIC) ( $\alpha = 0.821$ ,  $CR = 0.870$ ), Network and Relationships (NR) ( $\alpha = 0.899$ ,  $CR = 0.930$ ), Strategy (STR) ( $\alpha = 0.860$ ,  $CR = 0.906$ ), Technology Management (TM) ( $\alpha = 0.900$ ,  $CR = 0.931$ ), and Culture (CUL) ( $\alpha = 0.762$ ,  $CR = 0.849$ ).

In the domain of Corporate Governance Solutions (CGS), extremely high reliability was recorded across both formal and informal components. The total CGS construct reported  $\alpha = 0.963$  and  $CR = 0.966$ . Within its dimensions, Informal Corporate Governance Solutions (ICGS) achieved  $\alpha = 0.904$ ,  $CR = 0.921$ , including Knowledge (KNW) ( $\alpha = 0.783$ ,  $CR = 0.861$ ) and Values (VAL) ( $\alpha = 0.889$ ,  $CR = 0.915$ ). The Formal CGS (FCGS) dimension reflected similarly high reliability ( $\alpha = 0.954$ ,  $CR = 0.960$ ), including constructs such as Groupthink (GRT) ( $\alpha = 0.950$ ,  $CR = 0.959$ ) and Decision-making (DM) ( $\alpha = 0.879$ ,  $CR = 0.908$ ).

For the Open Innovation Strategies (OIS) construct, high reliability was also evident ( $\alpha = 0.872$ ,  $CR = 0.900$ ), with strong scores for Inbound Practices (IP) ( $\alpha = 0.862$ ,  $CR = 0.908$ ) and Outbound Practices (OP) ( $\alpha = 0.803$ ,  $CR = 0.873$ ).

- **Second-Order Constructs**

At the second-order level, the constructs maintained consistent reliability. ANT ( $\alpha = 0.789$ , CR = 0.877), RF ( $\alpha = 0.881$ , CR = 0.910), CGS ( $\alpha = 0.907$ , CR = 0.935), ICGS ( $\alpha = 0.830$ , CR = 0.921), FCGS ( $\alpha = 0.895$ , CR = 0.950), and OIS ( $\alpha = 0.738$ , CR = 0.884) all satisfied the reliability criteria, further affirming the structure of the conceptual framework.

- **Third-Order Construct**

At the third-order level, the CGS construct demonstrated exceptional reliability with Cronbach's alpha of 0.878 and CR of 0.943, reflecting strong coherence among its second-order components.

Table (4.6) Construct Reliability Analysis

<b>Construct</b>	<b><math>\alpha</math></b>	<b>CR</b>
<b>→ First Order</b>		
<b>ANT</b>	0.914	0.925
CBHR	0.817	0.861
IDC	0.829	0.876
CDM	0.914	0.940
<b>RF</b>	0.941	0.947
LED	0.861	0.906
IIC	0.821	0.870
NR	0.899	0.930
STR	0.860	0.906
TM	0.900	0.931
CUL	0.762	0.849
<b>CGS</b>	0.963	0.966
ICGS	0.904	0.921
KNW	0.783	0.861
VAL	0.889	0.915
FCGS	0.954	0.960
<b>GRT</b>	0.950	0.959
DM	0.879	0.908
OIS	0.872	0.900
IP	0.862	0.908
<b>OP</b>	0.803	0.873
<b>→ Second Order</b>		
<b>ANT</b>	0.789	0.877
<b>CGS</b>	0.907	0.935
<b>FCGS</b>	0.895	0.950

ICGS	0.830	0.921
OIS	0.738	0.884
RF	0.881	0.910
<hr/>		
<b>→ Third Order</b>		
<hr/>		
CGS	0.878	0.943
<hr/>		

### 4.3.3 Convergent Validity

F. Hair Jr et al. (2014), describe convergent validity as "the degree to which a measure correlates positively with other measures of the same construct." Two main tests were conducted by the researcher to ascertain this study's convergent validity: outer loadings and average variance extracted (AVE).

### 4.3.4 Outer Loading

The outer loading is crucial when evaluating convergent validity, since it demonstrates the strength of association between a construct and its respective indicators. Hair Jr et al. (2017), state that if the outer loading value is above 0.70, the indicator contribution is deemed strong, while values close to or greater than 0.80 express excellent reliability of indicators. The outer loading results are spread out between first-order, second-order, and third-order constructs, and Table 4.7 summarizes the results.

- **First-Order Constructs**

For the Antecedents (ANT) construct, the dimensions showed acceptable to strong outer loadings. In Commitment-based HR Practices (CBHR), most indicators exhibited moderate loadings, with values ranging from 0.548 (Q10) to 0.763 (Q4), indicating sufficient representation. Inter-departmental Connectedness (IDC) performed well, with loadings between 0.707 and 0.758, showing strong item alignment. Centralization of Decision-making (CDM) exhibited very strong outer loadings, with values from 0.684 (Q17) to a high of 0.924 (Q19), indicating a particularly robust construct.

Within the Risk Factors (RF) construct, indicator reliability was also strong. The Leadership (LED) dimension recorded loadings from 0.739 (Q23) to 0.909 (Q25), confirming solid alignment. Internal Innovation Capability (IIC) showed somewhat more variability, with values ranging from 0.619 (Q28) to 0.788 (Q30). The Network and Relationships (NR) dimension demonstrated high consistency, with all indicators exceeding 0.86. Strategy (STR) and Technology Management (TM) constructs also

showed strong loadings, notably Q37 (0.917) and Q40 (0.921), respectively. Culture (CUL) maintained acceptable loadings with slightly lower values for Q45 (0.679) and Q47 (0.678), suggesting areas for cautious interpretation.

In the Corporate Governance Solutions (CGS) construct, all first-order dimensions exhibited strong loadings. For Knowledge (KNW), values ranged from 0.727 (Q50) to 0.867 (Q49), while Values (VAL) had consistent loadings above 0.77. Groupthink (GRT) demonstrated some of the highest loadings in the entire dataset, peaking at 0.938 (Q60). Decision-making (DM) also reflected good consistency with loadings ranging from 0.693 (Q71) to 0.831 (Q70).

Regarding Open Innovation Strategies (OIS), both sub-dimensions showed excellent convergent validity. Inbound Practices (IP) revealed outer loadings ranging from 0.713 (Q75) to 0.906 (Q72), while Outbound Practices (OP) demonstrated similarly strong indicators, with Q77 and Q78 both loading at 0.909. The lowest loading, Q79 (0.680), remained within an acceptable range.

- **Second-Order Constructs**

Second-order constructs also showed solid outer loadings, confirming the reliability of the aggregation from lower-order dimensions. For Antecedents (ANT), the outer loadings of CBHR, IDC, and CDM were 0.907, 0.893, and 0.708, respectively, highlighting strong cohesion. In Risk Factors (RF), the loadings of LED, IIC, NR, STR, TM, and CUL ranged from 0.733 to 0.871. Corporate Governance Solutions (CGS) demonstrated excellent structure with loadings above 0.89 for KNW, VAL, GRT, and DM, while Open Innovation Strategies (OIS) showed equal loadings of 0.890 for both IP and OP.

- **Third-Order Construct**

At the third-order level, the overarching CGS construct demonstrated extremely high outer loadings, further confirming its integrative strength. Specifically, Formal Corporate Governance Solutions (FCGS) and Informal Corporate Governance Solutions (ICGS) loaded at 0.950 and 0.938, respectively. These values reflect an exceptionally cohesive relationship between CGS's component systems, validating the theoretical structure and operational reliability of the governance framework.

Table (4.7) Outer Loading of Indicators

<b>Construct</b>	<b>Questions</b>	<b>Outer Loading</b>
<b>→ First Order</b>		
<b>ANT</b>		
CBHR	Q1	0.643
	Q2	0.656
	Q3	0.703
	Q4	0.763
	Q5	0.665
	Q6	0.639
	Q7	0.586
	Q8	0.583
	Q9	0.665
	Q10	0.548
IDC	Q11	0.707
	Q12	0.709
	Q13	0.732
	Q14	0.758
	Q15	0.748
	Q16	0.753
CDM	Q17	0.684
	Q18	0.873
	Q19	0.924
	Q20	0.910
	Q21	0.859
<b>RF</b>		
LED	Q22	0.836
	Q23	0.739
	Q24	0.875
	Q25	0.909
	Q26	0.676
IIC	Q27	0.766
	Q28	0.619
	Q29	0.759
	Q30	0.788
	Q31	0.745
NR	Q32	0.865
	Q33	0.926
	Q34	0.862
	Q35	0.868
STR	Q36	0.864
	Q37	0.917
	Q38	0.704
	Q39	0.815

TM	Q40	0.921
	Q41	0.915
	Q42	0.858
	Q43	0.828
CUL	Q44	0.819
	Q45	0.679
	Q46	0.725
	Q47	0.678
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<b>CGS</b>		
KNW	Q48	0.836
	Q49	0.867
	Q50	0.727
	Q51	0.794
VAL	Q52	0.786
	Q53	0.770
	Q54	0.799
	Q55	0.832
	Q56	0.844
GRT	Q57	0.807
	Q58	0.910
	Q59	0.932
	Q60	0.938
	Q61	0.895
	Q62	0.877
	Q63	0.885
DM	Q64	0.667
	Q65	0.711
	Q66	0.800
	Q67	0.794
	Q68	0.782
OP	Q69	0.814
	Q70	0.831
	Q71	0.693
<hr/>		
<b>OIS</b>		
IP	Q72	0.906
	Q73	0.771
	Q74	0.899
	Q75	0.713
OP	Q76	0.862
	Q77	0.909
	Q78	0.909
	Q79	0.680
<hr/>		
<b>→ Second Order</b>		
<hr/>		
ANT	CBHR	0.907

	IDC	0.893
	CDM	0.708
<b>RF</b>		
	LED	0.871
	IIC	0.863
	NR	0.748
	STR	0.733
	TM	0.765
	CUL	0.767
<b>CGS</b>		
	KNW	0.916
	VAL	0.945
	GRT	0.898
	DM	0.920
<b>OIS</b>		
	IP	0.890
	OP	0.890
<b>→ Third Order</b>		
	<b>FCGS</b>	0.950
	<b>ICGS</b>	0.938

#### 4.3.5 Average Variance Extracted (AVE)

To further assess convergent validity, the Average Variance Extracted (AVE) was calculated for all constructs. AVE measures the proportion of variance captured by a latent construct relative to the amount of variance attributable to measurement error. According to F. Hair Jr et al. (2014), an AVE value of 0.50 or higher is considered acceptable, indicating that the construct explains more than half of the variance of its observed indicators.

- **First-Order Constructs**

The AVE analysis for the first-order constructs yielded mostly acceptable results, although some constructs fell below the desired threshold. The overall Antecedent (ANT) construct recorded a low AVE of 0.384, with particularly weak values for its sub-dimensions: Commitment-based HR Practices (CBHR) (0.410) and Risk Factors (RF) (0.420). While these figures suggest limited convergent validity, their theoretical relevance justifies their retention.

Other first-order constructs performed well. For instance, Inter-departmental Connectedness (IDC) (AVE = 0.540) and Centralization of Decision-making (CDM)

(AVE = 0.796) under the ANT construct demonstrated adequate to strong convergent validity. Similarly, the sub-dimensions of RF showed acceptable AVE values, with Leadership (LED) at 0.709, Internal Innovation Capability (IIC) at 0.530, and Network and Relationships (NR) at 0.768. Constructs like Strategy (STR) and Technology Management (TM) also displayed solid validity, with AVEs of 0.709 and 0.772, respectively. Culture (CUL) recorded a moderate AVE of 0.586.

Within the Corporate Governance Solutions (CGS) domain, first-order constructs showed solid results: Knowledge (KNW) (AVE = 0.610), Values (VAL) (0.644), Groupthink (GRT) (0.749), and Decision-making (DM) (0.623), all exceeded the 0.50 threshold. The broader CGS construct itself had an AVE of 0.550.

For Open Innovation Strategies (OIS), convergent validity was confirmed with an overall AVE of 0.533. Its two sub-dimensions—Inbound Practices (IP) and Outbound Practices (OP), achieved AVEs of 0.714 and 0.635, respectively, both well above the benchmark.

- **Second-Order Constructs**

The AVE results for second-order constructs were notably strong, reaffirming the construct validity of higher-order dimensions. Antecedents (ANT) at this level recorded an AVE of 0.707, indicating a significant improvement over their first-order counterpart. Risk Factors (RF) also demonstrated acceptable convergence (AVE = 0.629).

Corporate Governance Solutions (CGS) showed exceptional results in its two structural levels: Informal CGS (ICGS) and Formal CGS (FCGS) achieved AVE values of 0.854 and 0.905, respectively, reflecting outstanding convergent validity. Likewise, Open Innovation Strategies (OIS) scored 0.792 at the second-order level, further validating its theoretical structure.

- **Third-Order Constructs**

At the third-order level, the composite CGS construct exhibited excellent convergent validity, with an AVE of 0.891. This indicates that the latent construct explains nearly 90% of the variance across its indicators, demonstrating superior measurement quality.

Overall, the AVE results confirm strong convergent validity across most constructs, particularly at the second and third-order levels. While a few first-order

constructs such as CBHR and RF showed AVE values below the standard threshold, the majority met or exceeded the recommended level of 0.50. Constructs such as CDM, NR, TM, IP, OP, FCGS, and CGS (third-order) displayed particularly high AVE values, reinforcing the robustness of the measurement model and supporting its readiness for structural model analysis and hypothesis testing.

Table (4.8) Average Variance Extracted (AVE) Analysis

<b>Construct</b>	<b>AVE</b>
<b>→ First Order</b>	
ANT	0.384
CBHR	0.410
IDC	0.540
CDM	0.796
<b>RF</b>	0.420
LED	0.709
IIC	0.530
NR	0.768
STR	0.709
TM	0.772
CUL	0.586
<b>CGS</b>	0.550
ICGS	0.541
KNW	0.610
VAL	0.644
FCGS	0.633
<b>GRT</b>	0.749
DM	0.623
OIS	0.533
IP	0.714
<b>OP</b>	0.635
<b>→ Second Order</b>	
ANT	0.707
<b>CGS</b>	0.784
FCGS	0.905
ICGS	0.854
<b>OIS</b>	0.792
<b>RF</b>	0.629
<b>→ Third Order</b>	
<b>CGS</b>	0.891

#### **4.3.6 Discriminant Validity**

Discriminant validity refers to the degree to which a construct is truly distinct from other constructs both conceptually and statistically. This study assessed discriminant validity using three techniques: the Fornell-Larcker criterion, the Heterotrait-Monotrait (HTMT) ratio, and cross-loading analysis. These evaluations were applied to first-order, second-order, and third-order constructs to ensure that each construct was empirically distinct from others in the model.

##### **4.3.6.1 Discriminant Validity Analysis (First Order)**

- **Fornell-Larcker Criterion**

Appendix (B) illustrates the Fornell-Larcker results for first-order constructs. Discriminant validity is confirmed when the square root of the AVE for each construct is greater than its correlations with other constructs (Fornell & Larcker, 1981). In this study, the Antecedent (ANT) construct with an AVE square root of 0.620 is greater than its correlations with constructs such as CBHR (0.640) and IDC (0.640), confirming its uniqueness. Another example constructs within Risk Factor (RF), such as Leadership (LED) and Network and Relationships (NR), which also satisfy this condition, as their AVE square roots (e.g., LED=0.842, NR=0.878) are greater than their correlations with other constructs.

- **Heterotrait-Monotrait (HTMT) Ratio**

The HTMT matrix in Appendix (C) further supports discriminant validity. According to Fornell and Larcker (1981), HTMT values should be below 0.90 for stricter evaluation or 0.90 for exploratory models. Most first-order constructs demonstrated HTMT values within acceptable thresholds. For instance, the HTMT between CUL and IDC was 0.807, and between VAL and KNW was 0.881, both within the recommended range. Although the HTMT between RF and OP reached 1.036, which slightly exceeds the exploratory threshold, such cases were rare and did not compromise overall validity. Thus, both criteria affirm discriminant validity at the first-order level.

#### 4.3.6.2 Discriminant Validity Analysis (Second Order)

- **Fornell-Larcker Criterion**

Appendix (D) shows the second-order discriminant validity evaluation. Here, all AVE square roots were higher than the inter-construct correlations. For example, CGS had a square root of 0.938, exceeding its correlations with ICGS (0.900), FCGS (0.951), and DM (0.918), thereby demonstrating strong discriminant validity. Similarly, Open Innovation Strategies (OIS) had a square root of 0.890, exceeding correlations with IP and OP, confirming the construct's distinctiveness.

- **Heterotrait-Monotrait (HTMT) Ratio**

Appendix (E) supports these findings. Most HTMT ratios among second-order constructs fell below the 0.90 threshold. For example, the HTMT between ICGS and FCGS was 0.783, and between DM and GRT was 0.893. Although CGS and FCGS recorded an HTMT ratio of 1.007, this remains acceptable under exploratory research conditions. Thus, discriminant validity at the second-order level is statistically supported.

#### 4.3.6.3 Discriminant Validity Analysis (Third Order)

- **Fornell-Larcker Criterion**

Appendix (F) provides the Fornell-Larcker criterion results for third-order constructs. Here, Corporate Governance Solutions (CGS) demonstrated an AVE square root of 0.944, which was higher than its correlations with ANT (0.699), OIS (0.819), and RF (0.811). Similarly, OIS (AVE square root = 1.000) exceeded its correlations with all related constructs, affirming its discriminant validity. The RF construct (AVE = 1.000) also outperformed its correlations with others such as CGS (0.811) and ANT (0.711).

- **Heterotrait-Monotrait (HTMT) Ratio**

Appendix (G) further validates these results through HTMT ratios. All values remained below the acceptable 0.90 limit. For instance, the HTMT between CGS and OIS was 0.868, while between OIS and RF, it was 0.727. These low HTMT values confirm strong discriminant validity between third-order constructs.

The comprehensive assessment using Fornell-Larcker criteria and HTMT ratios confirms that discriminant validity is well established across all levels of the model, first-order, second-order, and third-order. Most values met or exceeded thresholds, with minor

exceptions falling within acceptable margins for exploratory research. These results reinforce the structural integrity and distinctiveness of the measurement model, supporting the reliability of subsequent structural analysis.

#### **4.3.7 Cross-Loading Analysis**

Cross-loading analysis serves as a supplementary method for evaluating discriminant validity by examining the degree to which each observed variable (indicator) correlates more strongly with its associated construct than with any other construct. According to Chin (1998a), a valid measurement model requires that each indicator's loading on its assigned construct exceeds its loadings on all other constructs.

The results, as detailed in Appendix (H), affirm that the indicators generally load higher on their respective constructs than on unrelated constructs, thereby confirming the discriminant validity of the model across multiple levels.

For the Antecedents (ANT) construct, all sub-dimensions Commitment-based HR Practices (CBHR), Inter-departmental Connectedness (IDC), and Centralization of Decision-making (CDM) showed indicators that loaded higher on their respective constructs. For instance, Q4 (CBHR) had a load of 0.76 on its target construct, which was clearly higher than its loadings on unrelated constructs. Similarly, Q19 under CDM showed a strong primary loading of 0.92, demonstrating excellent discrimination.

Within the Risk Factors (RF) construct, dimensions such as Leadership (LED) and Internal Innovation Capability (IIC) were clearly distinguishable. For example, Q25 loaded 0.91 on LED, while Q30 under IIC showed a solid loading of 0.79, with lower correlations to other constructs. Additionally, the Network and Relationships (NR) dimension exhibited high internal loadings, such as Q33 with a value of 0.93, verifying its alignment with the intended construct.

For the Corporate Governance Solutions (CGS) construct, robust discriminant validity was confirmed for all sub-dimensions. Notably, indicators under Groupthink (GRT), such as Q60, had a very high loading of 0.93, and Decision-making (DM) indicators like Q71 loaded at 0.83. Similarly, the Values (VAL) dimension was validated through Q57, which showed a strong loading of 0.84 on VAL, exceeding its cross-loading.

The Open Innovation Strategies (OIS) construct, including Inbound Practices (IP) and Outbound Practices (OP), also demonstrated adequate discriminant validity. For

instance, Q74 had a primary loading of 0.90 on IP, and Q77 exhibited a 0.91 load on OP, confirming the independence of these innovation strategy indicators.

In conclusion, each indicator showed higher loading on its respective construct compared to others, fulfilling Chin (1998a), discriminant validity criteria. This establishes the soundness of the measurement model and ensures that each construct is empirically distinct, laying a solid foundation for subsequent structural model analysis and hypothesis testing.

#### **4.4 Structural Model Assessment**

Once the constructs' reliability and validity were confirmed, the following step involved assessing the structural model to estimate the hypothesized relationships among constructs. The researcher conducted four tests to evaluate the structural model: the multicollinearity test, coefficient of determination ( $R^2$ ), predictive relevance ( $Q^2$ ), and effect size ( $f^2$ ) tests.

##### **4.4.1 Indicator Multi-collinearity**

To ensure the accuracy of the structural model, multicollinearity among the indicators was evaluated using the Variance Inflation Factor (VIF). As per (Fornell & Bookstein, 1982), VIF values exceeding 5 indicate potential multicollinearity concerns, although more conservative thresholds consider values above 3 to warrant attention.

Antecedents (ANT) indicators across its sub-constructs Commitment-Based HR Practices (CBHR), Inter-departmental Connectedness (IDC), and Centralization of Decision-Making (CDM) demonstrated mixed results. Most indicators recorded VIF values below 3, such as CBHR-Q5 (1.529) and Q6 (1.568), indicating low collinearity. However, CDM-Q17 had a significantly high VIF of 10.246, and Q20 also approached concern levels at 4.385. Similarly, IDC indicators such as Q14 (3.646) and Q16 (3.795) raised moderate multicollinearity concerns.

In the Risk Factors (RF) construct, most indicators demonstrated acceptable VIF values. For example, Leadership (LED) indicators such as Q23 (1.518) and Q22 (2.055) were well within safe ranges. Nonetheless, Technology Management (TM) indicators Q41 (5.147) and Q42 (4.953) exceeded conservative thresholds, suggesting the need for scrutiny. Additionally, Strategy (STR) indicators like Q36 (3.606) and Network and Relationships (NR) indicator Q33 (4.012) bordered on moderate multicollinearity.

The Corporate Governance Solutions (CGS) construct revealed the most pronounced multicollinearity concerns. Within Groupthink (GRT), several indicators showed very high VIF values: Q60 (11.762), Q61 (11.911), Q62 (11.570), and Q64 (9.680). Similarly, Values (VAL) included indicators like Q56 (12.512) and Q57 (12.487) which exceeded acceptable thresholds. These values suggest a significant overlap among indicators and indicate a need for refinement or a potential reduction in redundancy within these items.

Indicators under Decision-Making (DM), such as Q66 (1.568) and Q69 (1.912), were within acceptable limits, although Q70 (5.107) and Q71 (4.896) suggested approaching multicollinearity risks.

The Open Innovation Strategies (OIS) construct also presented substantial collinearity concerns. Notably, Inbound Practices (IP) indicators Q73 and Q75 showed VIF values of 21.477 and 22.652, respectively, far exceeding even the most lenient thresholds. This suggests extreme redundancy and a likely need to re-specify these indicators to preserve the model's reliability.

In contrast, Supplier Trust (ST) indicators, such as Q48 (2.751), remained comfortably within acceptable boundaries, ensuring measurement stability in this construct. The multicollinearity assessment revealed that while most indicators across the study's constructs showed VIF values within safe thresholds, some particularly within CDM, GRT, VAL, and IP exceeded conservative and even critical thresholds. These findings suggest a need for careful re-evaluation of certain indicators to reduce redundancy, enhance construct clarity, and ensure the robustness of the structural model for hypothesis testing.

Table (4.9) Result of Collinearity Statistics (VIF) for Indicators

Construct	Questions	IVF
ANT		
CBHR	Q1	2.178
	Q2	2.189
	Q3	1.890
	Q4	2.233
	Q5	1.529
	Q6	1.568
	Q7	1.983
	Q8	1.994
	Q9	3.152

	Q10	2.440
IDC	Q11	2.683
	Q12	3.279
	Q13	2.243
	Q14	3.646
	Q15	1.980
CDM	Q16	3.795
	Q17	10.246
	Q18	3.468
	Q19	3.673
	Q20	4.385
	Q21	2.968
<hr/>		
<b>RF</b>		
LED	Q22	2.055
	Q23	1.518
	Q24	2.847
	Q25	3.492
	IIC	Q26
Q27		1.678
Q28		1.541
Q29		2.012
Q30		2.268
NR	Q31	1.702
	Q32	2.699
	Q33	4.012
	Q34	2.453
	Q35	2.223
STR	Q36	3.606
	Q37	2.529
	Q38	3.408
TM	Q39	1.906
	Q40	1.908
	Q41	5.147
	Q42	4.953
	CUL	Q43
Q44		1.781
Q45		1.931
Q46		1.256
Q47		1.937
<hr/>		
<b>CGS</b>		
KNW	Q48	1.360
	Q49	4.212
	Q50	4.391
	Q51	1.410
VAL	Q52	4.498
	Q53	2.754

	Q54	2.408
	Q55	4.722
	Q56	12.512
	Q57	12.487
GRT	Q58	3.718
	Q59	6.728
	Q60	11.762
	Q61	11.911
	Q62	11.570
	Q63	4.546
	Q64	9.680
	Q65	1.701
DM	Q66	1.568
	Q67	4.671
	Q68	4.528
	Q69	1.912
	Q70	5.107
	Q71	4.896
<hr/>		
<b>OIS</b>		
IP	Q72	1.851
	Q73	21.477
	Q74	2.584
	Q75	22.652
OP	Q76	1.445
	Q77	2.193
	Q78	3.120
	Q79	1.611

#### 4.4.2 Coefficient of Determination ( $R^2$ )

The Coefficient of Determination ( $R^2$ ) is a fundamental metric used to assess the predictive power of the structural model. It quantifies the proportion of variance in an endogenous latent variable that is explained by its associated exogenous variables. As per Cohen (2013),  $R^2$  values are categorized as follows: values around 0.02 indicate weak explanatory power, around 0.15 indicate moderate explanatory power and values of 0.35 or above reflect strong explanatory power.

The  $R^2$  results for this study, summarized in Table 4.110, exhibit exceptional levels of predictive accuracy across all levels of the model; first-order, second-order, and third-order constructs.

At the first-order level, the Inbound Practices (IP) dimension of Open Innovation Strategies (OIS) recorded an  $R^2$  value of 0.821, indicating that 82.1% of its variance is accounted for by its predictors. Similarly, Outbound Practices (OP) demonstrated a strong  $R^2$  value of 0.762, reinforcing the internal coherence of the OIS construct.

The Open Innovation Strategies (OIS) construct, which consolidates IP and OP, achieved an overall  $R^2$  value of 0.738, reflecting strong explanatory power. Meanwhile, the Risk Factors (RF) construct reached a near-perfect  $R^2$  of 0.999, indicating that nearly all variance in RF is explained by its corresponding dimensions such as Leadership, Technological Management, and Cultural Factors.

Similarly, the Integrated Corporate Governance Solutions (ICGS) and Formal Corporate Governance Structures (FCGS) both achieved perfect  $R^2$  values of 1.000, suggesting complete explanatory strength by their sub-components (e.g., Knowledge, Values, Governance Rules, and Decision-Making).

The overarching Corporate Governance Solutions (CGS) construct demonstrated an  $R^2$  of 0.997, further affirming its excellent fit within the structural model.

At the highest conceptual level, the Antecedents (ANT) construct yielded an  $R^2$  value of 0.993, showcasing a near-total variance explanation. This suggests that foundational constructs such as Commitment-Based HR Practices (CBHR), Inter-departmental Connectedness (IDC), and Centralization of Decision-Making (CDM) are effectively integrated and accounted for in the model.

All constructs within the model exceed the minimum threshold of 0.35 for strong explanatory power, with many constructs achieving values above 0.90. This consistent performance highlights the robustness of the proposed theoretical framework and its capacity to explain relationships among key variables related to open innovation strategies, governance, antecedents, and risk management within Palestinian SMEs.

The results confirm that constructs such as Corporate Governance Solutions (CGS), Risk Factors (RF), and Antecedents (ANT) are particularly well-supported, offering powerful insights into their role in facilitating dynamic supply chain capabilities and sustainable competitive advantage.

Table (4.10) Results of R2

<b>Construct</b>	<b>R<sup>2</sup></b>	<b>R<sup>2</sup> adjusted</b>	<b>Degree</b>
<b>ANT</b>	0.993	0.993	High
<b>CGS</b>	0.997	0.997	High
<b>FCGS</b>	1.000	1.000	High
<b>ICGS</b>	1.000	1.000	High
<b>IP</b>	0.821	0.820	High
<b>OIS</b>	0.738	0.735	High
<b>OP</b>	0.762	0.761	High
<b>RF</b>	0.999	0.999	High

#### 4.4.3 Predictive Relevance ( $Q^2$ )

Predictive relevance ( $Q^2$ ), developed by Stone (1974), serves as a crucial measure for assessing the extent to which a structural model can predict observed values for endogenous latent constructs. It is evaluated through the blindfolding procedure within the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach. According to Hair Jr et al. (2017), a  $Q^2$  value greater than zero suggests that the model possesses predictive relevance for a specific endogenous variable.

Table 4.11 presents the  $Q^2$  values, Root Mean Square Error (RMSE), and Mean Absolute Error (MAE) for the main constructs of the study. The results reveal that all endogenous constructs demonstrate strong predictive relevance, with all  $Q^2$  values well above the critical threshold of 0.00.

At the third-order level, the Antecedents (ANT) construct recorded a remarkably high  $Q^2$  value of 0.993, with minimal RMSE (0.084) and MAE (0.050), confirming the model's exceptional accuracy in predicting ANT-related dimensions such as Commitment-Based Human Resource Practices (CBHR), Interdepartmental Collaboration (IDC), and Centralized Decision-Making (CDM).

The Corporate Governance Solutions (CGS) construct, including both Formal Corporate Governance Structures (FCGS) and Informal Corporate Governance Systems (ICGS), also outranked the predictive relevance. CGS reported a  $Q^2$  value of 0.997, whereas both FCGS and ICGS rose to a perfect 1.000 in  $Q^2$  value, underscoring the model's near-ideal ability to predict governance-related indicators with nil-to-negligible errors (RMSEs of 0.002 and 0.011, respectively).

In the sphere of innovation strategy, the Open Innovation Strategies construct maintained a solid  $Q^2$  of 0.725 to reinforce the predictive power of the model affecting

Inbound Practices and Outbound Practices, registering  $Q^2$  values of 0.591 and 0.555, respectively. Despite being a bit behind the rest of the constructs, these indicators still present good predictive validity, coupled with moderate RMSE and MAE values.

Also noteworthy is the RF construct, covering the Leadership, Technological Management, and Organizational Culture dimensions, keeping an almost perfect  $Q^2$  of 0.999, indicating the structural model's strong ability to describe risk-related dynamics in SMEs operating in the Palestinian context.

Table (4.11) Results of Q2

Construct	$Q^2_{\text{predict}}$	RMSE	MAE
ANT	0.993	0.084	0.050
CGS	0.997	0.057	0.033
FCGS	1.000	0.002	0.001
ICGS	1.000	0.011	0.006
IP	0.591	0.660	0.440
OIS	0.725	0.545	0.370
OP	0.555	0.685	0.408
RF	0.999	0.034	0.028

#### 4.4.4 Effect Size ( $f^2$ ) tests

Effect size ( $f^2$ ) is a critical metric in evaluating the contribution of each exogenous construct to an endogenous construct within the structural model. It measures the change in the coefficient of determination ( $R^2$ ) when a specific exogenous variable is removed, thereby quantifying the unique variance explained by that construct (Chin, 1998a). According to (Cohen, 1992),  $f^2$  values are interpreted as follows: 0.02 indicates a small effect, 0.15 is a medium effect, and 0.35 or above a large effect.

Table 4.12 presents the calculated  $f^2$  values, revealing that the majority of relationships exhibit medium to large effect sizes, underscoring the strength and influence of key variables in the model.

Within the Antecedents (ANT) construct, significant effect sizes were observed for all its dimensions. Commitment-Based Human Resource Practices (CBHR) exerted a high effect ( $f^2 = 10.093$ ), followed by Interdepartmental Collaboration (IDC) ( $f^2 = 11.085$ ), and Centralized Decision-Making (CDM) ( $f^2 = 7.789$ ). These findings confirm the substantial influence of these internal organizational practices on the formation of

effective antecedents. The influence of Corporate Governance Solutions (CGS) on ANT, however, remained low ( $f^2 = 0.137$ ), suggesting a more indirect or supportive role.

The impact of CGS on Open Innovation Strategies (OIS) was more pronounced ( $f^2 = 0.573$ ), reflecting the importance of governance in driving innovation. Meanwhile, the interaction effect between CGS and ANT on OIS was minimal ( $f^2 = 0.008$ ), indicating limited moderating influence.

Risk Factors (RF) were shaped by several high-impact constructs. Technological Management (TM) demonstrated a dominant effect ( $f^2 = 27.477$ ), followed by Supplier Trust (STR) ( $f^2 = 22.206$ ), Leadership (LED) ( $f^2 = 15.368$ ), Inter-Industry Collaboration (IIC) ( $f^2 = 22.025$ ), and Norms and Regulations (NR) ( $f^2 = 12.374$ ). These dimensions collectively underscore the pivotal role of governance, culture, and technology in mitigating organizational risk.

In the Corporate Governance Solutions (CGS) framework, the Formal Corporate Governance Structures (FCGS) dimension exhibited exceptionally high effect sizes. This was largely driven by Decision-Making (DM) ( $f^2 = 12956.033$ ) and Government Regulation and Transparency (GRT) ( $f^2 = 35722.715$ ), confirming their essential roles in formal governance configurations. Likewise, Informal Corporate Governance Systems (ICGS) were significantly influenced by Knowledge Sharing (KNW) ( $f^2 = 553.374$ ) and Shared Values (VAL) ( $f^2 = 2250.928$ ), emphasizing the importance of organizational culture and information flow.

For the Open Innovation Strategy (OIS) construct, strong effects were recorded from OIS to both Inbound Practices (IP) ( $f^2 = 4.572$ ) and Outbound Practices (OP) ( $f^2 = 3.202$ ), validating the bidirectional nature of open innovation. Meanwhile, RF and ANT showed minimal effect sizes on OIS ( $f^2 = 0.005$  and  $0.013$  respectively), suggesting that their influence may be moderated or channeled through other constructs.

Lastly, while some constructs demonstrated low or negligible  $f^2$  values (e.g., ANT  $\rightarrow$  OIS =  $0.005$ ), the overall findings from the effect size analysis confirm that the model exhibits a complex yet robust structure. High effect sizes across multiple paths, especially within FCGS, RF, and ANT, indicate the significant roles these constructs play in shaping organizational strategy, governance, and innovation.

Table (4.12) Results of  $f^2$ 

<b>Construct</b>	<b>F2</b>	<b>Degree</b>
ANT → OIS	0.005	Low
CBHR → ANT	10.093	High
CDM → ANT	7.789	High
CGS → ANT	0.137	Low
CGS → OIS	0.573	High
CGS x ANT → OIS	0.008	Low
CUL → RF	12.178	High
DM → FCGS	12956.033	High
FCGS → CGS	56.477	High
GRT → FCGS	35722.715	High
ICGS → CGS	12.252	High
IDC → ANT	11.085	High
IIC → RF	22.025	High
KNW → ICGS	553.374	High
LED → RF	15.368	High
NR → RF	12.374	High
OIS → IP	4.572	High
OIS → OP	3.202	High
RF → ANT	0.013	Low
RF → OIS	0.005	Low
RF x ANT → OIS	0.003	Low
STR → RF	22.206	High
TM → RF	27.477	High
VAL → ICGS	2250.928	High

#### 4.5 Research Hypotheses Assessment

The last phase of assessing the structural model focuses on analyzing the hypothesized relationships through the path coefficient test. In line with Hair Jr et al. (2017), bootstrapping methods with 5,000 subsamples were utilized to evaluate the proposed hypotheses. The findings of the study's hypotheses are presented in Figure 4.1, where the inner model values reflect the results of the hypothesized relationships in the path analysis.

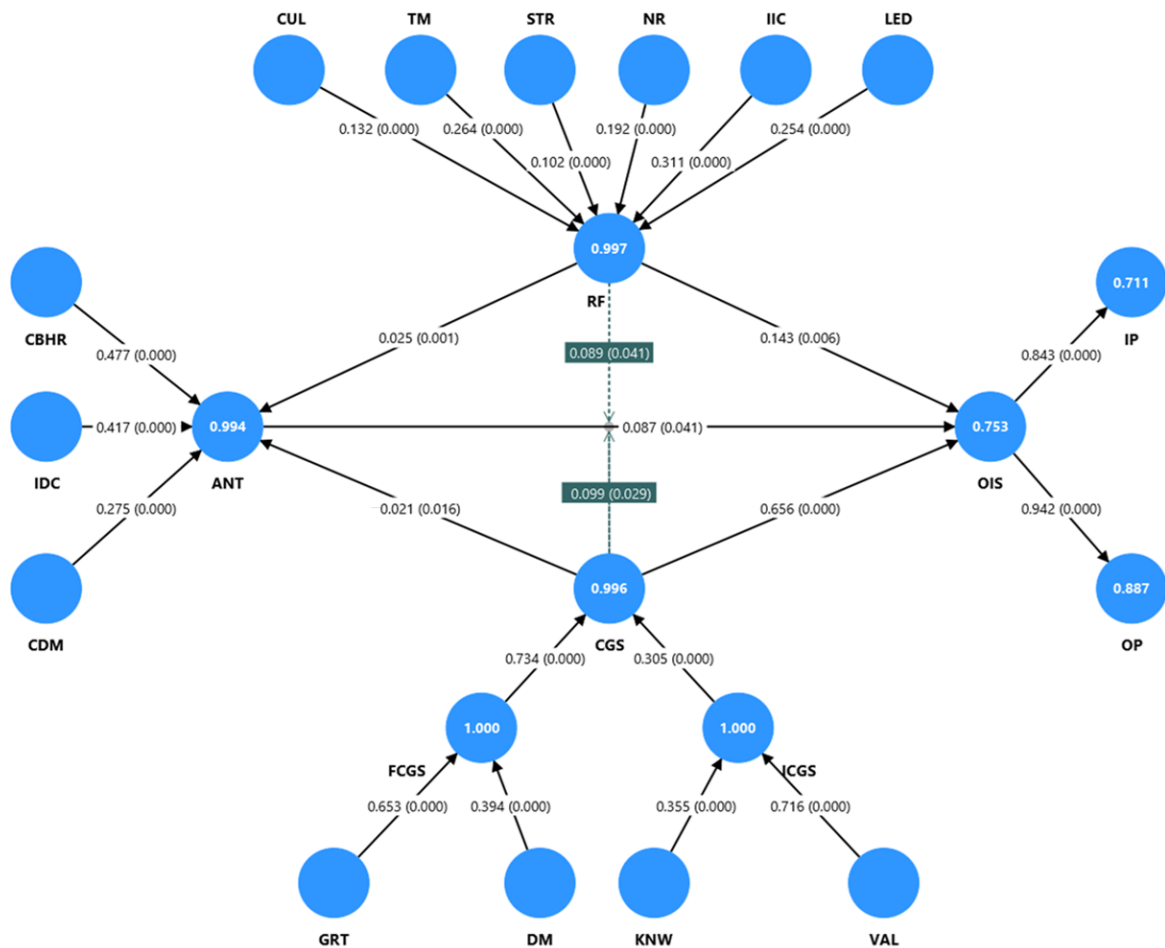


Figure (4.1) Results of Path Analysis

\*Values within the inner model indicate the (p-value), while values in the outer model denote the  $\beta$ -value.

## 4.6 Results of the Hypothesis

### 4.6.1 Antecedents and Open Innovation Strategies

The findings for the first hypothesis (H1) are presented in Table 4.13 and assess the relationship between antecedents (ANT) and the adoption of open innovation strategies (OIS) among Palestinian SMEs. The analysis confirms a statistically significant positive relationship between these constructs, with a standardized path coefficient ( $\beta$ ) of 0.087, a standard deviation of 0.050, a t-value of 1.748, and a p-value of 0.041. Since the p-value is below the 0.05 threshold, the hypothesis is supported.

These results validate that antecedents encompassing organizational factors such as HR practices, inter-departmental connectedness, and decision-making structures play a crucial role in enhancing open innovation practices within SMEs. This underscores the strategic importance of internal capabilities in fostering external innovation collaborations and practices.

Table (4.13) Results of the First Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	<i>t</i> Value	<i>p</i> Value	Result
H1	ANT → OIS	0.087	0.050	1.748	0.041	Supported

Note. \*\* $P < 0.05$

### 4.6.2 First Sub-Hypotheses

The results of the first set of sub-hypotheses (H1a–H1c) assess the individual effects of antecedent dimensions Commitment-Based Human Resource Practices (CBHR), Inter-Departmental Connectedness (IDC), and Centralization of Decision-Making (CDM) on the adoption of Open Innovation Strategies (OIS) in Palestinian SMEs. These results are summarized in Table 4.14.

**H1a:** Commitment-Based Human Resource Practices (CBHR) were found to have a statistically significant positive influence on OIS, with a standardized  $\beta$  coefficient of 0.041, a standard deviation of 0.024, a t-value of 1.731, and a p-value of 0.042. This result supports the hypothesis and underscores the importance of HR policies in encouraging innovation.

**H1b:** Centralization of Decision-Making (CDM) also positively influenced OIS, with a  $\beta$  coefficient of 0.024, standard deviation of 0.014, a t-value of 1.692, and a p-

value of 0.046. Although typically expected to have a negative influence, the positive direction suggests that centralization may provide strategic clarity that facilitates innovation within the studied SMEs.

**H1c:** Inter-departmental connectedness (IDC) demonstrated a significant positive impact on OIS, with a  $\beta$  coefficient of 0.036, a standard deviation of 0.020, a t-value of 1.814, and a p-value of 0.035. This finding reinforces the value of strong internal communication and collaboration for promoting innovation.

Collectively, these results affirm that all three antecedent dimensions CBHR, IDC, and CDM contribute positively to the implementation of Open Innovation Strategies in Palestinian SMEs.

Table (4.14) Results of the First Sub-Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	t Value	p Value	Result
<b>H1a</b>	CBHR → OIS	0.041	0.024	1.731	0.042	Supported
<b>H1c</b>	IDC → OIS	0.036	0.020	1.814	0.035	Supported
<b>H1b</b>	CDM → OIS	0.024	0.014	1.692	0.046	Supported

Note. \*\* $P < 0.05$

#### 4.6.3 Risk Factors and Open Innovation Strategies

The second hypothesis (H2) investigates the relationship between Risk Factors (RF) and the adoption of Open Innovation Strategies (OIS) in Palestinian SMEs. This hypothesis posits that risks negatively impact the implementation of open innovation initiatives. However, the findings, as shown in Table 4.15, reveal a statistically significant positive relationship.

The analysis indicates a standardized  $\beta$  coefficient of 0.145, a standard deviation of 0.057, and a t-value of 2.536, with a p-value of 0.006. As the p-value is below the 0.05 threshold, the hypothesis is supported from a statistical standpoint—though the positive direction of the relationship diverges from the expected negative effect.

These results suggest that in the context of Palestinian SMEs; certain risk factors may stimulate open innovation efforts. This could be attributed to a proactive strategic response to uncertainty, where firms engage more openly with external innovation to mitigate internal vulnerabilities or limitations.

Table (4.15) Results of the Second Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	<i>t</i> Value	<i>p</i> Value	Result
<b>H2</b>	RF → OIS	0.145	0.057	2.536	0.006	Supported

Note. \*\* $P < 0.05$

#### 4.6.4 Second Sub-Hypothesis

The second sub-hypotheses (H2a–H2f) examine the influence of specific dimensions of Risk Factors (RF) on the implementation of Open Innovation Strategies (OIS) in Palestinian SMEs. Contrary to the original hypothesis that anticipated a negative effect, the results reveal statistically significant positive relationships across all dimensions, as shown in Table 4.16.

**H2a:** Internal Innovation Capability (IIC) significantly influences OIS with a  $\beta$  coefficient of 0.045, standard deviation of 0.019, and a t-value of 2.426. The p-value of 0.008 confirms its significance.

**H2b:** Networks and Relationships (NR) positively impact OIS, with a  $\beta$  of 0.028, standard deviation of 0.012, and a t-value of 2.315 ( $p = 0.011$ ).

**H2c:** Technology Management (TM) demonstrates a significant relationship with OIS ( $\beta = 0.038$ ,  $t = 2.477$ ,  $p = 0.007$ ).

**H2d:** Leadership (LED) is also positively associated with OIS, with a  $\beta$  of 0.037, standard deviation of 0.015, and a t-value of 2.388 ( $p = 0.009$ ).

**H2e:** Strategy (STR) significantly affects OIS, albeit with a smaller  $\beta$  of 0.015 and a p-value of 0.007, indicating a subtle but meaningful influence.

**H2f:** Culture (CUL) impacts OIS with a  $\beta$  of 0.019, a t-value of 2.442, and a p-value of 0.008.

These findings support all six sub-hypotheses and suggest that risk factors, rather than hindering innovation, may drive Palestinian SMEs to adopt more open and adaptive innovation strategies. This reinforces the concept that organizations in high-risk environments may turn to external innovation to navigate uncertainty and enhance resilience.

Table (4.16) Results of the Second Sub-Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	<i>t</i> Value	<i>p</i> Value	Result
<b>H2a</b>	IIC → OIS	0.045	0.019	2.426	0.008	Supported
<b>H2b</b>	NR → OIS	0.028	0.012	2.315	0.011	Supported
<b>H2c</b>	TM → OIS	0.038	0.015	2.477	0.007	Supported
<b>H2d</b>	LED → OIS	0.037	0.015	2.388	0.009	Supported
<b>H2e</b>	STR → OIS	0.015	0.006	2.455	0.007	Supported
<b>H2f</b>	CUL → OIS	0.019	0.008	2.442	0.008	Supported

Note. \*\* $P < 0.05$

#### 4.6.5 Corporate Governance Solutions and Open Innovation Strategies

The third hypothesis (H3) investigates the impact of Corporate Governance Solutions (CGS) on Open Innovation Strategies (OIS) in Palestinian SMEs. As detailed in Table 4.17, the findings reveal a statistically significant and positive relationship between CGS and OIS. The standardized  $\beta$  coefficient was 0.654, with a standard deviation of 0.077, a t-value of 8.501, and a p-value of 0.000. These results offer robust statistical support for H3, affirming that effective governance mechanisms play a critical role in fostering open innovation. This suggests that SMEs that adopt sound governance practices are more likely to successfully implement open innovation strategies, benefiting from increased transparency, accountability, and strategic alignment.

Table (4.17) Results of the Third Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	<i>t</i> Value	<i>p</i> Value	Result
<b>H3</b>	CGS → OIS	0.654	0.077	8.501	0.000	Supported

Note. \*\* $P < 0.05$

#### 4.6.6 Third Sub-Hypotheses

The third set of sub-hypotheses (H3a and H3b) breaks down Corporate Governance Solutions (CGS) into two key dimensions: Formal Corporate Governance Solutions (FCGS) and Informal Corporate Governance Solutions (ICGS), to examine their influence on Open Innovation Strategies (OIS) in Palestinian SMEs.

**H3a:** Formal Corporate Governance Solutions (FCGS) exhibits a strong positive impact on OIS, with a  $\beta$  coefficient of 0.480, standard deviation of 0.054, and a t-value

of 8.814 ( $p = 0.000$ ). This highlights the importance of formal mechanisms like policies, regulations, and oversight frameworks in supporting innovation practices.

**H3b:** Informal Corporate Governance Solutions (ICGS) also show a statistically significant positive effect on OIS, with a  $\beta$  coefficient of 0.199, a standard deviation of 0.031, and a  $t$ -value of 6.467 ( $p = 0.000$ ). These findings reflect the influence of cultural norms, shared values, and informal networks in facilitating open innovation behavior among SMEs.

Both hypotheses are supported, confirming that both formal and informal governance mechanisms are essential enablers of open innovation within the organizational structure of Palestinian SMEs.

Table (4.18) Results of the Third Sub-Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	$t$ Value	$p$ Value	Result
<b>H3a</b>	FCGS $\rightarrow$ OIS	0.480	0.054	8.814	0.000	Supported
<b>H3b</b>	ICGS $\rightarrow$ OIS	0.199	0.031	6.467	0.000	Supported

Note.  $**P < 0.05$

#### 4.6.7 Risk Factors and Antecedents

The fourth hypothesis (H4) examines the impact of Risk Factors (RF) on Antecedents (ANT) in the context of Palestinian SMEs. As shown in Table 4.19, the results indicate a positive and statistically significant relationship, with a standardized  $\beta$  coefficient of 0.025, a standard deviation of 0.008, a  $t$ -value of 3.032, and a  $p$ -value of 0.001.

These findings confirm that risk-related elements, while generally considered constraints, also influence the development of antecedents for open innovation. The relationship, although modest in strength, is statistically significant and supports H4. This suggests that risk factors can play a nuanced role in shaping strategic organizational readiness and capability development in SMEs.

Table (4.19) Results of the Fourth Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	$t$ Value	$p$ Value	Result
<b>H4</b>	RF $\rightarrow$ ANT	0.025	0.008	3.032	0.001	Supported

Note.  $**P < 0.05$

#### 4.6.8 Fourth Sub-Hypothesis

The fourth sub-hypothesis (H4a to H4f) explores the influence of individual risk-related dimensions on antecedents (ANT). As presented in Table 4.20, all sub-hypotheses were supported, with each dimension showing a significant effect:

**H4a:** Internal Innovation Capability (IIC) had a  $\beta$  coefficient of 0.008, a  $t$ -value of 2.841, and a  $p$ -value of 0.002, indicating a modest but statistically significant influence.

**H4b:** Networks and Relationships (NR) had a  $\beta$  of 0.005,  $t$ -value of 2.790, and  $p$ -value of 0.003, supporting its relevance to antecedents.

**H4c:** Technology Management (TM) showed a  $\beta$  of 0.007, a  $t$ -value of 3.032, and a  $p$ -value of 0.001, reflecting a clear contribution.

**H4d:** Leadership (LED) demonstrated influence with a  $\beta$  of 0.006,  $t$ -value of 2.791, and  $p$ -value of 0.003.

**H4e:** Strategy (STR) had a  $\beta$  of 0.003, a  $t$ -value of 3.062, and a  $p$ -value of 0.001, indicating its statistical importance.

**H4f:** Culture (CUL) recorded a  $\beta$  of 0.003,  $t$ -value of 2.959, and  $p$ -value of 0.002, confirming its role.

These results affirm that various risk-related factors play a measurable role in shaping organizational antecedents. Despite their generally low  $\beta$  values, their significance underscores the need for SMEs to manage these risk elements proactively when fostering conditions for open innovation.

Table (4.20) Results of the Fourth Sub-Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	$t$ Value	$p$ Value	Result
<b>H4a</b>	IIC → ANT	0.008	0.003	2.841	0.002	Supported
<b>H4b</b>	NR → ANT	0.005	0.002	2.790	0.003	Supported
<b>H4c</b>	TM → ANT	0.007	0.002	3.032	0.001	Supported
<b>H4d</b>	LED → ANT	0.006	0.002	2.791	0.003	Supported
<b>H4e</b>	STR → ANT	0.003	0.001	3.062	0.001	Supported
<b>H4f</b>	CUL → ANT	0.003	0.001	2.959	0.002	Supported

Note. \*\* $P < 0.05$

#### 4.6.9 Corporate Governance Solutions and Antecedents

The fifth hypothesis (H5) evaluates the influence of Corporate Governance Solutions (CGS) on Antecedents (ANT) within Palestinian SMEs. As shown in Table

4.21, the results reveal a statistically significant positive relationship between CGS and ANT, with a standardized  $\beta$  coefficient of 0.021, a standard deviation of 0.010, a t-value of 2.152, and a p-value of 0.016.

These results support the hypothesis, indicating that corporate governance practices such as ethical values, accountability mechanisms, and leadership oversight play an important role in strengthening the organizational conditions (antecedents) required for implementing open innovation strategies. The findings highlight the strategic value of incorporating strong governance mechanisms to foster innovation readiness.

Table (4.21) Results of the Fifth Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	t Value	p Value	Result
<b>H5</b>	CGS → ANT	0.021	0.010	2.152	0.016	Supported

Note. \*\* $P < 0.05$

#### 4.6.10 Fifth Sub-Hypothesis: Corporate Governance Solutions and Antecedents

The fifth sub-hypotheses (H5a and H5b) explore the individual dimensions of Corporate Governance Solutions, Formal Corporate Governance Solutions (FCGS) and Informal Corporate Governance Solutions (ICGS), and their influence on Antecedents (ANT).

**H5a:** Formal Corporate Governance Solutions (FCGS) had a statistically significant positive effect on antecedents, with a  $\beta$  coefficient of 0.015, a standard deviation of 0.007, a t-value of 2.162, and a p-value of 0.016.

**H5b:** Informal Corporate Governance Solutions (ICGS) also demonstrated a significant impact on antecedents, with a  $\beta$  coefficient of 0.006, a standard deviation of 0.003, a t-value of 2.090, and a p-value of 0.019.

These findings confirm the importance of both formal structures such as regulatory compliance and oversight boards and informal mechanisms like shared values and trust in fostering an organizational climate conducive to open innovation. Together, they strengthen the foundational factors (antecedents) that drive innovation strategy implementation in Palestinian SMEs.

Table (4.22) Results of the Fifth Sub-Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	<i>t</i> Value	<i>p</i> Value	Result
<b>H5a</b>	FCGS → ANT	0.015	0.007	2.162	0.016	Supported
<b>H5b</b>	ICGS → ANT	0.006	0.003	2.090	0.019	Supported

Note. \*\* $P < 0.05$

#### 4.6.11 Antecedents and Open Innovation Strategies Through Risk Factors

The sixth hypothesis (H6) explores the moderating effect of Risk Factors (RF) on the relationship between Antecedents (ANT) and Open Innovation Strategies (OIS) in Palestinian SMEs. As shown in Table 4.23, the results indicate a positive and statistically significant moderating relationship, with a  $\beta$  coefficient of 0.075, a standard deviation of 0.044, and a t-value of 1.704. The p-value of 0.045 confirms significance at the 5% level.

These findings support the hypothesis, suggesting that the presence of risk factors influences how antecedents contribute to open innovation strategies. Specifically, although risk elements might traditionally be seen as obstacles, in this context they appear to modulate the effectiveness of organizational antecedents in fostering innovation adoption, potentially by prompting better preparedness and strategic responsiveness within SMEs.

Table (4.23) Results of the Sixth Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	<i>t</i> Value	<i>p</i> Value	Result
<b>H6</b>	RF x ANT → OIS	0.075	0.044	1.704	0.045	Supported

Note. \*\* $P < 0.05$

#### 4.6.12 Sixth Sub-Hypothesis

Sub-hypotheses H6a, H6b, and H6c delve deeper into how Risk Factors (RF) moderate the relationship between the specific antecedents Commitment-Based HR Practices (CBHR), Inter-Departmental Connectedness (IDC), and Centralization of Decision-Making (CDM) and Open Innovation Strategies (OIS). The results are shown in Table 4.24:

**H6a:** RF significantly moderates the effect of CBHR on OIS, with a  $\beta$  coefficient of 0.084, a standard deviation of 0.048, and a t-value of 1.736 ( $p = 0.042$ ).

**H6b:** RF also moderates the influence of IDC on OIS, yielding a  $\beta$  of 0.075, a standard deviation of 0.044, and a t-value of 1.704 ( $p = 0.045$ ).

**H6c:** For CDM, the interaction with RF yields a  $\beta$  of 0.089, a standard deviation of 0.051, and a t-value of 1.742 ( $p = 0.041$ ).

All sub-hypotheses are statistically supported, confirming that risk factors meaningfully moderate the impact of these antecedents on open innovation strategies. These insights suggest that Palestinian SMEs' ability to navigate risk enhances the strategic value of HR practices, internal connectivity, and decision-making structures when pursuing innovation.

Table (4.24) Results of the Sixth Sub-Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	t Value	p Value	Result
<b>H6a</b>	RF x CBHR $\rightarrow$ OIS	0.084	0.048	1.736	0.042	Supported
<b>H6b</b>	RF x IDC $\rightarrow$ OIS	0.075	0.044	1.704	0.045	Supported
<b>H6c</b>	RF x CDM $\rightarrow$ OIS	0.089	0.051	1.742	0.041	Supported

Note. \*\* $P < 0.05$

#### 4.6.13 Antecedents and Open Innovation Strategies Through Corporate Governance Solutions

The seventh hypothesis (H7) evaluates the moderating role of Corporate Governance Solutions (CGS) in the relationship between Antecedents (ANT) and Open Innovation Strategies (OIS) within Palestinian SMEs. The findings in Table 4.25 confirm a statistically significant moderating effect, with a  $\beta$  coefficient of 0.083, a standard deviation of 0.045, and a t-value of 1.864. The p-value of 0.032 supports the hypothesis at the 5% significance level.

This indicates that corporate governance practices enhance the effectiveness of antecedents in facilitating open innovation. The implication is that formal and informal governance mechanisms when embedded effectively can amplify the impact of antecedents such as human resource practices, interdepartmental connectedness, and decision-making structures in driving innovation within SMEs.

Table (4.25) Results of the Seventh Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	<i>t</i> Value	<i>p</i> Value	Result
<b>H7</b>	CGS x ANT → OIS	0.083	0.045	1.864	0.032	Supported

Note. \*\* $P < 0.05$

#### 4.6.14 Seventh Sub-Hypotheses: Antecedents and Open Innovation Strategies Through Corporate Governance Solutions

Sub-hypotheses H7a, H7b, and H7c offer further insight into how Corporate Governance Solutions (CGS) moderate the influence of specific antecedent dimensions Commitment-Based Human Resources (CBHR), Inter-Departmental Connectedness (IDC), and Centralization of Decision-Making (CDM) on Open Innovation Strategies (OIS).

The results are summarized in Table 4.26:

**H7a:** CGS significantly moderates the effect of CBHR on OIS, with a  $\beta$  coefficient of 0.093, a standard deviation of 0.049, and a t-value of 1.899 ( $p = 0.029$ ).

**H7b:** The interaction of CGS and IDC yields a  $\beta$  of 0.083, a standard deviation of 0.045, and a t-value of 1.864 ( $p = 0.032$ ), indicating statistical support.

**H7c:** For CDM, the moderation effect by CGS is also significant, with a  $\beta$  of 0.099, a standard deviation of 0.052, and a t-value of 1.906 ( $p = 0.029$ ).

All three sub-hypotheses are supported. These findings highlight the strategic importance of strong governance mechanisms in managing human capital, promoting cross-departmental collaboration, and optimizing decision-making processes. Corporate governance, when effectively deployed, enhances the capacity of these antecedents to foster open innovation in the complex operational environments of Palestinian SMEs.

Table (4.26) Results of the Seventh Sub-Hypothesis

Hypothesis	Direction	$\beta$ coefficient	Std.	<i>t</i> Value	<i>p</i> Value	Result
<b>H7a</b>	CGS x CBHR → OIS	0.093	0.049	1.899	0.029	Supported
<b>H7b</b>	CGS x IDC → OIS	0.083	0.045	1.864	0.032	Supported
<b>H7c</b>	CGS x CDM → OIS	0.099	0.052	1.906	0.029	Supported

Note. \*\* $P < 0.05$

#### 4.6.15 Constructs Direct Effect

##### Constructs Direct Effect on Antecedent (ANT)

This section evaluates the direct effects of the three antecedent dimensions Commitment-Based Human Resources (CBHR), Centralization of Decision-Making (CDM), and Inter-Departmental Connectedness (IDC) on the Antecedents (ANT) construct. The results, detailed in Table 4.27, reveal statistically significant direct relationships for all three dimensions.

**CBHR → ANT:** The relationship shows a strong and positive direct effect, with a standardized  $\beta$  coefficient of 0.477, a standard deviation of 0.021, and a t-value of 23.003. The p-value is 0.000, confirming high statistical significance.

**CDM → ANT:** This construct also shows a significant effect with a  $\beta$  of 0.275, standard deviation of 0.033, and t-value of 8.272 ( $p = 0.000$ ).

**IDC → ANT:** The direct influence of inter-departmental connectedness is likewise strong, indicated by a  $\beta$  coefficient of 0.417, a standard deviation of 0.025, and a t-value of 16.970 ( $p = 0.000$ ).

These findings confirm that all three constructs—CBHR, CDM, and IDC—play a foundational role in shaping the broader Antecedents construct within Palestinian SMEs. Notably, CBHR had the strongest direct impact, underscoring the central role of human resource commitment in fostering internal readiness for open innovation strategies.

Table (4.27) Results of the Direct Effect on Antecedent (ANT)

Construct	Direction	$\beta$ coefficient	Std.	<i>t</i> Value	<i>p</i> Value	Result
ANT	CBHR → ANT	0.477	0.021	23.003	0.000	Supported
	CDM → ANT	0.275	0.033	8.272	0.000	Supported
	IDC → ANT	0.417	0.025	16.970	0.000	Supported

Note. \*\* $P < 0.05$

##### Direct Effect on Risk Factors (RF)

This section assesses the direct effects of six key constructs on Risk Factors (RF) within Palestinian SMEs. The analysis focused on how Culture (CUL), Internal Innovation Capability (IIC), Leadership (LED), Networks and Relationships (NR), Strategy (STR), and Technology Management (TM) influence the perception and management of risk in open innovation strategies.

As shown in Table 4.28, the results confirm that all constructs significantly and positively impact RF:

**CUL → RF:** Culture exerts a significant influence, with a  $\beta$  coefficient of 0.132, a standard deviation of 0.012, and a t-value of 10.905 ( $p = 0.000$ ).

**IIC → RF:** Internal Innovation Capability has the strongest effect, with a  $\beta$  of 0.311, standard deviation of 0.025, and t-value of 12.221 ( $p = 0.000$ ).

**LED → RF:** Leadership shows a substantial impact, with a  $\beta$  of 0.254, a standard deviation of 0.023, and a t-value of 11.034 ( $p = 0.000$ ).

**NR → RF:** Networks and Relationships contribute meaningfully with a  $\beta$  of 0.192, standard deviation of 0.021, and t-value of 8.968 ( $p = 0.000$ ).

**STR → RF:** Strategy, while demonstrating the lowest  $\beta$  value (0.102), still shows a significant positive influence ( $t = 8.965$ ,  $p = 0.000$ ).

**TM → RF:** Technology Management also plays a notable role, with a  $\beta$  of 0.264, standard deviation of 0.022, and t-value of 12.122 ( $p = 0.000$ ).

These findings affirm that risk in the context of open innovation is significantly shaped by internal capabilities, leadership, technological orientation, and relational factors. The particularly high impact of IIC and TM underscores the need for strengthening innovation systems and digital infrastructure to effectively manage perceived and actual risks in Palestinian SMEs.

Table (4.28) Results of the Direct Effect on Risk Factors (RF)

Construct	Direction	$\beta$ coefficient	Std.	<i>t</i> Value	<i>p</i> Value	Result
<b>MC</b>	CUL → RF	0.132	0.012	10.905	0.000	Supported
	IIC → RF	0.311	0.025	12.221	0.000	Supported
	LED → RF	0.254	0.023	11.034	0.000	Supported
	NR → RF	0.192	0.021	8.968	0.000	Supported
	STR → RF	0.102	0.011	8.965	0.000	Supported
	TM → RF	0.264	0.022	12.122	0.000	Supported

Note. \*\* $P < 0.05$

### Direct Effect on Corporate Governance Solutions

This section evaluates the direct impact of six key constructs on Corporate Governance Solutions (CGS) within Palestinian SMEs. The analysis explores how Decision-Making (DM), Formal Corporate Governance Solutions (FCGS), Governmental Regulations and Transparency (GRT), Informal Corporate Governance

Solutions (ICGS), Knowledge (KNW), and Values (VAL) influence the development and adoption of CGS to support open innovation strategies.

As illustrated in Table 4.29, all examined constructs show statistically significant and positive effects on CGS:

**DM → CGS:** Decision-making demonstrates a significant influence, with a  $\beta$  coefficient of 0.290, standard deviation of 0.015, and a t-value of 19.172 ( $p = 0.000$ ).

**FCGS → CGS:** Formal Corporate Governance Solutions show the strongest direct effect on CGS, with a  $\beta$  of 0.734, standard deviation of 0.032, and a t-value of 23.089 ( $p = 0.000$ ).

**GRT → CGS:** Governmental Regulations and Transparency significantly influence CGS, with a  $\beta$  of 0.480, standard deviation of 0.032, and a t-value of 15.133 ( $p = 0.000$ ).

**ICGS → CGS:** Informal Corporate Governance Solutions contribute positively with a  $\beta$  of 0.305, standard deviation of 0.027, and a t-value of 11.344 ( $p = 0.000$ ).

**KNW → CGS:** Knowledge is also a significant driver, with a  $\beta$  coefficient of 0.108, standard deviation of 0.013, and t-value of 8.268 ( $p = 0.000$ ).

**VAL → CGS:** Values exhibit a notable effect, with a  $\beta$  of 0.218, standard deviation of 0.017, and a t-value of 12.957 ( $p = 0.000$ ).

These results highlight that both formal and informal governance mechanisms, alongside decision-making quality, institutional support, organizational values, and knowledge resources, play a vital role in shaping effective governance practices. The particularly strong influence of FCGS and GRT emphasizes the institutional dimension of governance in enabling innovation in the SME context.

Table (4.29) Results of the Direct Effect on Corporate Governance Solutions

Construct	Direction	$\beta$ coefficient	Std.	t Value	p Value	Result
DM → CGS	0.290	0.015	19.172	0.000	Supported	DM → CGS
FCGS → CGS	0.734	0.032	23.089	0.000	Supported	FCGS → CGS
GRT → CGS	0.480	0.032	15.133	0.000	Supported	GRT → CGS
ICGS → CGS	0.305	0.027	11.344	0.000	Supported	ICGS → CGS
KNW → CGS	0.108	0.013	8.268	0.000	Supported	KNW → CGS
VAL → CGS	0.218	0.017	12.957	0.000	Supported	VAL → CGS

Note.  $**P < 0.05$

## **Chapter Five: Discussion of Findings**

### **5.0 Introduction**

This chapter delivers an extensive discussion of the study's findings, research objectives, and hypotheses. The chapter's aim is to make an interpretation of the empirical findings based on statistical evidence obtained through structural equation modeling (SEM). These interpretations are provided in the context of extant literature and theoretical constructs. It then seeks to describe how the antecedents, risk factors, and corporate governance solutions affect open innovation strategy implementation in Palestinian SMEs, keeping in view the moderating effects identified in the study.

### **5.1 Descriptive Analysis Discussion**

With an average of 4.057 and a positive response rate of 92.6%, the Antecedents (ANT) construct shows near-total agreement on the basic grounds needed to support open innovation. The Commitment-Based HR Practices (CBHR), one of its dimensions, was scored at an average of 4.066. Indicators with the highest scores were Q3 and Q2 (Means = 4.201 and 4.159, respectively), revealing that human resource practices are well-aligned with innovation strategies. These findings simulate what the literature has shown that strategic HRM can be used to improve innovation capacity in organizations (Iqbal et al., 2021; Popa et al., 2017). On the other hand, lower scores in items like Q8 and Q6 offered hints to firms where they could still further enhance their efforts into consistent and inclusive HR engagement initiatives.

Inter-departmental Connectedness (IDC) scored an average of 4.076, supported by a 93.6% positive response rate. Items like Q15 and Q16 received particularly high ratings, pointing to well-established communication channels between departments. Effective coordination is critical for innovation, as supported by Menon et al. (1996), who emphasize that cross-functional collaboration improves product development and service delivery. The Centralization of Decision-making (CDM) dimension, with a mean of 4.029, reflects a tendency toward centralized leadership within Palestinian SMEs (Hussein, 2024). While centralization may help maintain control and reduce uncertainty, excessive reliance on hierarchical decision-making could limit flexibility. Items Q18 and Q20 showed slightly lower means (3.969 and 3.956), indicating moderate room for

improvement in promoting participative decision-making. Nonetheless, item Q17 (Mean = 4.133) suggests satisfaction with current leadership practices.

The Risk Factors (RF) construct with a mean of 4.067 and a positive response rate of 92.2%, highlighting a mature understanding among SMEs of the risk environment related to innovation. Leadership (LED) stood out with the highest mean (4.135), particularly item Q24, which had a 97.7% positive response. This affirms that leadership in these firms is perceived as supportive and well-equipped to navigate innovation challenges, in line with findings by Paul (2024).

Internal Innovation Capability (IIC), with a mean of 4.118, suggests that many SMEs possess the internal mechanisms required to generate and implement new ideas. Items Q28 and Q29 scored highly, although item Q31 revealed some neutral feedback, indicating variability in how innovation is nurtured internally. The Network and Relationships (NR) dimension recorded a mean of 4.077, though item Q34 (Mean = 3.901) revealed potential inconsistencies in external collaboration. A 22.1% neutral response rate points to gaps in networking strategies that could inhibit access to external knowledge, a vital resource for open innovation. This finding supported by Maes and Sels (2014) study findings indicate that radical innovation is positively affected by exploitative learning and by the knowledge sharing capability.

Strategy (STR) was the lowest-scoring risk factor, with a mean of 3.930. This suggests that while SMEs recognize the value of strategic planning, execution may be uneven. Items Q37 and Q39 were notably weaker, reflecting uncertainty in aligning innovation goals with overall business strategies. In contrast, Technology Management (TM) recorded a mean of 4.099 and high agreement on the effective use of digital tools to support innovation, affirming the importance of infrastructure investment as emphasized by Marion and Fixson (2021). The Culture (CUL) dimension received a mean of 4.045. While most indicators showed strong agreement, item Q47 (Mean = 3.914) showed a slightly higher negative response (6.5%). This indicates that cultural resistance to change may still pose a barrier to open innovation, particularly in firms with low-risk tolerance or traditional operational models.

Corporate Governance Solutions (CGS) received the highest construct mean at 4.135 and a remarkable positive response rate of 96.5%. This underscores the pivotal role of governance structures in fostering innovation. The Knowledge (KNW) dimension had a mean of 4.075. While Q51 scored particularly high (Mean = 4.112), item Q48 (Mean =

3.984) showed a lower agreement level, highlighting a need for more consistent knowledge management frameworks (Maharaj, 2009b).

The Values (VAL) dimension achieved a strong mean of 4.153, with items Q56 and Q57 reaching over 98% agreement. These results highlight the importance of shared ethical principles and organizational alignment in supporting collaborative innovation environments (Camilleri et al., 2023). Groupthink (GRT), often seen as a potential innovation inhibitor, was managed effectively in these firms, as shown by a mean of 4.159 and generally high individual item scores. This could mean that while decision-making processes are consensus-driven, firms are also conscious of groupthink risks and know how to avoid them (Lückerath-Rovers, 2024). The decision-making (DM) dimension mirrored GRT with a mean score of 4.154. High scores of 4.201 and 4.208 for items Q68 and Q69 might mean confidence specifically in decision-making processes that are structured and inclusive. Such approaches must be used to assess new opportunities, ensuring strategic directions receive diverse inputs, ultimately aiding in innovation sustenance (Farahmand, 2019).

The Open Innovation Strategies (OIS) had a global mean of 4.118, with a positive response rate of 95.3%. Inbound Practices (IP) scored the highest with a mean of 4.126. Items such as Q75 (Mean = 4.208) suggested a strong focus on external knowledge sources, such as suppliers, customers, and technology providers. This coincides with Pinarello et al. (2022), who stress that inbound innovation practices are a vitality pillar in situations where internal R&D resources are sparse. Outbound Practices (OP) also followed closely behind, with an average of 4.111. Items Q77 and Q78 indicated robust knowledge-sharing and external commercialization activities. However, item Q79 (Mean = 3.966) had the highest negative response (5.7%), revealing inconsistencies in the willingness or ability to externalize innovation outputs. These challenges may reflect insufficient IP protection systems or a lack of market channels for external collaborations.

In conclusion, the descriptive analysis highlights significant strengths in HR alignment, governance, leadership, and the integration of inbound knowledge sources. Palestinian SMEs exhibit a high readiness level for adopting open innovation practices. Nonetheless, strategic alignment, network development, and outbound innovation capabilities present opportunities for improvement. Addressing these areas through policy interventions, capacity building, and technology transfer initiatives will be key to strengthening the innovation ecosystem in the Palestinian SME sector.

## 5.2 Antecedents and Open Innovation Strategies

The results of the first hypothesis (H1) and its sub-hypotheses (H1a–H1c) provide empirical evidence for the role of antecedent factors in promoting open innovation strategies (OIS) among Palestinian SMEs. The main hypothesis (H1) was supported statistically with a standardized path coefficient ( $\beta$ ) of 0.087; a t-statistic of 1.748; and a p-value of 0.041. These statistics describe an important, albeit marginally positive, relationship between the antecedents and the adoption of open innovation strategies. This is even more relevant for Palestinian SMEs because resource shortages and environmental uncertainty make stronger internal innovation capacities an essential requirement. The previous studies support this finding by stressing that SMEs must develop strong internal systems prior to entering any external innovation collaborations (S. Chang et al., 2011; Popa et al., 2017). Without this internal power facility, external collaboration and open innovation framework adoption efforts would be considered ill-oriented or absent of long-term sustainability or impact.

Theories such as the Resource-Based View (RBV) and Dynamic Capabilities are far easier to use while evaluating the relationship between antecedents and open innovation processes. In RBV, the firm gains a sustained competitive advantage by the management of resources that are rare, valuable, unique or non-replaceable resources (Jay Barney, 1991). The Dynamic Capabilities Theory, being grounded in the domain of business studies, asserts that firms should be able to incessantly alter and redesign their resources in response to the external environment (Teece et al., 1997). Dynamic capability development-processes such as acquiring and assimilating new knowledge, forming strategic alliances, and responding swiftly to market changes-are required for the successful implementation of open innovation in Palestinian SMEs.

Sub-hypothesis H1a investigated the impact of Commitment-Based Human Resource Practices on open innovation strategies and yielded a statistically significant relationship ( $\beta = 0.041$ ,  $p = 0.042$ ). The findings reinforce the significance that HR practices have in ensuring that innovation goals are met through employee engagement, capability development, and empowerment. In these SME environments, human capital takes on greater importance, as responsiveness and agility are key. Engaged employees who are well-trained and motivated have more chances to participate creatively and proactively in innovation initiatives. Dadfar et al. (2013) also consider innovative performance to be influenced by employee involvement and leadership support. Thus,

embedding innovation goals in HR practices is quite not just beneficial but essential to fostering open innovation from within.

Sub-Hypothesis H1b analyzed the role of Centralization of Decision-Making (CDM) and its effect on innovation, giving statistically significant results ( $\beta = 0.024$ ,  $p = 0.046$ ). Centralization usually does not receive approval for innovation because it is considered to have been too hierarchical. However, in the context of Palestinian SMEs, centralization appears to provide a strategic advantage by offering swift and focused decision-making in uncertain environments. Limited resources and rapidly changing market dynamics may necessitate centralized control to ensure alignment and reduce risk. S. Chang et al. (2011) suggest that in emerging or high-risk economies, centralized leadership models can support innovation by providing direction and maintaining operational coherence, especially when participatory approaches are impractical or inefficient.

Lastly, sub-hypothesis H1c examined the effect of Inter-departmental Connectedness (IDC) on open innovation and reported a significant relationship ( $\beta = 0.036$ ,  $p = 0.035$ ). This finding reinforces the importance of internal collaboration and information sharing across departments in fostering innovation. When teams work in silos, opportunities for creativity and cross-functional learning are lost. Conversely, connectedness facilitates knowledge sharing, collective problem-solving, and unified execution of innovation strategies. As Tobarí et al. (2024) argue, effective cross-functional integration improves responsiveness, agility, and creativity, which are critical to sustaining innovation efforts in SMEs. Thus, enhancing internal connectedness is a strategic imperative for organizations aiming to institutionalize open innovation.

In sum, H1 and its adjoining sub-hypotheses reveal the interrelationship between internal organizational practices and structures and open innovation adoption. While each diametrically affects the phenomenon differently, their aggregate effect lies in the need for an internal ecosystem that supports innovation. For SME managers, these results stress the necessity of aligning HR systems with innovation goals, setting up an inter-departmental collaboration arena, and instituting participation in decision-making. Also, policy-makers and institutional actors ought to devise support programs to help SMEs in the formation of such internal capabilities to offer more promising horizons for innovation and competitiveness.

### 5.3 Risk Factors and Open Innovation Strategies

The second hypothesis (H2) examined the effect of Risk Factors (RF) on the adoption of Open Innovation Strategies (OIS) by Palestinian small and medium-sized enterprises. Opposing the conventional viewpoint that risk inhibits innovation, this study found a statistically significant positive relationship between the constructs ( $\beta = 0.145$ ,  $t = 2.536$ ,  $p = 0.006$ ). This finding, therefore, signals that balking at risk is counterproductive to innovation, as risk may become a driver for strategic change and creative adaptation. In a complex uncertain operational environment of Palestinian SMEs, risk seems to encourage a firm to rise above its internal limitations and thereby embark on open innovation practices to enlarge its scopes of survival, learning, and growth.

This result lends weight to the Institutional Theory by Scott (2005) and Dynamic Capabilities Theory by Teece et al. (1997), that shed light on the role of risks in impacting OI processes and outcomes, which suggests that exposure to uncertainty triggers transformational learning and capability building within an organization. Adversity thus becomes, in a manner of speaking, an impetus for external collaboration, experimentation, and organizational agility. Therefore, firms are not adopting open innovation in a challenging environment simply as a strategic option but as an urgent adaptation. The positive association between risk and innovation in this study is in line with such a conceptual view and supports the knowledge that SMEs can utilize risk to enhance innovative outcomes.

Sub-hypotheses H2a-H2f offer details regarding cause-and-effect relations between the specific dimensions of risk factors and open innovation. H2a confirmed that Internal Innovation Capability significantly impacts OIS ( $\beta = 0.045$ ,  $p = 0.008$ ) whereby a firm is capable in internal R&D and problem-solving as well as well-positioned to exploit external knowledge and technologies (Laforet, 2011). This internal setup supports the absorptive capacity required for the successful adoption of open innovation models.

Sub-hypothesis H2b confirmed that Networks and Relationships have a positive influence over OIS ( $\beta = 0.028$ ,  $p = 0.011$ ). In the case of resource-constrained SMEs, such networks, alliances, partnerships, and knowledge sharing may compensate for internal limitations and may increase the innovation potential. Such findings are consistent with the open innovation framework put forth by Dodourova and Bevis (2014), stressing the need for collaboration with external actors in the co-creation and dissemination of innovations.

Sub-hypothesis H2c demonstrated that Technology Management significantly correlates with OIS ( $\beta = 0.038$ ,  $p = 0.007$ ). The adoption and strategic application of technological tools and platforms favor knowledge flow, communication, and process innovation. These are consistent with Subtil de Oliveira et al. (2018), who argued that technological infrastructure is indeed one of the enablers of innovation, especially in resource-scarce SMEs.

Sub-hypothesis H2d finds Leadership (LED) to have a positive, significant association with OIS ( $\beta = 0.037$ ,  $p = 0.009$ ). This suggests the presence of visionary and adaptive leadership for handling risk and uncertainty. When leaders are proactive in encouraging innovation, supporting their teams' autonomous functioning, and articulating the transformation vision, they are basically creating fertile grounds for innovation to survive even in the face of pressure (Moore, 2012).

Sub-hypothesis H2e tested the effect of Strategy (STR) on OIS and yielded a marginal but significant effect ( $\beta = 0.015$ ,  $p = 0.007$ ). This would imply that a minimum level of strategic planning and goal-setting provides sufficient clarity and focus for supporting innovation during risky conditions. A clear strategy, however limited in scope, acts as a guiding framework that aligns innovation initiatives with long-term organizational objectives (Hossain & Kauranen, 2016).

Finally, sub-hypothesis H2f found that Culture (CUL) contributes positively to OIS ( $\beta = 0.019$ ,  $p = 0.008$ ). This affirms that an organizational culture that supports experimentation, tolerates failure, and values adaptability is crucial for open innovation. In conservative or hierarchical business environments, cultural resistance can be a significant barrier. Therefore, fostering a risk-tolerant and change-oriented culture becomes a prerequisite for effective innovation (Arundel, 2017).

All six sub-hypotheses were supported, suggesting that Palestinian SMEs are not only resilient in the face of risk but are actively transforming risk into an opportunity for innovation. These results challenge the conventional assumption that risk is purely detrimental to innovation. Instead, they reinforce the view that in volatile or resource-constrained environments, risk can be a motivator for firms to seek external innovation partnerships, experiment with new models, and develop dynamic capabilities. From a managerial perspective, this insight encourages SME leaders to adopt a more strategic approach to risk by embedding innovation practices within their risk management frameworks. For policymakers, the findings suggest the need to support SMEs with tools, training, and platforms that help them manage risk while innovating openly.

## 5.4 Corporate Governance Solutions and Open Innovation Strategies

The third hypothesis (H3) investigated the relationship between Corporate Governance Solutions (CGS) and Open Innovation Strategies (OIS) within the context of Palestinian SMEs. The empirical analysis revealed a strong and statistically significant positive association, with a standardized path coefficient of  $\beta = 0.654$ , a t-value of 8.501, and a p-value of 0.000. These results provide robust evidence that sound governance structures, both formal and informal, play a critical role in enabling firms to effectively adopt and implement open innovation. The strength of the relationship highlights the fundamental importance of governance in encouraging strategic coherence, stakeholder trust, and practices of risk-managed innovation in resource-constrained and uncertain business environments.

This finding reinforces the theoretical claim that good governance improves the ability of organizations to engage in innovation by fostering accountability, transparency, and alignment between action programs and strategic intent. Knowledge is created, shared, and used by the organization. According to the Resource-based View (RBV) (Barney, 1991), effective knowledge governance converts knowledge assets into strategic resources that spur innovation. In SMEs, wherein innovation efforts are largely informal and rarely allocated financial or human resources, the existence of governance ensures that innovations are not just ad hoc initiatives but are truly embedded in the institutional process and cultural norms (Meurs et al., 2025). Well-governed firms can absorb external knowledge with greater efficiency, coordinate intra-firm activities across diverse functional areas, and manage relational partner interfaces from the outside, thereby maximizing the returns to their innovation strategies (Lin, 2007).

The significance of CGS was further explored with sub-hypotheses H3a and H3b regarding the roles of FCGS and ICGS. Sub-hypothesis H3a found that FCGS, including policies, organizational oversight systems, and compliance mechanisms, positively and significantly affect OIS ( $\beta = 0.480$ ,  $t = 8.814$ ,  $p = 0.000$ ). Formal governance systems provide a clear framework within which innovation decisions are made, lessening the uncertainty around such decisions and helping align innovation projects with organizational mandates for risk tolerance. According to agency theory, in line with the thoughts, governance structures must be designed in such a way that the interests of managers and stakeholders are aligned to prevent the hazards from opportunistic behavior (Jensen & Meckling, 2019).

On the contrary, sub-hypothesis H3b found that ICGS, which includes shared values, organizational culture, and informal networks, also strengthens open innovation efforts ( $\beta = 0.199$ ,  $t = 6.467$ ,  $p = 0.000$ ). Informal mechanisms nurture an ecosystem based on collaboration and trust that foster creativity and experimentation. These mechanisms serve only to motivate, strengthen internal visibility, and diminish resistance. This finding aligns with Aslam (2022), who asserted that informal governance mechanisms usually fill the gap when formal mechanisms are lacking and mold the social and ethical fabric of an organization," a necessary condition for innovation in SMEs.

Taken together, the findings from H3, H3a, and H3b indicate the necessity of both formal and informal governance for innovation success. Formal governance mechanisms are about imparting structure, rules, and consistency to manage innovation in a strategic way, whereas informal mechanisms are about building trust, opening communication, and instilling adaptability that enables individuals and teams to take on initiatives. It is in this dual role that governance becomes extremely relevant for SMEs in transitional economies such as Palestine, where institutional voids turn external pressures into a challenge for structural resilience and cultural adaptability.

## **5.5 Risk Factors and Antecedents**

This fourth hypothesis (H4) was an attempt to grasp the nature of the connection between Risk Factor (RF) and Antecedent (ANT) in Palestinian SMEs. Traditionally, risk has been viewed as a constraint to organizational development. However, this study calls such a notion into question. The results reveal a positive and significant relationship between RF and ANT, with a standardized path coefficient of  $\beta=0.025$ ,  $t$ -value 3.032, and  $p$ -value 0.001. Even though the effect size is small, its significance supports H4 and sheds important light on how risk could stimulate the building of internal innovation structures.

These results hint that in uncertain environments, risk exposure may force SMEs to start reinforcing their internal systems with greater emphasis on human resource practices, internal communication, and decision-making processes as a way of responding to external volatility. Rather than putting the organization into paralysis, risk found its way into promoting learning and capability building internally. Resistance to change has been found to have a negative effect on antecedents in studies by Luna-Reyes et al. (2008).

The sub-hypotheses H4a through H4f further deconstruct this relationship, each demonstrating statistically significant effects of specific risk dimensions on antecedents.

H4a confirmed that Internal Innovation Capability (IIC) positively influences antecedents ( $\beta = 0.008$ ,  $t = 2.841$ ,  $p = 0.002$ ), indicating that SMEs with established internal innovation mechanisms are more likely to invest in foundational structures that support sustained innovation (Lengnick-Hall & Lengnick-Hall, 2002). Sub-hypothesis H4b found that Networks and Relationships (NR) also have a positive effect ( $\beta = 0.005$ ,  $t = 2.790$ ,  $p = 0.003$ ), underscoring the role of external connectivity in shaping internal innovation readiness. Relationships with partners, suppliers, and knowledge institutions may offer insights and benchmarks that inspire internal development. According to Dynamic Capabilities theory, firms would compete and innovate by continuously reconfiguring and integrating their internal and external resources (Teece, 2007).

In H4c, Technology Management (TM) was shown to significantly impact antecedents ( $\beta = 0.007$ ,  $t = 3.032$ ,  $p = 0.001$ ), reinforcing the importance of technological infrastructure in enabling innovation-supportive internal processes. This finding supports the idea that digital readiness facilitates not only operational efficiency but also the development of systems conducive to knowledge integration and experimentation (Enkel et al., 2009). H4d confirmed the role of Leadership (LED) ( $\beta = 0.006$ ,  $t = 2.791$ ,  $p = 0.003$ ), highlighting that visionary and adaptable leaders are instrumental in shaping internal structures, setting innovation agendas, and mobilizing resources effectively. The leaders are oriented toward stability rather than experimentation and so, at times, leaders discourage their employees from engaging in trial-and-error innovations for reasons of potential monetary losses or process disruption (Weick & Sutcliffe, 2011).

Finally, both Strategy (STR) and Culture (CUL) were found to significantly influence antecedents, with equal standardized coefficients of  $\beta = 0.003$ . H4e ( $t = 3.062$ ,  $p = 0.001$ ) emphasized the importance of even minimal strategic direction in fostering a supportive internal environment for innovation (Davis, 2024), while H4f ( $t = 2.959$ ,  $p = 0.002$ ) demonstrated that cultural factors, such as openness to change, flexibility, and shared values contribute meaningfully to internal innovation readiness (Hofstede, 1991). Despite their small coefficients, these dimensions collectively affirm that risk-related factors are multifaceted and interact to shape internal preparedness.

In summary, the findings from H4 and its sub-hypotheses suggest that Palestinian SMEs are not merely reacting to risk but leveraging it to strengthen their internal foundations. These results contribute to a growing body of literature that conceptualizes risk not just as an external hazard, but as a trigger for strategic development and innovation capacity building. For managers, this highlights the importance of integrating

risk considerations into internal capability planning. For policymakers, the implication is that enabling SMEs to manage and learn from risk, through training, infrastructure support, and innovation-friendly policies can promote a more resilient and innovation-ready business sector.

## **5.6 Corporate Governance Solutions and Antecedents**

The fifth hypothesis (H5) examined the influence of Corporate Governance Solutions (CGS) on Antecedents (ANT) within Palestinian SMEs. The statistical analysis yielded a significant positive relationship, with a standardized  $\beta$  coefficient of 0.021, a  $t$ -value of 2.152, and a  $p$ -value of 0.016. Although the effect size is moderate, the significance of the relationship confirms that H5 is supported. This outcome highlights the critical role of governance mechanisms in shaping internal organizational readiness for adopting innovation. Specifically, CGS facilitates the development of internal structures, such as HR practices, communication channels, and decision-making frameworks that are essential for implementing open innovation strategies.

From this perspective, governance mechanisms embrace compliance and control but equally nurture an environment for innovation. Ethical leadership, transparent organizations, and a culture of accountability generate a strategic and internally cohesive atmosphere. Governance solutions comprehend causes well-using theories, namely the Resource-Based View (RBV), Agency Theory, and Stewardship Theory. Those governance solutions allow employees to enact employee-oriented rules within the corporation; hence, organizational HR processes are aligned with organizational objectives (Biliaev, 2024). Stewardship theory bases itself strongly on governance systems that incentivize employee behaviors to align with corporate goals through intrinsic motivations, trust, and collaboration (Davis et al., 1997).

Further clarifications on the importance of the CGS-ANT exist with sub-hypotheses H5a and H5b, which distinguish between Formal Corporate Governance Solutions (FCGSs) and Informal Corporate Governance Solutions (ICGSs). Sub-hypothesis H5a confirmed that the FCGS positively influenced the antecedents ( $\beta = 0.015$ ,  $t = 2.162$ ,  $p = 0.016$ ); these involved formalized systems of corporate policies, internal controls, institutional oversight, and compliance frameworks. Such mechanisms indeed lay down the procedural and regulatory foundation of innovation readiness, thereby providing clarity, discipline, and stability within the organizations. Such

mechanisms must ensure innovation-oriented activities are planned and implemented in alignment with concept, objectives, and operational standards of the firm. Interdepartmental communication is endorsed by formalized governance consisting of set reporting procedures, cooperation procedures across departments, or periodic evaluation of performance (Bui & Krajcsák, 2023).

Meanwhile, it was also found that ICGS, such as shared values, informal norms, and trust-based networks, positively influence antecedents ( $\beta = 0.006$ ,  $t = 2.090$ ,  $p = 0.019$ ). Due to their very nature of informal governance, these elements hold behavioral influence, internal cohesion, and collaboration within an organization, however, no formal structure exists. The informal governance fosters the culture of innovation by obstructing resistance to change and by allowing employees free channels of communication and involvement. Such informal governance promotes cooperation and empowerment to the workforce, inherently cultivating a more committed working force. Leadership precepts accentuating professional trust, knowledge sharing, and joint decision-making will encourage employees to participate in innovation activities (Simons, 2002).

These findings have implications for managers and policy-makers alike. SME leaders should consider a governance approach including a formal compliance system and cultural initiatives for creativity and experimentation. Governance cannot be only a matter of compliance but must be also perceived as a strategic tool for creating innovation capacity. For policy-makers and institutions engaged in supporting SMEs, the results of this study would suggest an emphasis on governance literacy and ethical leadership. The promotion of programs that train SME leaders in both formal governance procedures and values-based management will go a long way toward increasing the innovation potential of SMEs, especially in emerging and transitional economies.

### **5.7 The Moderating Role of Risk Factors between Antecedents and Open Innovation Strategies**

The H6 explored national Risk Factors (RF) aimed at moderating a relationship between Antecedents (ANT) and Open Innovation Strategies (OIS) in Palestinian SMEs. Results indicated a significant moderating effect, with a  $\beta$  standardized coefficient of 0.075, t-value of 1.704, and p-value of 0.045. Therefore, this supports H6 and suggests that internal antecedents under risky situations strengthen the influence of their adoption

of open innovation. Risk factors, instead of just being external constraints, are positively interacting with internal organizational mechanisms to channel responsiveness toward innovation (Lima Rua et al., 2023). Risk factors such as limited resources, network vulnerabilities, leadership challenges, and cultural resistance according to Roldan Bravo et al. (2022), moderate the adoption of OI. Such risk factors may either strengthen or diminish the ability of these antecedents to cultivate creativity.

This finding offers an essential insight into SMEs' adaptive capability. The presence of risk seems to make firms squeeze more value out of their existing internal systems such as HR structures, communication channels, and central authority to promote innovations in a focused manner. Consequently, faced with uncertainty in their business environment, SMEs are forced into a corner in optimizing their internal capacities as countermeasures to environmental volatility. This supports another new direction in the literature positioning risk not just as a hazard but as a trigger for strategic learning and organizational agility (Jaafar et al., 2025).

The moderating dynamics of RF were further examined through sub-hypotheses H6a to H6c, each addressing the interaction between risk and a specific antecedent dimension. Sub-hypothesis H6a confirmed that RF significantly moderates the effect of Commitment-Based HR Practices (CBHR) on OIS ( $\beta = 0.084$ ,  $t = 1.736$ ,  $p = 0.042$ ). This suggests that in risk-laden environments, strategically aligned HR practices, such as employee empowerment, continuous training, and innovation incentives become even more crucial. Under pressure, these practices serve not only to motivate staff but also to ensure that human capital contributes actively to innovation goals. Commitment-based HR policies are always important to spur creativity and determination in the teams. Yet implementation of OI practices might well take a backseat-to-low implementation due to low budgets and high rates of employee attrition (Nayak et al., 2022). The Dynamic Capabilities Theory claims firms should actively change their HR policies to reduce risk while maintaining their innovative capability (Teece, 2007).

Sub-hypothesis H6b identified that RF significantly moderates the relationship between Inter-Departmental Connectedness (IDC) and OIS ( $\beta = 0.075$ ,  $t = 1.704$ ,  $p = 0.045$ ). The implication is that in the face of external uncertainty, the effectiveness of internal communication and collaboration becomes amplified. Risk environments generate urgency and shared challenges, which in turn encourage cross-functional coordination and knowledge sharing. This synergy improves an SME's capacity to integrate and utilize external knowledge, thus facilitating the implementation of open

innovation strategies. Fragmentation in markets, political unpredictability, and an unreliable network constitute the internal and external conditions that severely stymie interdepartmental collaboration, and on this basis, firm experiences the hindrance being placed upon its ability to maintain intact innovation processes (Scott, 2005).

Sub-hypothesis H6c revealed that RF also strengthens the impact of Centralization of Decision-Making (CDM) on OIS ( $\beta = 0.089$ ,  $t = 1.742$ ,  $p = 0.041$ ). This supports the idea that in risk-prone conditions, centralized leadership can offer the focused, rapid decision-making necessary for innovation. Concentrated authority in uncertain environments enables SMEs to respond decisively and strategically to emerging threats and opportunities, which is essential for innovation execution. According to contingency theory, both exterior conditions require organizations to adapt their control mechanisms or schemes; that is, there is no fixed decision-making structure that always fits all (Donaldson, 2001).

Collectively, these results position risk not as a passive contextual backdrop but as an active moderating force that enhances the strategic role of antecedents. SMEs that recognize and respond to risk are more likely to optimize their internal resources, resulting in more agile and innovation-oriented organizational behavior. For managers, these findings suggest the importance of building risk-aware systems and embedding innovation objectives within them. For policymakers, the insights reinforce the need to support SMEs through risk management training and resource platforms that facilitate strategic planning in uncertain environments.

## **5.8 The Moderating Role of Corporate Governance Solutions between Antecedents and Open Innovation Strategies**

The seventh hypothesis (H7) investigated the moderating role of Corporate Governance Solutions (CGS) in the relationship between Antecedents (ANT) and Open Innovation Strategies (OIS) within Palestinian SMEs. The statistical analysis revealed a significant interaction effect, with a standardized  $\beta$  coefficient of 0.083, a t-value of 1.864, and a p-value of 0.032. These findings validate the hypothesis and demonstrate that CGS, comprising both formal and informal governance mechanisms, positively moderates the influence of internal organizational antecedents on open innovation practices.

This result emphasizes the strategic importance of corporate governance in enhancing the effectiveness of internal structures such as human resource systems,

interdepartmental coordination, and leadership processes. When governance mechanisms are robust and well-integrated, they reinforce the alignment between internal capacities and innovation objectives, thereby strengthening an SME's ability to adopt and sustain open innovation strategies. Some organizational capabilities, development plus commitment-related human resources practices, interdepartmental connectivity, and decision-making frameworks-are to be governed through structured decision-making, leadership alignment, and resource management processes (Rosyafah & Pudjowati, 2024).

Further clarity is provided through sub-hypotheses H7a, H7b, and H7c, each of which explores the moderating effect of CGS on specific antecedents. Sub-hypothesis H7a confirmed that CGS significantly moderates the effect of Commitment-Based HR Practices (CBHR) on OIS ( $\beta = 0.093$ ,  $t = 1.899$ ,  $p = 0.029$ ). This finding suggests that formal structures such as performance policies and ethical standards elevate the contribution of HR systems toward innovation. By ensuring accountability, clear roles, and strategic alignment, governance mechanisms help transform HR practices into powerful drivers of innovation. Traditional theorists, such as Donaldson (2001), view contingency theory as an explanation for organizations. He contends that decision-making processes should vary with respect to variables in the external environment.

Sub-hypothesis H7b demonstrated that CGS also moderates the relationship between Inter-Departmental Connectedness (IDC) and OIS ( $\beta = 0.083$ ,  $t = 1.864$ ,  $p = 0.032$ ). Governance frameworks help in establishing transparent communication and cross-functional collaboration necessary for open innovation. The governance structures through mechanisms of internal control, commonly held values, and norms encourage the practice of integrating outside departments to carry out innovation and effectively coordinate its activities. Inter-departmental linkage mostly finds application in OI adoption when governance mechanisms exact clear definition of roles and duties, including reporting structures. The rationale being that people will be motivated and prepared to embark upon collaborative-interdepartmental problem-solving (Donaldson, 2001).

Moreover, sub-hypothesis H7c revealed a significant moderating effect of CGS on the relationship between the Centralization of Decision-Making (CDM) and OIS ( $\beta = 0.099$ ,  $t = 1.906$ ,  $p = 0.029$ ). These results imply that when centralized decision-making is grounded in sound governance principles, such as clarity, legitimacy, and responsiveness, it becomes far more capable of being used to apply decision rigor in

addressing innovation challenges. In that regard, CGS legitimizes authority, structures, and decision-making, and ensures that decisions remain strategically focused, all of which are essential in providing for fast, deliberate innovation activities. Such governance arrangements ensure that decision-making is tied with both the firm's strategic emphasis and the objectives of OI, bridging the gap between the central leadership authority and the decentralized innovation needs (Cheema & Rondinelli, 2007).

Taken together, these results confirm that while CGS governs organizational behavior, it also encourages innovation, whereby it amplifies the strategic role played by internal antecedents. SMEs, with their limited formal systems and resource constraints, can greatly benefit from embedding solid governance practices, both structural and cultural, throughout. Managers must consider governance not as a mere compliance issue but as a key enabler of innovation-driven growth. Policy-makers also have a key role to play. By promoting governance training and developing SME-oriented regulatory frameworks, they can help institutionalize innovation-supportive governance practices. Initiatives that integrate ethical leadership development, procedural accountability, and organizational transparency are essential for ensuring that innovation is both feasible and sustainable across diverse enterprise settings.

## **5.9 Direct Effects on Antecedents (ANT)**

The study showed that three dimensions of Antecedents (ANT) are considered to have strong and statistical significance with direct effects: Commitment-Based Human Resources (CBHR), Centralization of Decision-Making (CDM), and Inter-Departmental Connectedness (IDC). CBHR was most influential ( $\beta = 0.477$ ,  $t = 23.003$ ,  $p = 0.000$ ), emphasizing that employee commitment and strategic HR coordination are elemental to innovation readiness. IDC was next in line with a considerable effect ( $\beta = 0.417$ ,  $t = 16.970$ ,  $p = 0.000$ ), thus endorsing the need for inter-departmental coordination and information sharing. CDM also had a significant impact ( $\beta = 0.275$ ,  $t = 8.272$ ,  $p = 0.000$ ), confirming that a greater decision-making structure leads to innovation capacity. These results emphasize the hybrid nature of the antecedents and their dependence on such elements as human resources, organizational structure, and cross-functionality. These results are consistent with the findings of S. Chang et al. (2011) and Dadfar et al. (2013), who also emphasized strategic HR practices and internal collaboration for innovation readiness.

### **5.10 Direct Effects on Risk Factors (RF)**

The model was further used to assess the direct effects of some of the internal factors Culture (CUL), Internal Innovation Capability (IIC), Leadership (LED), Networks and Relationships (NR), Strategy (STR), and Technology Management (TM) upon Risk Factors (RF). IIC emerged as the most pronounced factor ( $\beta = 0.311$ ,  $t = 12.221$ ,  $p = 0.000$ ), pointing out that a firm's ability to innovate directly influences how it perceives and manages risks. TM also exerted a pertinent influence on risk perception and management ( $\beta = 0.264$ ,  $t = 12.122$ ,  $p = 0.000$ ), stressing the importance of technical infrastructure in this process. LED ( $\beta = 0.254$ ,  $t = 11.034$ ,  $p = 0.000$ ) and NR ( $\beta = 0.192$ ,  $t = 8.968$ ,  $p = 0.000$ ) were also found relevant, indicating that leadership behavior and external collaboration inform risk preparedness. CUL ( $\beta = 0.132$ ,  $t = 10.905$ ,  $p = 0.000$ ) and STR ( $\beta = 0.102$ ,  $t = 8.965$ ,  $p = 0.000$ ) also impinge on risk conceptualization and reaction, thereby implying that internal norms and orientations are perceived as an important way in which SMEs conceive and respond to risk in open innovation. This is congruent with the findings of Popa et al. (2017) , who claim that internal innovation capabilities and external networks enhance organizational agility under risk.

### **5.11 Direct Effects on Corporate Governance Solutions (CGS)**

The last series of analyses were carried out to assess how the six variables, Decision-Making (DM), Formal Corporate Governance Solutions (FCGS), Governmental Regulations and Transparency (GRT), Informal Corporate Governance Solutions (ICGS), Knowledge (KNW), and Values (VAL), affect Corporate Governance Solutions. FCGS had the greatest impact ( $\beta = 0.734$ ,  $t = 23.089$ ,  $p = 0.000$ ), emphasizing the structural feature of governance systems regarding innovation. GRT also had a strong impact ( $\beta = 0.480$ ,  $t = 15.133$ ,  $p = 0.000$ ), indicating the setting of the institution. DM ( $\beta = 0.290$ ,  $t = 19.172$ ,  $p = 0.000$ ) and ICGS ( $\beta = 0.305$ ,  $t = 11.344$ ,  $p = 0.000$ ) strengthened the necessity for a balance between process control and cultural cohesiveness. KNW ( $\beta = 0.108$ ,  $t = 8.268$ ,  $p = 0.000$ ) and VAL ( $\beta = 0.218$ ,  $t = 12.957$ ,  $p = 0.000$ ) were also significant, highlighting that an organization's knowledge base and shared values are essential to shaping governance arrangements. All these findings confirm the fact that governance systems in SMEs are governed by a combination of formal institutional arrangements, leadership practices, and informal cultural arrangements. These are all

critical elements in enabling open innovation. Maharaj (2009b) view further confirms this by strongly emphasizing both formal and informal governance in the direction of innovation strategy.

## **Conclusion**

This research aims to provide compelling empirical evidence on the descriptive nature of the multilateral association between Antecedents (ANT), Risk Factors (RF), and Corporate Governance Solutions (CGS) in the realm of Open Innovation Strategy (OIS) adoption among Palestinian SMEs. Using a sound SEM approach, the results demonstrated that open innovation cannot be implemented successfully just through isolated internal practices but instead requires a complex network comprising interrelated internal and external factors.

In particular, the research established that antecedents such as commitment-based HR practices, centralization of decisions, and inter-departmental connectedness are found to be crucial to Innovation Readiness. These antecedents increase the absorptive capacity of SMEs, the ability to acquire, assimilate, and apply external knowledge, very much needed in open innovation processes, especially in resource-scarce environments like Palestine.

The study treats risk factors, which traditionally constitute inhibitors of innovation, as catalysts in strategic renewal and learning. Things such as leadership in uncertain environments, technology management, and risk culture are shown to push firms into adapting, collaborating externally, and searching for pathways to innovation. From another view, these positions risk not simply in the way of contextual threat but as the dynamic moderator that strengthens the capacity of internal practices to mold innovation outcomes.

Equally, corporate governance solutions both formal (e.g., policies, compliance structures) and informal (e.g., shared values, ethical leadership) prove to be foundational in aligning organizational systems and fostering a climate of accountability, trust, and experimentation. The governance mechanisms not only provide structural oversight but also reinforce the innovation-enabling behaviors that help firms navigate complexity and ambiguity.

Furthermore, interaction effects confirm that innovation is best conceived of as a systemic phenomenon and thus should be addressed through a more encompassing

approach toward SMEs. As risk and governance moderate the effect of antecedents, their influence is seen to amplify or diminish, rendering these antecedents insufficient by themselves to sustain innovation. Hence innovation manifests as the emergent interaction between a well-aligned system of human capital, adaptive response to risk, and ethically grounded governance structures.

## **Contribution**

### **Theoretical Contribution**

The study here adds theoretical value by guiding the creation of a new integrative framework interrelating three major constructs--antecedents, risk factors, and corporate governance solutions--to explain the adoption of Open Innovation Strategies (OIS) in Palestinian SMEs. Also, this research attempts to validate relationships and moderate effects among the constructs through SEM, providing a strong model for understanding the interaction of internal organizational readiness, environmental uncertainty, and governance mechanisms to impact innovation. This integrative perspective fills a major gap in literature, where fragmented approaches have often considered these factors in isolation.

The study also challenges the traditional notion that risk is inherently detrimental to innovation. By empirically demonstrating that risk factors serve as positive moderators that amplify the effect of antecedents on innovation outcomes, the research contributes to both Institutional Theory and the Dynamic Capabilities Theory. It reframes risk as a strategic catalyst that enables firms to develop adaptive capabilities, especially under conditions of uncertainty. Additionally, the dual exploration of formal and informal governance mechanisms adds depth to governance literature. By highlighting how policies, compliance frameworks, shared values, and ethical leadership collectively shape innovation behavior, the study enriches theoretical understanding, particularly in settings marked by institutional voids.

### **Practical Contribution**

From a practical standpoint, this research offers actionable implications for SME leaders, policymakers, and development organizations. It emphasizes the importance of strategically aligning internal systems, especially human resources, leadership, and interdepartmental collaboration with innovation goals. SME managers are encouraged to

view HR practices as vehicles for capability development and to use decision-making structures that are flexible yet disciplined in driving innovation. Moreover, the study advocates for a proactive approach to risk. Rather than treating risk as a constraint, managers should integrate risk management into innovation planning, recognizing that adversity can drive learning, collaboration, and strategic renewal.

The research also provides an understanding of the importance of governance as a catalyzer of innovation. Governance structures, both formal (e.g., oversight, compliance, and accountability) and informal (e.g., culture cohesion, ethical norms, and trust), are found to erect an environment conducive to innovation. In the case of this insight, governance should be considered as evolving from regulatory necessity to being used as a strategic tool to sustain the capacity for innovation. For policymakers and institutional actors, the findings highlight the latent need for programs designed to increase the governance literacy of SMEs, promote ethical leadership, and build support for risk-informed infrastructure. Such insights become even more relevant in emerging economies, such as Palestine, wherein SMEs tend to operate under volatile conditions and institutional constraints.

## **Practical Implications and Recommendations**

### **Practical Implications for Practitioners**

For practitioners, especially SME managers and policymakers, the findings of this study offer actionable and strategic insights to enhance innovation in Palestinian SMEs and similar environments. Firstly, SME managers should focus on strengthening internal capabilities particularly in human resource practices, interdepartmental coordination, and leadership responsiveness. These elements are identified as foundational drivers of innovation. Specifically, managers should implement commitment-based HR practices to foster employee engagement and capabilities, ensure interdepartmental connectedness to facilitate knowledge sharing, and develop responsive leadership that adapts to both internal and external challenges.

Moreover, risk should not be viewed solely as a hindrance but rather as an opportunity for growth. Managers are encouraged to strategically leverage risk to build organizational resilience. By fostering a culture that embraces uncertainty and promotes learning through experimentation, organizations can transform potential risks into valuable opportunities for innovation. This approach will allow SMEs to better navigate

the unpredictable environments in which they operate, ultimately enhancing their adaptability and competitive edge.

In addition, effective governance, both formal (policies, procedures, compliance mechanisms) and informal (values, trust, shared cultural norms), is essential for sustaining innovation. Governance frameworks should be institutionalized within the organization to ensure structural integrity and cultural cohesion in innovation efforts. SME managers are advised to embed governance practices that support strategic alignment, accountability, and transparency, which are critical for long-term innovation success.

### **Practical Implications for Policymakers**

For policymakers, the study suggests several key actions to support SMEs in fostering innovation. Firstly, training programs focused on risk management should be promoted to equip SME leaders with the skills needed to identify, assess, and manage innovation-related risks effectively. Additionally, access to digital tools and technology platforms should be enhanced, enabling SMEs to modernize their operations and embrace digital transformation as a vital enabler of innovation.

Policymakers should also advocate for governance literacy among SME managers, ensuring that organizational leaders understand the critical role of governance in sustaining innovation. This includes educating SMEs on both formal governance mechanisms (such as compliance and oversight) and informal practices (such as building trust and shared values). Supportive policies that foster a conducive environment for governance best practices will empower SMEs to innovate with greater confidence.

Lastly, capacity-building programs specifically tailored to SMEs should integrate the three pillars identified in this study: internal readiness, adaptive governance, and strategic risk response. By offering targeted resources and support in these areas, policymakers can significantly enhance the long-term competitiveness and innovation capacity of SMEs, ultimately contributing to broader economic growth.

### **Recommendations for Future Studies**

**Longitudinal Research:** Future research could adopt longitudinal study designs to track how open innovation strategies evolve within SMEs over time. This would

provide insights into the dynamic nature of innovation processes and how they adapt to changing market and environmental conditions.

**Cross-Sector Analysis:** Expanding the research to include SMEs across different sectors (e.g., manufacturing, services, technology) would provide a broader understanding of the factors influencing open innovation in various contexts. A specific analysis could reveal whether certain strategies or practices are more effective in specific industries.

**Impact of Digital Transformation:** Future studies could explore the impact of digital transformation on innovation in SMEs, particularly regarding how emerging technologies (such as AI, IoT, or blockchain) influence the adoption of open innovation practices. This would be especially relevant as digital tools play an increasingly important role in the innovation landscape.

**Comparative Cross-Country Studies:** Research comparing Palestinian SMEs with SMEs in other emerging or transitional economies could offer valuable insights into the universality or contextuality of the study's findings. Understanding how institutional, political, and economic factors influence innovation practices in different countries could help generalize or refine the model presented in this study.

**Exploring Additional Antecedents:** Future research could investigate other potential antecedents of open innovation, such as organizational culture, organizational learning capabilities, or leadership styles, and how these factors interact with risk and governance mechanisms in driving innovation in SMEs.

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## Appendices

### Appendix (A) Result of Normality

Construct	Q.	N	Skewness		Kurtosis		Kolmogorov-Smirnov <sup>a</sup>		Shapiro-Wilk		
			Statistic	Std. Error	Statistic	Std. Error	Statistic	Sig.	Statistic	Sig.	
ANT	CBHR	Q1	384	-1.268	0.125	6.659	0.248	0.375	0.000	0.641	0.000
		Q2	384	-1.313	0.125	7.343	0.248	0.381	0.000	0.619	0.000
		Q3	384	-1.205	0.125	5.745	0.248	0.365	0.000	0.639	0.000
		Q4	384	-1.1	0.125	4.411	0.248	0.339	0.000	0.689	0.000
		Q5	384	-1.752	0.125	5.813	0.248	0.412	0.000	0.601	0.000
		Q6	384	-0.894	0.125	1.879	0.248	0.311	0.000	0.802	0.000
		Q7	384	-1.828	0.125	5.942	0.248	0.415	0.000	0.626	0.000
		Q8	384	-1.134	0.125	2.07	0.248	0.325	0.000	0.796	0.000
		Q9	384	-1.549	0.125	4.438	0.248	0.393	0.000	0.659	0.000
		Q10	384	-1.559	0.125	3.677	0.248	0.411	0.000	0.651	0.000
	IDC	Q11	384	-1.388	0.125	3.886	0.248	0.387	0.000	0.683	0.000
		Q12	384	-1.73	0.125	5.79	0.248	0.406	0.000	0.624	0.000
		Q13	384	-1.998	0.125	7.53	0.248	0.436	0.000	0.545	0.000
		Q14	384	-1.109	0.125	6.175	0.248	0.385	0.000	0.635	0.000
		Q15	384	-1.096	0.125	7.61	0.248	0.405	0.000	0.588	0.000
		Q16	384	-1.12	0.125	6.465	0.248	0.388	0.000	0.624	0.000
	CDM	Q17	384	-1.028	0.125	5.973	0.248	0.385	0.000	0.642	0.000
		Q18	384	-2.475	0.125	10.611	0.248	0.456	0.000	0.490	0.000
		Q19	384	-2.223	0.125	8.354	0.248	0.427	0.000	0.545	0.000
		Q20	384	-2.402	0.125	9.267	0.248	0.452	0.000	0.517	0.000
		Q21	384	-1.788	0.125	6.691	0.248	0.395	0.000	0.622	0.000
RF	LED	Q22	384	-1.08	0.125	4.955	0.248	0.352	0.000	0.695	0.000
		Q23	384	-1.223	0.125	7.662	0.248	0.390	0.000	0.619	0.000
		Q24	384	-1.458	0.125	10.562	0.248	0.417	0.000	0.539	0.000
		Q25	384	-1.419	0.125	7.19	0.248	0.364	0.000	0.639	0.000

	<b>IIC</b>	Q26	384	-1.31	0.125	7.436	0.248	0.396	0.000	0.596	0.000
		Q27	384	-1.18	0.125	7.148	0.248	0.397	0.000	0.606	0.000
		Q28	384	-1.062	0.125	6.666	0.248	0.394	0.000	0.620	0.000
		Q29	384	-0.942	0.125	4.984	0.248	0.365	0.000	0.670	0.000
		Q30	384	-1.055	0.125	7.543	0.248	0.406	0.000	0.600	0.000
		Q31	384	-1.455	0.125	4.888	0.248	0.360	0.000	0.703	0.000
	<b>NR</b>	Q32	384	-1.785	0.125	7.068	0.248	0.348	0.000	0.629	0.000
		Q33	384	-1.764	0.125	7.336	0.248	0.374	0.000	0.606	0.000
		Q34	384	-0.724	0.125	1.146	0.248	0.288	0.000	0.833	0.000
		Q35	384	-1.669	0.125	6.224	0.248	0.376	0.000	0.651	0.000
	<b>STR</b>	Q36	384	-1.93	0.125	7.802	0.248	0.402	0.000	0.600	0.000
		Q37	384	-1.184	0.125	2.991	0.248	0.356	0.000	0.760	0.000
		Q38	384	-2.476	0.125	10.247	0.248	0.449	0.000	0.496	0.000
		Q39	384	-2.011	0.125	6.594	0.248	0.451	0.000	0.564	0.000
	<b>TM</b>	Q40	384	-2.261	0.125	13.267	0.248	0.430	0.000	0.472	0.000
		Q41	384	-1.894	0.125	8.562	0.248	0.385	0.000	0.586	0.000
		Q42	384	-1.926	0.125	9.181	0.248	0.384	0.000	0.574	0.000
		Q43	384	-1.744	0.125	8.892	0.248	0.376	0.000	0.590	0.000
	<b>CUL</b>	Q44	384	-1.952	0.125	5.956	0.248	0.401	0.000	0.629	0.000
		Q45	384	-1.554	0.125	4.011	0.248	0.336	0.000	0.714	0.000
		Q46	384	-1.284	0.125	6.809	0.248	0.377	0.000	0.637	0.000
Q47		384	-2.323	0.125	7.475	0.248	0.464	0.000	0.519	0.000	
<b>CGS</b>	<b>KNW</b>	Q48	384	-2.414	0.125	9.604	0.248	0.444	0.000	0.517	0.000
		Q49	384	-1.329	0.125	6.708	0.248	0.375	0.000	0.636	0.000
		Q50	384	-1.406	0.125	5.861	0.248	0.356	0.000	0.668	0.000
		Q51	384	-2.063	0.125	9.547	0.248	0.392	0.000	0.560	0.000
	<b>VAL</b>	Q52	384	-1.583	0.125	9.453	0.248	0.389	0.000	0.573	0.000
		Q53	384	-2.029	0.125	11.916	0.248	0.416	0.000	0.510	0.000
		Q54	384	-1.842	0.125	7.681	0.248	0.358	0.000	0.607	0.000
		Q55	384	-1.321	0.125	8.552	0.248	0.395	0.000	0.584	0.000
		Q56	384	-1.476	0.125	11.039	0.248	0.421	0.000	0.525	0.000
		Q57	384	-1.491	0.125	11.361	0.248	0.423	0.000	0.517	0.000

	<b>GRT</b>	Q58	384	-1.52	0.125	10.559	0.248	0.415	0.000	0.530	0.000
		Q59	384	-2.044	0.125	17.193	0.248	0.448	0.000	0.423	0.000
		Q60	384	-1.549	0.125	11.763	0.248	0.425	0.000	0.513	0.000
		Q61	384	-1.579	0.125	12.097	0.248	0.427	0.000	0.507	0.000
		Q62	384	-1.317	0.125	8.182	0.248	0.385	0.000	0.589	0.000
		Q63	384	-1.364	0.125	7.766	0.248	0.376	0.000	0.599	0.000
		Q64	384	-1.304	0.125	7.727	0.248	0.377	0.000	0.603	0.000
		Q65	384	-1.778	0.125	6.317	0.248	0.403	0.000	0.610	0.000
	<b>DM</b>	Q66	384	-2.395	0.125	11.394	0.248	0.444	0.000	0.475	0.000
		Q67	384	-1.444	0.125	7.639	0.248	0.378	0.000	0.598	0.000
		Q68	384	-1.406	0.125	6.922	0.248	0.353	0.000	0.622	0.000
		Q69	384	-1.398	0.125	8.756	0.248	0.394	0.000	0.572	0.000
		Q70	384	-1.768	0.125	9.14	0.248	0.386	0.000	0.559	0.000
		Q71	384	-1.614	0.125	8.375	0.248	0.390	0.000	0.569	0.000
<b>OIS</b>	<b>IP</b>	Q72	384	-2.058	0.125	9.594	0.248	0.422	0.000	0.543	0.000
		Q73	384	-1.378	0.125	8.367	0.248	0.389	0.000	0.584	0.000
		Q74	384	-1.886	0.125	9.301	0.248	0.410	0.000	0.551	0.000
		Q75	384	-1.344	0.125	9.045	0.248	0.399	0.000	0.567	0.000
	<b>OP</b>	Q76	384	-2.032	0.125	9.882	0.248	0.407	0.000	0.533	0.000
		Q77	384	-1.317	0.125	4.774	0.248	0.311	0.000	0.695	0.000
		Q78	384	-1.55	0.125	6.884	0.248	0.363	0.000	0.630	0.000
		Q79	384	-1.952	0.125	6.239	0.248	0.425	0.000	0.603	0.000

**Appendix (B) Fornell-Larcker criterion (1st Order)**

	ANT	CBHR	CDM	CGS	CUL	DM	FCGS	GRT	ICGS	IDC	IIC	IP	KNW	LED	NR	OIS	OP	RF	STR	TM	VAL	
<b>ANT</b>	0.620																					
<b>CBHR</b>	0.911	0.640																				
<b>CDM</b>	0.678	0.466	0.892																			
<b>CGS</b>	0.686	0.717	0.374	0.742																		
<b>CUL</b>	0.496	0.496	0.267	0.560	0.765																	
<b>DM</b>	0.645	0.675	0.362	0.924	0.525	0.789																
<b>FCGS</b>	0.667	0.705	0.366	0.980	0.498	0.924	0.796															
<b>GRT</b>	0.632	0.671	0.341	0.941	0.445	0.810	0.973	0.866														
<b>ICGS</b>	0.621	0.637	0.327	0.909	0.650	0.796	0.813	0.763	0.735													
<b>IDC</b>	0.900	0.754	0.444	0.641	0.469	0.593	0.618	0.588	0.600	0.735												
<b>IIC</b>	0.678	0.659	0.428	0.671	0.566	0.664	0.643	0.583	0.640	0.603	0.728											
<b>IP</b>	0.543	0.577	0.328	0.782	0.348	0.826	0.799	0.725	0.606	0.491	0.540	0.845										
<b>KNW</b>	0.512	0.523	0.215	0.681	0.689	0.590	0.567	0.511	0.863	0.534	0.525	0.411	0.781									
<b>LED</b>	0.602	0.603	0.310	0.709	0.665	0.675	0.657	0.598	0.719	0.556	0.759	0.497	0.677	0.842								
<b>NR</b>	0.506	0.517	0.340	0.606	0.396	0.563	0.614	0.600	0.508	0.424	0.688	0.492	0.336	0.524	0.876							
<b>OIS</b>	0.649	0.678	0.382	0.848	0.489	0.867	0.856	0.787	0.698	0.575	0.644	0.906	0.511	0.635	0.566	0.730						
<b>OP</b>	0.615	0.630	0.354	0.721	0.534	0.708	0.717	0.670	0.637	0.534	0.610	0.584	0.503	0.640	0.517	0.873	0.797					
<b>RF</b>	0.713	0.709	0.435	0.804	0.754	0.763	0.773	0.722	0.772	0.641	0.869	0.593	0.667	0.872	0.737	0.731	0.715	0.648				
<b>STR</b>	0.527	0.535	0.339	0.548	0.469	0.510	0.539	0.517	0.499	0.441	0.530	0.384	0.403	0.563	0.453	0.507	0.525	0.735	0.842			
<b>TM</b>	0.522	0.512	0.351	0.673	0.570	0.626	0.663	0.636	0.620	0.487	0.501	0.496	0.528	0.585	0.493	0.582	0.542	0.772	0.509	0.878		
<b>VAL</b>	0.611	0.629	0.348	0.929	0.564	0.817	0.852	0.810	0.968	0.571	0.631	0.640	0.709	0.666	0.541	0.719	0.637	0.745	0.495	0.601	0.802	

**Appendix (C) Heterotrait-Monotrait ratio (1st Order)**

	ANT	CBHR	CDM	CGS	CUL	DM	FCGS	GRT	ICGS	IDC	IIC	IP	KNW	LED	NR	OIS	OP	RF	STR	TM	VAL	
ANT																						
CBHR	1.050																					
CDM	0.755	0.832																				
CGS	0.723	0.799	0.889																			
CUL	0.575	0.606	0.322	1.661																		
DM	0.712	0.788	0.396	1.002	0.633																	
FCGS	0.708	0.791	0.387	1.014	0.582	1.018																
GRT	0.671	0.755	0.362	0.973	0.521	0.889	1.017															
ICGS	0.665	0.725	0.340	0.976	0.796	0.875	0.858	0.805														
IDC	0.617	0.902	0.506	0.722	0.574	0.694	0.695	0.663	0.690													
IIC	0.778	0.798	0.484	0.761	0.705	0.781	0.733	0.666	0.741	0.641												
IP	0.615	0.691	0.371	0.856	0.430	0.950	0.890	0.807	0.675	0.587	0.645											
KNW	0.584	0.639	0.241	0.809	0.902	0.703	0.653	0.588	0.050	0.656	0.661	0.498										
LED	0.670	0.709	0.340	0.793	0.808	0.781	0.734	0.667	0.822	0.667	0.902	0.584	0.827									
NR	0.556	0.599	0.373	0.643	0.478	0.631	0.662	0.650	0.547	0.490	0.790	0.559	0.395	0.692								
OIS	0.726	0.797	0.427	0.916	0.599	0.982	0.936	0.861	0.773	0.679	0.758	1.033	0.617	0.733	0.637							
OP	0.708	0.760	0.407	0.806	0.670	0.829	0.808	0.754	0.732	0.649	0.736	0.695	0.630	0.756	0.600	1.053						
RF	0.757	0.792	0.465	0.844	0.902	0.835	0.814	0.760	0.833	0.721	0.981	0.657	0.776	0.958	0.795	0.802	0.808					
STR	0.587	0.622	0.381	0.598	0.579	0.587	0.591	0.566	0.557	0.516	0.625	0.450	0.484	0.645	0.509	0.581	0.614	0.821				
TM	0.571	0.591	0.380	0.724	0.683	0.706	0.718	0.691	0.677	0.564	0.582	0.565	0.615	0.661	0.548	0.656	0.630	0.837	0.578			
VAL	0.668	0.727	0.377	1.010	0.677	0.919	0.923	0.881	1.063	0.663	0.738	0.735	0.838	0.761	0.602	0.813	0.744	0.809	0.562	0.667		

**Appendix (D)** Fornell-Larcker criterion (2nd Order)

	ANT	CBHR	CDM	CGS	CUL	DM	FCGS	GRT	ICGS	IDC	IIC	IP	KNW	LED	NR	OIS	OP	RF	STR	TM	VAL	
ANT	0.841																					
CBHR	0.907	1.000																				
CDM	0.708	0.466	1.000																			
CGS	0.699	0.709	0.363	0.886																		
CUL	0.501	0.496	0.267	0.616	1.000																	
DM	0.662	0.675	0.362	0.920	0.525	1.000																
FCGS	0.691	0.707	0.370	0.956	0.510	0.952	0.951															
GRT	0.652	0.671	0.341	0.898	0.445	0.810	0.951	1.000														
ICGS	0.626	0.625	0.308	0.932	0.674	0.767	0.783	0.723	0.924													
IDC	0.893	0.754	0.444	0.645	0.469	0.593	0.620	0.588	0.598	1.000												
IIC	0.680	0.659	0.428	0.681	0.566	0.664	0.656	0.583	0.628	0.603	1.000											
IP	0.565	0.577	0.328	0.749	0.348	0.826	0.816	0.725	0.575	0.491	0.540	1.000										
KNW	0.523	0.523	0.215	0.769	0.689	0.590	0.579	0.511	0.916	0.534	0.525	0.411	1.000									
LED	0.599	0.603	0.310	0.734	0.665	0.675	0.670	0.598	0.726	0.556	0.759	0.497	0.677	1.000								
NR	0.514	0.517	0.340	0.585	0.396	0.563	0.611	0.600	0.480	0.424	0.688	0.492	0.336	0.524	1.000							
OIS	0.663	0.678	0.383	0.823	0.496	0.862	0.865	0.784	0.671	0.576	0.646	0.890	0.513	0.639	0.567	0.890						
OP	0.615	0.630	0.354	0.716	0.534	0.708	0.724	0.670	0.620	0.534	0.610	0.584	0.503	0.640	0.517	0.890	1.000					
RF	0.711	0.702	0.429	0.810	0.767	0.753	0.770	0.711	0.761	0.631	0.863	0.583	0.666	0.871	0.748	0.727	0.710	0.793				
STR	0.529	0.535	0.339	0.546	0.469	0.510	0.540	0.517	0.488	0.441	0.530	0.384	0.403	0.563	0.453	0.510	0.525	0.733	1.000			
TM	0.542	0.512	0.351	0.677	0.570	0.626	0.663	0.636	0.612	0.487	0.501	0.496	0.528	0.585	0.493	0.583	0.542	0.765	0.509	1.000		
VAL	0.628	0.629	0.348	0.945	0.564	0.817	0.855	0.810	0.932	0.571	0.631	0.640	0.709	0.666	0.541	0.717	0.637	0.738	0.495	0.601	1.000	

**Appendix (E) Heterotrait-Monotrait ratio (2nd Order)**

	ANT	CBHR	CDM	CGS	CUL	DM	FCGS	GRT	ICGS	IDC	IIC	IP	KNW	LED	NR	OIS	OP	RF	STR	TM	VAL	
ANT																						
CBHR	0.994																					
CDM	0.855	0.466																				
CGS	0.805	0.742	0.376																			
CUL	0.552	0.496	0.267	0.661																		
DM	0.730	0.675	0.362	0.956	0.525																	
FCGS	0.803	0.748	0.391	1.048	0.539	1.006																
GRT	0.716	0.671	0.341	0.930	0.445	0.810	1.006															
ICGS	0.749	0.683	0.335	1.084	0.744	0.835	0.900	0.784														
IDC	0.984	0.754	0.444	0.679	0.469	0.593	0.656	0.588	0.656													
IIC	0.757	0.659	0.428	0.714	0.566	0.664	0.693	0.583	0.686	0.603												
IP	0.625	0.577	0.328	0.773	0.348	0.826	0.862	0.725	0.624	0.491	0.540											
KNW	0.569	0.523	0.215	0.835	0.689	0.590	0.612	0.511	1.015	0.534	0.525	0.411										
LED	0.658	0.603	0.310	0.777	0.665	0.675	0.707	0.598	0.797	0.556	0.759	0.497	0.677									
NR	0.573	0.517	0.340	0.606	0.396	0.563	0.646	0.600	0.520	0.424	0.688	0.492	0.336	0.524								
OIS	0.853	0.790	0.446	0.995	0.577	1.004	1.064	0.912	0.851	0.670	0.752	1.036	0.598	0.744	0.660							
OP	0.680	0.630	0.354	0.748	0.534	0.708	0.765	0.670	0.677	0.534	0.610	0.584	0.503	0.640	0.517	1.036						
RF	0.838	0.746	0.457	0.907	0.823	0.800	0.866	0.758	0.887	0.669	0.908	0.619	0.709	0.919	0.798	0.899	0.756					
STR	0.588	0.535	0.339	0.572	0.469	0.510	0.570	0.517	0.533	0.441	0.530	0.384	0.403	0.563	0.453	0.594	0.525	0.791				
TM	0.605	0.512	0.351	0.711	0.570	0.626	0.701	0.636	0.670	0.487	0.501	0.496	0.528	0.585	0.493	0.679	0.542	0.821	0.509			
VAL	0.693	0.629	0.348	0.991	0.564	0.817	0.904	0.810	1.015	0.571	0.631	0.640	0.709	0.666	0.541	0.835	0.637	0.785	0.495	0.601		

**Appendix (F)** Fornell-Larcker criterion (3rd Order)

	<b>ANT</b>	<b>CGS</b>	<b>FCGS</b>	<b>ICGS</b>	<b>OIS</b>	<b>RF</b>
ANT	1.000					
CGS	0.699	0.944				
FCGS	0.691	0.950	1.000			
ICGS	0.626	0.938	0.783	1.000		
OIS	0.663	0.819	0.865	0.671	1.000	
RF	0.711	0.811	0.770	0.761	0.727	1.000

**Appendix (G)** Heterotrait-Monotrait ratio (3rd Order)

	<b>ANT</b>	<b>CGS</b>	<b>FCGS</b>	<b>ICGS</b>	<b>OIS</b>	<b>RF</b>
ANT						
CGS	0.744					
FCGS	0.691	1.007				
ICGS	0.626	1.007	0.783			
OIS	0.663	0.868	0.865	0.671		
RF	0.711	0.865	0.770	0.761	0.727	

**Appendix (H) Cross Loading Result**

Construct		Q#	ANT	CBHR	CDM	CGS	CUL	DM	FCGS	GRT	ICGS	IDC	IIC	IP	KNW	LED	NR	OIS	OP	RF	STR	TM	VAL
ANT	CBHR	Q1	0.62	0.64	0.14	0.59	0.58	0.54	0.53	0.48	0.63	0.66	0.56	0.41	0.68	0.67	0.30	0.50	0.49	0.62	0.41	0.39	0.54
		Q2	0.59	0.66	0.21	0.67	0.44	0.61	0.66	0.65	0.62	0.65	0.52	0.58	0.57	0.48	0.41	0.57	0.44	0.58	0.38	0.49	0.58
		Q3	0.66	0.70	0.43	0.53	0.33	0.48	0.52	0.51	0.47	0.50	0.55	0.38	0.29	0.45	0.42	0.47	0.46	0.54	0.41	0.39	0.52
		Q4	0.68	0.76	0.37	0.50	0.30	0.48	0.51	0.50	0.41	0.53	0.51	0.41	0.32	0.49	0.42	0.50	0.48	0.53	0.44	0.33	0.41
		Q5	0.60	0.67	0.34	0.37	0.31	0.37	0.37	0.34	0.32	0.46	0.40	0.26	0.26	0.34	0.27	0.36	0.38	0.44	0.45	0.30	0.32
		Q6	0.52	0.64	0.30	0.29	0.22	0.31	0.29	0.26	0.25	0.32	0.37	0.31	0.20	0.31	0.29	0.37	0.35	0.36	0.30	0.22	0.25
		Q7	0.50	0.59	0.27	0.42	0.28	0.40	0.42	0.41	0.35	0.34	0.33	0.35	0.26	0.27	0.32	0.40	0.37	0.36	0.21	0.29	0.35
		Q8	0.47	0.58	0.24	0.36	0.19	0.34	0.37	0.36	0.29	0.30	0.28	0.29	0.22	0.23	0.34	0.37	0.36	0.32	0.25	0.23	0.30
		Q9	0.67	0.57	0.38	0.35	0.21	0.31	0.35	0.35	0.27	0.60	0.33	0.29	0.15	0.29	0.29	0.37	0.36	0.37	0.34	0.28	0.31
		Q10	0.55	0.49	0.36	0.33	0.16	0.32	0.33	0.31	0.26	0.50	0.19	0.32	0.16	0.16	0.18	0.33	0.26	0.24	0.18	0.26	0.29
	IDC	Q11	0.65	0.50	0.41	0.35	0.26	0.34	0.33	0.30	0.31	0.71	0.32	0.28	0.26	0.27	0.21	0.35	0.34	0.35	0.25	0.30	0.31
		Q12	0.62	0.48	0.39	0.47	0.33	0.42	0.46	0.46	0.43	0.71	0.30	0.36	0.35	0.32	0.30	0.39	0.34	0.42	0.33	0.40	0.42
		Q13	0.67	0.47	0.44	0.41	0.25	0.37	0.41	0.40	0.34	0.73	0.38	0.35	0.22	0.33	0.32	0.42	0.40	0.41	0.33	0.29	0.36
		Q14	0.69	0.62	0.23	0.50	0.45	0.47	0.46	0.41	0.51	0.76	0.53	0.33	0.53	0.55	0.30	0.44	0.45	0.55	0.35	0.37	0.45
		Q15	0.66	0.65	0.27	0.60	0.36	0.54	0.60	0.59	0.53	0.75	0.54	0.51	0.45	0.42	0.41	0.51	0.39	0.54	0.35	0.43	0.52
		Q16	0.67	0.60	0.21	0.51	0.42	0.46	0.47	0.43	0.52	0.75	0.57	0.33	0.54	0.55	0.32	0.43	0.44	0.55	0.33	0.35	0.45

	<b>CDM</b>	Q17	0.68	0.62	0.21	0.48	0.45	0.45	0.44	0.40	0.49	0.75	0.57	0.32	0.53	0.55	0.31	0.42	0.43	0.55	0.35	0.31	0.43
		Q18	0.60	0.40	0.87	0.29	0.13	0.27	0.29	0.28	0.23	0.41	0.30	0.31	0.11	0.14	0.21	0.33	0.27	0.27	0.26	0.22	0.27
		Q19	0.69	0.50	0.92	0.45	0.32	0.43	0.43	0.40	0.42	0.49	0.45	0.33	0.30	0.39	0.37	0.41	0.41	0.50	0.38	0.42	0.43
		Q20	0.56	0.35	0.91	0.24	0.19	0.23	0.23	0.21	0.20	0.35	0.32	0.20	0.11	0.21	0.23	0.25	0.24	0.32	0.30	0.27	0.22
		Q21	0.55	0.40	0.86	0.33	0.32	0.34	0.33	0.30	0.29	0.32	0.44	0.32	0.22	0.35	0.40	0.37	0.33	0.44	0.27	0.32	0.29
<b>RF</b>	<b>LED</b>	Q22	0.50	0.49	0.35	0.60	0.58	0.61	0.56	0.49	0.60	0.41	0.69	0.44	0.50	0.84	0.46	0.57	0.58	0.76	0.52	0.50	0.58
		Q23	0.58	0.58	0.16	0.59	0.52	0.54	0.54	0.50	0.61	0.63	0.60	0.40	0.63	0.74	0.31	0.49	0.49	0.64	0.41	0.37	0.54
		Q24	0.46	0.47	0.25	0.58	0.54	0.52	0.53	0.50	0.59	0.41	0.61	0.41	0.58	0.87	0.50	0.51	0.50	0.74	0.46	0.55	0.53
		Q25	0.51	0.51	0.27	0.63	0.59	0.61	0.59	0.53	0.63	0.46	0.67	0.43	0.58	0.91	0.48	0.56	0.58	0.78	0.50	0.54	0.59
	<b>IIC</b>	Q26	0.52	0.51	0.13	0.44	0.41	0.41	0.40	0.37	0.47	0.57	0.68	0.31	0.51	0.64	0.34	0.39	0.38	0.58	0.30	0.28	0.40
		Q27	0.50	0.48	0.39	0.55	0.41	0.48	0.55	0.54	0.49	0.40	0.77	0.41	0.35	0.58	0.50	0.50	0.48	0.67	0.41	0.43	0.50
		Q28	0.55	0.58	0.20	0.54	0.36	0.50	0.54	0.53	0.50	0.60	0.62	0.47	0.47	0.42	0.42	0.47	0.36	0.55	0.32	0.40	0.47
		Q29	0.48	0.46	0.38	0.49	0.42	0.49	0.48	0.44	0.45	0.37	0.76	0.41	0.30	0.44	0.50	0.50	0.49	0.61	0.41	0.31	0.48
		Q30	0.45	0.41	0.41	0.40	0.43	0.47	0.37	0.29	0.40	0.34	0.79	0.40	0.31	0.58	0.47	0.45	0.41	0.65	0.41	0.37	0.40
		Q31	0.48	0.46	0.32	0.51	0.44	0.55	0.48	0.40	0.49	0.40	0.75	0.37	0.38	0.63	0.72	0.50	0.53	0.71	0.44	0.39	0.50
	<b>NR</b>	Q32	0.49	0.50	0.33	0.61	0.32	0.56	0.62	0.61	0.51	0.42	0.64	0.45	0.29	0.44	0.86	0.51	0.46	0.66	0.40	0.46	0.57
		Q33	0.45	0.46	0.31	0.53	0.36	0.50	0.52	0.50	0.45	0.37	0.67	0.42	0.27	0.44	0.93	0.50	0.47	0.65	0.36	0.39	0.49
		Q34	0.41	0.44	0.24	0.44	0.32	0.40	0.43	0.42	0.39	0.34	0.61	0.36	0.29	0.50	0.86	0.42	0.39	0.63	0.40	0.39	0.39

		Q35	0.41	0.41	0.30	0.55	0.39	0.50	0.57	0.57	0.43	0.36	0.49	0.49	0.32	0.46	0.85	0.55	0.49	0.64	0.42	0.49	0.44
	<b>STR</b>	Q36	0.52	0.53	0.30	0.53	0.47	0.48	0.52	0.51	0.47	0.45	0.49	0.34	0.39	0.60	0.46	0.49	0.54	0.70	0.87	0.46	0.47
		Q37	0.42	0.44	0.27	0.46	0.32	0.42	0.46	0.45	0.41	0.35	0.46	0.32	0.32	0.43	0.44	0.41	0.41	0.60	0.86	0.40	0.42
		Q38	0.45	0.45	0.27	0.48	0.40	0.45	0.48	0.46	0.44	0.39	0.45	0.34	0.35	0.47	0.35	0.43	0.43	0.64	0.92	0.47	0.43
		Q39	0.37	0.37	0.30	0.36	0.39	0.36	0.34	0.30	0.34	0.27	0.37	0.29	0.28	0.37	0.25	0.37	0.37	0.52	0.70	0.38	0.34
			Q40	0.47	0.47	0.31	0.59	0.42	0.54	0.60	0.59	0.50	0.44	0.42	0.46	0.42	0.47	0.42	0.51	0.44	0.65	0.52	0.81
	<b>TM</b>	Q41	0.49	0.46	0.35	0.62	0.53	0.57	0.60	0.58	0.58	0.46	0.46	0.44	0.50	0.52	0.45	0.52	0.49	0.71	0.47	0.92	0.56
		Q42	0.50	0.49	0.35	0.63	0.52	0.57	0.61	0.59	0.60	0.46	0.47	0.43	0.51	0.52	0.46	0.53	0.51	0.71	0.45	0.92	0.58
		Q43	0.37	0.38	0.22	0.53	0.53	0.52	0.51	0.47	0.50	0.34	0.41	0.41	0.43	0.53	0.40	0.49	0.46	0.65	0.35	0.86	0.48
			Q44	0.35	0.34	0.21	0.38	0.83	0.41	0.34	0.28	0.44	0.31	0.43	0.21	0.43	0.48	0.28	0.34	0.42	0.59	0.35	0.51
	<b>CUL</b>	Q45	0.34	0.33	0.25	0.43	0.82	0.38	0.39	0.37	0.48	0.28	0.41	0.23	0.47	0.47	0.35	0.35	0.39	0.59	0.38	0.45	0.44
		Q46	0.53	0.54	0.13	0.55	0.68	0.50	0.48	0.43	0.61	0.58	0.53	0.37	0.70	0.67	0.29	0.47	0.47	0.62	0.36	0.41	0.51
		Q47	0.27	0.26	0.24	0.33	0.73	0.28	0.29	0.27	0.43	0.23	0.33	0.25	0.49	0.37	0.29	0.32	0.34	0.49	0.34	0.36	0.36
			Q48	0.29	0.30	0.12	0.44	0.68	0.39	0.40	0.37	0.57	0.30	0.33	0.27	0.68	0.40	0.23	0.36	0.37	0.46	0.26	0.32
	<b>KNW</b>	Q49	0.46	0.48	0.14	0.50	0.56	0.43	0.40	0.36	0.64	0.50	0.45	0.29	0.84	0.60	0.22	0.38	0.40	0.53	0.31	0.35	0.48
		Q50	0.40	0.43	0.12	0.51	0.52	0.42	0.39	0.34	0.69	0.43	0.42	0.29	0.87	0.56	0.23	0.37	0.37	0.50	0.28	0.33	0.54
		Q51	0.42	0.40	0.28	0.65	0.43	0.57	0.56	0.51	0.76	0.42	0.42	0.41	0.73	0.53	0.35	0.47	0.42	0.58	0.38	0.61	0.69
<b>CGS</b>	<b>VAL</b>	Q52	0.48	0.47	0.33	0.70	0.49	0.66	0.62	0.55	0.79	0.45	0.51	0.45	0.67	0.57	0.43	0.52	0.47	0.64	0.41	0.58	0.78

		Q53	0.38	0.39	0.17	0.66	0.40	0.52	0.57	0.55	0.76	0.37	0.40	0.42	0.57	0.39	0.27	0.47	0.41	0.44	0.31	0.29	0.79
		Q54	0.42	0.45	0.21	0.68	0.36	0.52	0.61	0.62	0.74	0.40	0.39	0.45	0.55	0.46	0.38	0.51	0.45	0.50	0.36	0.39	0.77
		Q55	0.53	0.52	0.35	0.76	0.48	0.71	0.71	0.66	0.79	0.52	0.52	0.50	0.62	0.54	0.47	0.56	0.49	0.65	0.45	0.62	0.80
		Q56	0.56	0.60	0.31	0.83	0.48	0.75	0.79	0.76	0.77	0.49	0.60	0.64	0.48	0.60	0.52	0.70	0.61	0.66	0.41	0.50	0.83
		Q57	0.57	0.60	0.30	0.83	0.49	0.75	0.79	0.75	0.79	0.51	0.62	0.63	0.52	0.63	0.53	0.70	0.61	0.68	0.42	0.50	0.84
	<b>GRT</b>	Q58	0.54	0.57	0.34	0.79	0.40	0.70	0.80	0.81	0.69	0.51	0.55	0.66	0.48	0.51	0.54	0.65	0.48	0.64	0.38	0.61	0.72
		Q59	0.58	0.60	0.30	0.86	0.38	0.75	0.89	0.91	0.71	0.58	0.49	0.69	0.49	0.53	0.48	0.73	0.60	0.63	0.44	0.61	0.75
		Q60	0.57	0.60	0.27	0.87	0.36	0.72	0.89	0.93	0.71	0.56	0.48	0.63	0.46	0.49	0.50	0.69	0.58	0.60	0.44	0.52	0.77
		Q61	0.56	0.60	0.27	0.87	0.36	0.74	0.90	0.94	0.70	0.54	0.46	0.64	0.45	0.49	0.48	0.70	0.60	0.59	0.41	0.53	0.76
		Q62	0.57	0.60	0.31	0.82	0.40	0.67	0.85	0.89	0.66	0.50	0.55	0.60	0.45	0.58	0.57	0.69	0.63	0.68	0.54	0.55	0.70
		Q63	0.53	0.60	0.33	0.81	0.39	0.71	0.85	0.88	0.62	0.45	0.59	0.66	0.40	0.50	0.59	0.72	0.61	0.66	0.49	0.54	0.67
		Q64	0.59	0.63	0.31	0.82	0.43	0.69	0.85	0.88	0.67	0.52	0.57	0.61	0.45	0.59	0.59	0.71	0.66	0.69	0.53	0.56	0.70
		Q65	0.41	0.44	0.23	0.64	0.37	0.63	0.67	0.64	0.49	0.39	0.33	0.52	0.34	0.44	0.40	0.54	0.44	0.50	0.33	0.47	0.52
	<b>DM</b>	Q66	0.45	0.45	0.21	0.64	0.43	0.71	0.64	0.55	0.53	0.45	0.44	0.57	0.44	0.58	0.37	0.62	0.52	0.58	0.43	0.50	0.52
		Q67	0.58	0.58	0.37	0.78	0.51	0.80	0.76	0.68	0.75	0.54	0.56	0.56	0.58	0.60	0.52	0.62	0.54	0.71	0.50	0.67	0.75
		Q68	0.51	0.53	0.31	0.74	0.45	0.79	0.73	0.64	0.69	0.47	0.51	0.53	0.52	0.55	0.47	0.59	0.52	0.65	0.44	0.63	0.70
		Q69	0.43	0.48	0.26	0.69	0.31	0.78	0.73	0.65	0.54	0.40	0.50	0.89	0.37	0.43	0.45	0.80	0.51	0.52	0.32	0.42	0.57
		Q70	0.53	0.57	0.26	0.73	0.42	0.81	0.72	0.62	0.61	0.47	0.60	0.69	0.44	0.53	0.43	0.76	0.66	0.58	0.38	0.35	0.63

		Q71	0.54	0.57	0.29	0.78	0.38	0.83	0.79	0.70	0.64	0.48	0.53	0.68	0.44	0.53	0.42	0.73	0.61	0.57	0.37	0.40	0.68
<b>OIS</b>	<b>IP</b>	Q72	0.50	0.50	0.29	0.64	0.33	0.60	0.61	0.58	0.52	0.45	0.39	0.69	0.37	0.46	0.37	0.67	0.47	0.48	0.33	0.36	0.54
		Q73	0.47	0.49	0.31	0.63	0.25	0.66	0.64	0.59	0.46	0.42	0.42	0.86	0.28	0.39	0.40	0.77	0.48	0.49	0.33	0.47	0.50
		Q74	0.44	0.48	0.26	0.69	0.30	0.75	0.72	0.65	0.54	0.41	0.51	0.90	0.37	0.42	0.45	0.81	0.52	0.52	0.32	0.42	0.57
		Q75	0.54	0.56	0.27	0.63	0.45	0.60	0.64	0.61	0.56	0.48	0.52	0.47	0.44	0.56	0.40	0.66	0.71	0.62	0.50	0.49	0.56
		Q76	0.55	0.59	0.32	0.65	0.48	0.64	0.65	0.60	0.55	0.47	0.55	0.57	0.43	0.58	0.51	0.79	0.86	0.64	0.48	0.44	0.56
	<b>OP</b>	Q77	0.51	0.53	0.30	0.62	0.45	0.62	0.62	0.57	0.56	0.43	0.55	0.49	0.43	0.56	0.42	0.77	0.91	0.63	0.45	0.50	0.56
		Q78	0.33	0.29	0.23	0.35	0.29	0.34	0.33	0.30	0.33	0.30	0.29	0.30	0.29	0.29	0.29	0.53	0.68	0.34	0.20	0.27	0.32
		Q79	0.67	0.57	0.38	0.35	0.21	0.31	0.35	0.35	0.27	0.60	0.33	0.29	0.15	0.29	0.29	0.37	0.36	0.37	0.34	0.28	0.31

## **Appendix (I) Research Questionnaire English Version**

### **Questionnaire**

Dear Participant,

In your hands is a questionnaire distributed by a Ph.D. student in the Strategic Management program at the School of College of Graduate Studies—Arab American University of Palestine. The study topic is “Open Innovation Strategy in Palestinian SMEs: An Assessment of Antecedents, Risks, and Corporate Governance Solutions.”

Completing the questionnaire is expected to consume approximately 10-15 minutes of your time, and the gathered information will contribute to academic research. Your participation is entirely anonymous, and there is no need to provide your name or department. The compiled data will be presented solely as summary statistics. Your involvement in this survey is optional, and you can refrain from answering any questions. By responding to all questions, you signify your agreement to participate.

Your participation is greatly valued, as your input will significantly contribute to the study's findings.

If you have any questions concerning the research or the questionnaire, please don't hesitate to reach out to the researcher on the mobile number provided: 00972-599355351.

**Thanks for your cooperation and time**

**\*Part One (Demographics Data). Please fill in the following**

**1. Age:**

- Less Than 20 years old
- From 21 to 30 years old
- From 31 to 40 years old
- More Than 40 years old

**2. Gender: -**

- Male
- Female

**3. What is your highest Educational Degree?**

- Nothing
- High School
- Diploma Degree
- Bachelor's Degree
- Master's or Higher Degree

**4. Service Provider Sector**

- Information Technology
- Hospitality and Tourism
- Financial Services
- Insurance Services
- Utilities and Maintenance Services
- Healthcare Services
- Education and Training Services
- Manufacturing and Engineering Services
- Retail and E-commerce Services

**5. Institution Location**

- Northern West Bank
- Central West Bank
- Southern West Bank

## 6. Institution Operation

- Less than 2 years  
 From 3 to 6 years  
 From 7 to 10 years  
 More than 10 years

## 7. Institution Size

- Small (Less than 19 employees)  
 Medium (From 20 to 49 employees)

### \*Part Two (Questionnaires)

Please indicate the level of your agreement or disagreement with the statement as it reflects your satisfaction. Mark the appropriate response with an (X): Strongly Disagree, Disagree, Neutral, Agree, or Strongly Agree.

Dimension	Item #	Questions	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
<b>Antecedent Dimensions &amp; Indicators</b>							
Commitment-based HR Practices	1.	Internal candidates are considered external candidates.					
	2.	We select employees based on an overall fit for the company.					
	3.	Our selection system focuses on the candidate's potential to learn and grow with the firm.					
	4.	We ensure that all employees are made aware of internal promotion opportunities.					
	5.	Employee bonuses or incentive plans are based primarily on the performance of the firm.					
	6.	Goals for incentive plans are based on business unit or company performance.					
	7.	Salaries for employees in these positions are higher than those of our competitors.					
	8.	Performance appraisals are used to plan skill development and training for future advancement within the company.					
	9.	We provide multiple career path opportunities for employees to move across numerous functional areas of the company.					
	10.	We provide training focused on team building and teamwork skills.					
Inter-departmental Connectedness	11.	There is ample opportunity for informal "hall talk" among individuals from different departments.					
	12.	Employees from different departments feel comfortable calling each other when the need arises.					
	13.	Managers here discourage employees from discussing work-related matters with those who are not their immediate superiors or subordinates.					
	14.	People around here are quite accessible to those in other departments					

	15.	Junior managers in my department can easily schedule meetings with junior managers in other departments.					
	16.	Communications from one department to another are expected to be carried out through "proper channels."					
Centralization of Decision-making	17.	There can be little action taken until a supervisor approves a decision.					
	18.	People need to ask their supervisor before they do almost anything.					
	19.	Most decisions people make here must have their supervisor's approval.					
	20.	In our company, employees from different departments feel comfortable calling each other when the need arises					
	21.	In our company, it is easy to talk with virtually anyone you need to, regardless of rank or position					
<b>Risk Factors Dimensions &amp; Indicators</b>							
Leadership	22.	The organization identifies and promotes individual managerial competencies in OI (Open Innovation) implementation teams					
	23.	The organization identifies and promotes leadership individual competencies in OI implementation teams.					
	24.	The organization promotes employee commitment towards OI by providing sufficient time for project implementation and/or cultural change toward OI-oriented values.					
	25.	The organization promotes responsibility and managerial competencies in external partners involved in OI implementation.					
Internal Innovation Capability	26.	The organization develops dynamic capabilities involved in integrating new knowledge, reconfiguring internal resources and competencies, and building an adaptive governance structure.					
	27.	The organization promotes and develops innovation-related technical skills, including technological, marketing, financial, commercial, management, and business skills.					
	28.	The organization promotes information and knowledge flows connected with the external environment.					
	29.	We use measurements to help identify where and when we can improve our innovation management					
	30.	We work closely with 'lead users' develop innovative new products and services					
	31.	There is a clear link between the innovation projects we carry out and the overall strategy of the business					
Network and Relationships	32.	The organization implements an efficient intellectual property management strategy and other mechanisms to preserve core competencies.					
	33.	The organization promotes efficient coordination mechanisms for external partnerships, as well as efficient selection and prioritization mechanisms for potential partnerships.					
	34.	The organization promotes mutual trust in external partnerships, including necessary confidentiality and revenue-sharing mechanisms.					
	35.	The organization seeks and explores public benefits, investments, policies, and infrastructure for Open Innovation (OI).					
Strategy	36.	The organization leverages absorptive capacity by improving firm-level competencies involved in strategy making, information and knowledge management, and technological competencies.					
	37.	The organization improves innovation development implementation competencies, including strategies for external resources and/or knowledge assimilation and maintenance.					

	38.	The organization clearly defines its innovation-related strategic positioning, including objectives for radical/incremental and product/process innovation.					
	39.	The organization provides the financial, technological, and human resources necessary for Open Innovation (OI) implementation.					
Technology Management	40.	The organization works to improve technology management maturity, aligning current and desired management and technological competencies.					
	41.	The organization effectively assesses transaction costs involved in technological development partnerships and/or technology transfer projects.					
	42.	The organization develops and improves its participation in strategic technology networks.					
	43.	We have processes in place to review new technology or market developments and what they mean for our firm's strategy					
Culture	44.	The organization promotes Open Innovation (OI)-related organizational values, such as risk tolerance and experimentation, through motivation and reward mechanisms.					
	45.	The organization promotes the quantitative assessment of organizational change towards an innovation culture by using indicators that stimulate the desired OI-related values.					
	46.	The organization promotes a collaborative culture that emphasizes experimentation and the free flow of information.					
	47.	The organization promotes diversification, inclusion, and egalitarianism throughout the firm as a foundation for a widespread positive workplace culture based on social cohesion and alignment of personal and organizational interests.					
<b>Corporate Governance Solutions Dimensions &amp; Indicators</b>							
Knowledge	48.	My board holds the CEO accountable based on measurable performance indicators that are aligned with the company's objectives					
	49.	My board sufficiently monitors the environment (context) in which the company operates					
	50.	Board members are confident that our environmental liabilities are accurately stated.					
	51.	I believe that a significant portion of the Board of Directors is environmentally knowledgeable					
Values	52.	I have great trust in my CEO.					
	53.	Our company's values are often useful when facing tough questions related to strategy.					
	54.	My company's values have been made clear to all board members.					
	55.	A representative from environment, health, and safety reports to the board at each board meeting.					
	56.	I share similar values to those of my CEO.					
	57.	I feel my values sometimes differ from my fellow board members, other than the CEO.					
Groupthink	58.	I know the skill sets and experience of fellow board members, so I can call on any member to help solve a concern.					
	59.	All of our board members actively participate in board meetings.					
	60.	I respect the ideas of other board members even when they conflict with my views.					
	61.	Individual board members with short tenure are comfortable asking questions of the board.					
	62.	When senior management makes presentations to the board there is					

		healthy questioning about the issues.					
	63.	Our board members are expected to give constructive feedback to management.					
	64.	Different points of view are encouraged during our board meetings					
	65.	The chair of the board ensures that board members take a leading role in areas of their expertise.					
Decision-making	66.	In my experience, the chair of the board perceives corporate strategy as more important than accountability					
	67.	My board uses shareholder value as a performance measure to determine our CEO's compensation.					
	68.	The quality of information I have received from management has been very effective in helping me prepare for board meetings.					
	69.	There have been times when our strategic direction has been pursued even when the board had a major concern					
	70.	My CEO encourages board members to check the logic of his/her proposals					
	71.	The information I receive from my company for board meetings is received in ample time.					
<b>Open Innovation Strategies Dimensions &amp; Indicators</b>							
Inbound Practices	72.	External partners, such as customers, competitors, research institutes, consultants, suppliers, government, or universities, are directly involved in all our innovation projects					
	73.	All our innovation projects are highly dependent upon the contribution of external partners, such as customers, competitors, research institutes, consultants, suppliers, government, or universities					
	74.	Our firm often buys R&D-related products from external partners					
	75.	Our firm often buys intellectual property, such as patents, copyrights, or trademarks, belonging to external partners to be used in our innovation projects					
Outbound Practices	76.	Our firm often sells licenses, such as patents, copyrights, or trademarks, to other firms to better benefit from our innovation efforts					
	77.	Our firm often offers royalty agreements to other firms to better benefit from our innovation efforts					
	78.	Our firm strengthens every possible use of our intellectual properties to better benefit our firm					
	79.	Our firm finds spin-offs to better benefit from our innovation efforts					

## Appendix (J) Research Questionnaire Arabic Version

### الاستبيان

#### المشاركين الأعزاء،

بين أيديكم استبيان يتم توزيعه من قبل طالب دكتوراه في برنامج الإدارة الاستراتيجية بكلية الدراسات العليا - الجامعة العربية الأمريكية في فلسطين.

موضوع الدراسة هو "استراتيجية الابتكار المفتوح في الشركات الصغيرة والمتوسطة الفلسطينية: تقييم المقدمات والمخاطر وحلول الحوكمة المؤسسية".

من المتوقع أن يستغرق إكمال الاستبيان حوالي 10-15 دقيقة من وقتكم، وستساهم المعلومات التي سيتم جمعها في البحث الأكاديمي. مشاركتكم ستكون سرية بشكل كامل، ولا حاجة لذكر اسمكم أو مكان عملكم. سيتم تقديم البيانات المجمعة في صورة إحصاءات ملخصة فقط. إن مشاركتكم في هذا الاستبيان اختيارية، ويمكنكم الامتناع عن الإجابة على أي من الأسئلة.

إن مشاركتكم ذات قيمة كبيرة، حيث أن مدخلاتكم ستساهم بشكل كبير في نتائج الدراسة.

إذا كانت لديكم أي استفسارات بخصوص البحث أو الاستبيان، فلا تترددوا في التواصل مع الباحث على الرقم المحمول:

00972-599355351

يوسف حسين

الجامعة العربية الأمريكية

شكرًا لتعاونكم ووقتكم.

الجزء الأول (البيانات الديموغرافية). الرجاء تعبئة ما يلي:

1. العمر

[ ] أقل من 20 سنة

[ ] من 21 إلى 30 سنة

[ ] من 31 إلى 40 سنة

[ ] أكثر من 40 سنة

2. الجنس :

[ ] ذكر

[ ] أنثى

3. ما هو أعلى مؤهل علمي حصلت عليه؟

[ ] بدون مؤهل

[ ] الثانوية العامة

[ ] دبلوم

[ ] بكالوريوس

[ ] ماجستير أو درجة أعلى

4. قطاع مزود الخدمة؟

[ ] تكنولوجيا المعلومات

[ ] الضيافة والسياحة

[ ] الخدمات المالية

[ ] خدمات التأمين

[ ] خدمات المرافق والصيانة

[ ] الخدمات الصحية

[ ] خدمات التعليم والتدريب

[ ] خدمات التصنيع والهندسة

[ ] خدمات التجزئة والتجارة الإلكترونية

5. موقع المؤسسة:

[ ] شمال الضفة الغربية

[ ] وسط الضفة الغربية

[ ] جنوب الضفة الغربية

6. مدة تشغيل المؤسسة:

[ ] أقل من سنتين

[ ] من 3 إلى 6 سنوات

[ ] من 7 إلى 10 سنوات

[ ] أكثر من 10 سنوات

7. حجم المؤسسة:

[ ] صغيرة (أقل من 19 موظفًا)

[ ] متوسطة (من 20 إلى 49 موظفًا)

الجزء الثاني (الاستبيانات)

يرجى الإشارة إلى مدى اتفاقك أو عدم اتفاقك مع البيان الذي يصف مدى رضاك. استخدم الرمز (X) للإجابة المناسبة (أعارض بشدة، أعارض، محايد، أوافق، أو أوافق بشدة).

أوافق بشدة	أوافق	محايد	أعارض	أعارض بشدة	الاسئلة	#	الايعاد
<b>أبعاد ومؤشرات المقدمات</b>							
					1. يتم اختيار المرشحين الداخليين بنفس طريقة المرشحين الخارجيين.		ممارسات الموارد البشرية القائمة على الالتزام
					2. نقوم باختيار الموظفين بناءً على مدى ملائمتهم الشاملة للشركة.		
					3. يركز نظام التوظيف لدينا على إمكانات المرشح للتعلم والنمو مع الشركة.		
					4. نحرص على إعلام جميع الموظفين بفرص الترقية الداخلية.		
					5. تعتمد الحوافز والمكافآت بشكل أساسي على أداء الشركة.		
					6. تُحدد أهداف خطط الحوافز بناءً على أداء الوحدة أو أداء الشركة ككل.		
					7. رواتب الموظفين في هذه المناصب أعلى من تلك لدى منافسينا.		
					8. تُستخدم تقييمات الأداء لتخطيط تنمية المهارات والتدريب من أجل الترقية المستقبلية داخل الشركة.		
					9. توفر مسارات مهنية متعددة للموظفين للانتقال بين الأقسام المختلفة في الشركة.		
					10. نقدم تدريبات تركز على بناء الفريق ومهارات العمل الجماعي.		
					11. هناك فرص وافرة للحديث غير الرسمي بين الأفراد من أقسام مختلفة.		الترايط بين الأقسام
					12. يشعر موظفو الأقسام المختلفة بالراحة عند الاتصال ببعضهم البعض عند الحاجة.		
					13. يشجع المديرون هنا الموظفين على عدم مناقشة الأمور المتعلقة بالعمل مع من هم ليسوا مدرائهم المباشرين أو مرؤوسيههم.		
					14. الأفراد هنا متاحون بشكل جيد لمن هم في أقسام أخرى.		

				يمكن للمديرين الصغار في قسمي جدولة اجتماعات بسهولة مع نظرائهم في الأقسام الأخرى.	15.	
				من المتوقع أن تتم الاتصالات بين الأقسام من خلال "القنوات الرسمية".	16.	
				لا يمكن اتخاذ أي إجراء حتى يوافق المشرف على القرار.	17.	مركزية اتخاذ القرار
				يجب على الأشخاص الرجوع إلى مشرفيهم قبل القيام بأي شيء تقريباً.	18.	
				تتطلب معظم القرارات هنا موافقة المشرف.	19.	
				يشعر موظفو الأقسام المختلفة بالراحة عند التواصل مع بعضهم البعض عند الحاجة.	20.	
				من السهل التحدث مع أي شخص تحتاجه، بغض النظر عن الرتبة أو المنصب.	21.	
<b>عوامل الخطر، الأبعاد والمؤشرات</b>						
				تقوم المؤسسة بتحديد وتعزيز الكفاءات الإدارية الفردية في فرق تنفيذ الابتكار المفتوح (OI).	22.	القيادة
				تقوم المؤسسة بتحديد وتعزيز كفاءات القيادة الفردية في فرق تنفيذ الابتكار المفتوح.	23.	
				تعزز المؤسسة التزام الموظفين تجاه الابتكار المفتوح من خلال توفير وقت كافٍ لتنفيذ المشاريع و/أو التغيير الثقافي نحو القيم المرتبطة بالابتكار المفتوح.	24.	
				تعزز المؤسسة المسؤولية والكفاءات الإدارية لدى الشركاء الخارجيين المشاركين في تنفيذ الابتكار المفتوح.	25.	القدرة الداخلية على الابتكار
				تطور المؤسسة القدرات الديناميكية اللازمة لدمج المعرفة الجديدة، وإعادة تشكيل الموارد والكفاءات الداخلية، وبناء هيكل حوكمة قابل للتكيف.	26.	
				تعزز المؤسسة المهارات الفنية المرتبطة بالابتكار مثل التكنولوجيا، التسويق، المالية، التجارية، الإدارية، ومهارات الأعمال.	27.	
				تعزز المؤسسة تدفق المعلومات والمعرفة المتصلة بالبيئة الخارجية.	28.	
				نستخدم مقاييس لمساعدتنا في تحديد أين ومتى يمكننا تحسين إدارة الابتكار لدينا.	29.	
				نعمل عن قرب مع "المستخدمين الرواد" لتطوير منتجات وخدمات جديدة مبتكرة.	30.	الشبكات والعلاقات
				هناك رابط واضح بين مشاريع الابتكار التي نقوم بها والاستراتيجية العامة للأعمال.	31.	
				تطبق المؤسسة استراتيجية فعالة لإدارة الملكية الفكرية وآليات أخرى لحماية الكفاءات الأساسية.	32.	
				تعزز المؤسسة آليات التنسيق الفعالة للشراكات الخارجية، وآليات فعالة لاختيار وترتيب أولويات الشراكات المحتملة.	33.	
				تعزز المؤسسة الثقة المتبادلة في الشراكات الخارجية، بما في ذلك آليات السرية ونقاسم الإيرادات.	34.	
				تسعى المؤسسة إلى استكشاف الفوائد العامة، والاستثمارات، والسياسات، والبنية التحتية المتعلقة بالابتكار المفتوح.	35.	الاستراتيجية
				تستفيد المؤسسة من القدرة الاستيعابية من خلال تحسين كفاءات الشركة على مستوى الاستراتيجية، وإدارة المعلومات والمعرفة، والكفاءات التكنولوجية.	36.	
				تطور المؤسسة كفاءات تنفيذ الابتكار، بما في ذلك استراتيجيات الحصول على الموارد أو المعرفة الخارجية وصيانتها.	37.	
				تحدد المؤسسة بوضوح موقعها الاستراتيجي المتعلق بالابتكار، بما في ذلك الأهداف الخاصة بالابتكار الجذري/التدريجي، وابتكار المنتجات/العمليات.	38.	
				توفر المؤسسة الموارد المالية والتكنولوجية والبشرية اللازمة لتنفيذ الابتكار المفتوح.	39.	
				تعمل المؤسسة على تحسين نضج إدارة التكنولوجيا من خلال موازنة الكفاءات الإدارية والتكنولوجية الحالية والمطلوبة.	40.	إدارة التكنولوجيا
				تقيم المؤسسة بشكل فعال تكاليف المعاملات المرتبطة بالشراكات في تطوير التكنولوجيا و/أو مشاريع نقل التكنولوجيا.	41.	
				تطور المؤسسة مشاركتها في الشبكات التكنولوجية الاستراتيجية وتحسينها.	42.	
				لدينا عمليات لمراجعة التطورات التكنولوجية أو السوقية الجديدة وما تعنيه لاستراتيجية شركتنا.	43.	الثقافة
				تعزز المؤسسة القيم التنظيمية المتعلقة بالابتكار المفتوح، مثل تقبل المخاطر والتجريب، من خلال آليات التحفيز والمكافآت.	44.	

					تشجع المؤسسة التقييم الكمي للتغير التنظيمي نحو ثقافة الابتكار باستخدام مؤشرات تحفز القيم المرتبطة بالابتكار المفتوح.	45.	
					تعزز المؤسسة ثقافة تعاونية تؤكد على التجريب وتدفع المعلومات بحرية.	46.	
					تشجع المؤسسة التنوع، والاندماج، والمساواة في جميع أنحاء الشركة كأساس لثقافة عمل إيجابية قائمة على التماسك الاجتماعي وتوافق المصالح الشخصية والمؤسسية.	47.	
<b>أبعاد ومؤشرات حلول الحوكمة المؤسسية</b>							
					يُحتمل مجلس الإدارة الرئيس التنفيذي المسؤولية بناءً على مؤشرات أداء قابلة للقياس ومتماشية مع أهداف الشركة.	48.	المعرفة
					يراقب مجلس الإدارة بشكل كافٍ البيئة (السياق) التي تعمل فيها الشركة.	49.	
					يثق أعضاء المجلس بأن الالتزامات البيئية للشركة موثقة بدقة.	50.	
					أعتقد أن جزءاً كبيراً من أعضاء مجلس الإدارة لديهم معرفة جيدة بالقضايا البيئية.	51.	القيم
					لدي ثقة كبيرة في الرئيس التنفيذي لشركتي.	52.	
					غالباً ما تكون قيم شركتنا مفيدة عند مواجهة أسئلة صعبة تتعلق بالاستراتيجية.	53.	
					تم توضيح قيم شركتنا لجميع أعضاء مجلس الإدارة.	54.	تفكير المجموعة
					يقوم ممثل عن البيئة والصحة والسلامة بتقديم تقرير إلى المجلس في كل اجتماع.	55.	
					أشارك الرئيس التنفيذي في نفس القيم.	56.	
					أشعر أحياناً أن قيمي تختلف عن قيم أعضاء مجلس الإدارة الآخرين، باستثناء الرئيس التنفيذي.	57.	اتخاذ القرار
					أعلم مهارات وخبرات أعضاء المجلس الآخرين، لذا يمكنني التواصل مع أي عضو لحل أي مسألة.	58.	
					جميع أعضاء مجلس الإدارة يشاركون بفعالية في اجتماعات المجلس.	59.	
					أحترم أفكار أعضاء المجلس الآخرين حتى وإن اختلفت مع آرائي.	60.	الممارسات الواردة
					يشعر أعضاء المجلس الجدد بالراحة عند طرح الأسئلة على المجلس.	61.	
					عند تقديم الإدارة العليا عرضاً للمجلس، يكون هناك نقاش صحي حول القضايا المطروحة.	62.	
					يُتوقع من أعضاء المجلس تقديم ملاحظات بناءة للإدارة.	63.	الممارسات الصادرة
					يتم تشجيع وجهات النظر المختلفة خلال اجتماعات مجلس الإدارة.	64.	
					يضمن رئيس المجلس أن يلعب أعضاء المجلس دوراً ريادياً في مجالات خبراتهم.	65.	
					من خلال تجربتي، يرى رئيس المجلس أن الاستراتيجية المؤسسية أهم من المسائلة.	66.	
					يستخدم مجلس الإدارة قيمة المساهمين كمقياس أداء لتحديد مكافأة الرئيس التنفيذي.	67.	
					كانت جودة المعلومات التي تلقيتها من الإدارة فعالة جداً في مساعدتي على التحضير لاجتماعات المجلس.	68.	
					كانت هناك أوقات استُكملت فيها الاستراتيجية رغم وجود اعتراض كبير من المجلس.	69.	
					يشجعني الرئيس التنفيذي على مراجعة منطق مقترحاته.	70.	
					أتلقي المعلومات الخاصة باجتماعات المجلس في وقت كافٍ قبل الاجتماع.	71.	
<b>أبعاد ومؤشرات استراتيجيات الابتكار المفتوح</b>							
					يتم إشراك الشركاء الخارجيين مثل العملاء، المنافسين، المعاهد البحثية، المستشارين، الموردين، الحكومة أو الجامعات بشكل مباشر في جميع مشاريع الابتكار لدينا.	72.	الممارسات الواردة
					تعتمد جميع مشاريع الابتكار لدينا بشكل كبير على مساهمات الشركاء الخارجيين مثل العملاء، المنافسين، المعاهد البحثية، المستشارين، الموردين، الحكومة أو الجامعات.	73.	
					تقوم شركتنا كثيراً بشراء منتجات مرتبطة بالبحث والتطوير من شركاء خارجيين.	74.	
					تقوم شركتنا كثيراً بشراء حقوق ملكية فكرية مثل براءات الاختراع، وحقوق النشر، أو العلامات التجارية من شركاء خارجيين لاستخدامها في مشاريع الابتكار لدينا.	75.	الممارسات الصادرة
					تقوم شركتنا كثيراً ببيع التراخيص مثل براءات الاختراع، وحقوق النشر، أو العلامات التجارية لشركات أخرى للاستفادة بشكل أفضل من جهود الابتكار لدينا.	76.	

					تقوم شركتنا كثيرًا بعقد اتفاقيات عوائد مع شركات أخرى للاستفادة بشكل أفضل من جهود الابتكار لدينا.	<b>.77</b>	
					تعزز شركتنا جميع الاستخدامات الممكنة لحقوق الملكية الفكرية الخاصة بنا للاستفادة القصوى منها.	<b>.78</b>	
					تقوم شركتنا بإنشاء شركات فرعية للاستفادة بشكل أكبر من جهود الابتكار لدينا.	<b>.79</b>	

## Appendix (K) IRB Approval Letter

*Arab American University*  
Institutional Review Board - Ramallah



الجامعة العربية الأمريكية  
مجلس أخلاقيات البحث العلمي - رام الله

### IRB Approval Letter

**Study Title: "Open Innovation Strategy in Palestinian Small and Medium Enterprises: An Assessment of Antecedents, Risks, and Corporate Governance Solutions".**

**Submitted by: Yousef Jamal Mohammed Hussein**

**Date received:** 23<sup>rd</sup> April 2025

**Date reviewed:** 27<sup>th</sup> April 2025

**Date approved:** 29<sup>th</sup> April 2025

Your Study titled "**Open Innovation Strategy in Palestinian Small and Medium Enterprises: An Assessment of Antecedents, Risks, and Corporate Governance Solutions**" with the code number "**R-2025/A/27/N**" was reviewed by the Arab American University Institutional Review Board - Ramallah and it was approved on the 29<sup>th</sup> of April 2025.

**Sajed Ghawadra, PhD**  
IRB-R Chairman  
Arab American University of Palestine



**General Conditions:**

1. Valid for 6 months from the date of approval.
2. It is important to inform the IRB-R with any modification of the approved study protocol.
3. The Board appreciates a copy of the research when accomplished.

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## استراتيجية الابتكار المفتوح في الشركات الصغيرة والمتوسطة الفلسطينية: تقييم المقدمات والمخاطر وحلول الحوكمة المؤسسية

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### ملخص

المقدمة: تتناول هذه الدراسة تبني استراتيجيات الابتكار المفتوح لدى المشاريع الصغيرة والمتوسطة في فلسطين، والتي تُعد ركيزة أساسية في التنمية الاقتصادية الوطنية. وعلى الرغم من أهميتها، تواجه هذه المشاريع تحديات كبيرة في تبني الابتكار نتيجة شح الموارد، وعدم الاستقرار السياسي، والقيود المفروضة على الأسواق. وتهدف هذه الدراسة إلى تحديد المقدمات الرئيسية، وعوامل المخاطرة، وآليات الحوكمة المؤسسية التي تؤثر على نجاح تطبيق استراتيجيات الابتكار المفتوح في سياق الضفة الغربية - فلسطين.

المنهجية: اعتمدت الدراسة على منهج كمي باستخدام استبيان منظم وُزِع على أصحاب ومديري وموظفي المشاريع الصغيرة والمتوسطة في الضفة الغربية. وتم تحليل البيانات باستخدام نمذجة المعادلات الهيكلية (SEM) للتحقق من صحة الإطار النظري واختبار الفرضيات المتعلقة بعلاقة استراتيجية الابتكار مع المخاطر والحلول الحوكمية.

النتائج: أظهرت التحليلات أن ممارسات الموارد البشرية المبنية على الالتزام، والتواصل بين الأقسام، ولا مركزية اتخاذ القرار تؤثر إيجاباً على تبني الابتكار المفتوح. في المقابل، برزت عوامل مخاطرة

مثل ضعف القدرات الداخلية على الابتكار، وضعف الشبكات الخارجية، والمعوقات التكنولوجية كعوامل تعيق جهود الابتكار. إلا أن الدراسة أثبتت أن الحلول الفعالة للحوكمة المؤسسية - لا سيما تلك التي تعزز تبادل المعرفة، والقيم الأخلاقية، واتخاذ القرار المنظم - تُسهم بشكل كبير في التخفيف من هذه المخاطر. كما تبين أن آليات الحوكمة تلعب دوراً وسيطاً بين المقدمات ونجاح الابتكار، مما يعزز من أهميتها في البيئات الاقتصادية الهشة.

الدلالات العملية: توفر هذه الدراسة توجيهات استراتيجية لقادة المشاريع الصغيرة والمتوسطة وصناع السياسات، حيث تؤكد على ضرورة الاستثمار في القدرات الداخلية وبناء شبكات تعاونية مدعومة بأنظمة حوكمة رسمية وغير رسمية. وتبرز النتائج أن الأطر الحوكمية القوية يمكن أن تحمي هذه المشاريع من المخاطر المرتبطة بالابتكار المفتوح وتعزز قدرتها على التنافس والنمو في بيئة مليئة بالتحديات مثل فلسطين.

الكلمات المفتاحية: الابتكار المفتوح، المشاريع الصغيرة والمتوسطة، الحوكمة المؤسسية، إدارة المخاطر، استراتيجية الابتكار