

T.C.
İSTANBUL KÜLTÜR UNIVERSITY
INSTITUTE OF GRADUATE STUDIES

**THE IMPACT OF E-PROCUREMENT MANAGEMENT ON ORGANIZATIONAL
SUCCESS: A STUDY OF LEBANESE COMPANIES**

MASTER'S THESIS
Siham CHARMAND
2200000545

Department: Business Administration
Program: Business Administration

Supervisor: Assist. Prof. Kemal Özkan YILMAZ

SEPTEMBER 2025

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ABBREVIATIONS

SME= Small medium enterprises

S2S= Source to Settle

ROI= Return on investment

RFP= Request for Proposal

OECD= Organization for Economic Cooperation and Development

TOE=Technology Organization Environment framework

TAM= the Technology Acceptance Model

EPS= e-procurement systems

RFQ= Request for Quotation

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ABSTRACT

THE IMPACT OF E-PROCUREMENT MANAGEMENT ON ORGANIZATIONAL SUCCESS: A STUDY OF LEBANESE COMPANIES

Siham CHARMAND

Procurement is becoming a strategic driver of company performance rather than a transactional role. Opportunities to enhance supplier management, cost control, and operational efficiency are presented by digital technology, particularly e-procurement platforms. However, regulatory pressures, a lack of digital maturity, infrastructure limitations, and unstable economic conditions make adoption extremely difficult for Lebanese SMEs.

Through an analysis of organizational, technological, and environmental determinants, implementation problems, and managerial perceptions of results, this study explores the strategic influence of e-procurement adoption on SME performance in Lebanon. Five SMEs were examined using managerial interviews in 13 subject areas using qualitative cross-case analysis.

The results show that stakeholder participation, strategy alignment, focused employee training, and organized supplier onboarding are essential for effective adoption. Operational sectors placed a higher priority on speed, accuracy, and usefulness, whereas regulated sectors placed a greater emphasis on compliance and transparency. Complete system integration and KPI tracking were essential to attaining quantifiable advantages,

such as increased efficiency, compliance, and supplier dependability.

SME managers looking to optimize technology, processes, and human resources in the face of difficult institutional and economic circumstances will benefit from the study's actionable insights and overall confirmation that strategic e-procurement adoption improves organizational performance.

Keywords: E-procurement, SMEs, Lebanon, organizational performance, digital adoption, TOE framework, change management



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KISA ÖZET

E-TEDARİK YÖNETİMİNİN KURUMSAL BAŞARI ÜZERİNDEKİ ETKİSİ: LÜBNANLI ŞİRKETLER ÜZERİNE BİR ARAŞTIRMA Siham CHARMAND

Satın alma, işlemsel bir görevden organizasyonel performansı yönlendiren stratejik bir role dönüşmüştür. Dijital teknolojiler, özellikle e-tedarik sistemleri, tedarikçi yönetimi, maliyet kontrolü ve operasyonel verimliliği artırma fırsatları sunmaktadır. Ancak Lübnan'daki KOBİ'ler, düzenleyici baskılar, sınırlı dijital olgunluk, altyapı kısıtları ve ekonomik istikrarsızlık nedeniyle benimseme sürecinde önemli zorluklarla karşılaşmaktadır.

Bu çalışma, e-tedarik sistemlerinin Lübnan KOBİ'lerinin performansı üzerindeki stratejik etkisini, organizasyonel, teknolojik ve çevresel faktörler, uygulama zorlukları ve yöneticilerin performans algıları açısından incelemektedir. Beş KOBİ üzerinde 13 konu başlığı kullanılarak yapılan niteliksel çapraz vaka analizi ve yönetsel mülakatlar temel alınmıştır.

Bulgular, başarılı benimsemenin yapılandırılmış tedarikçi onboarding, hedefe yönelik personel eğitimi, paydaş katılımı ve stratejik uyuma bağlı olduğunu göstermektedir. Sektörel farklılıklar gözlemlenmiştir: Operasyonel sektörler hız, doğruluk ve

kullanılabilirliđi önceliklendirirken, düzenlemeye tabi sektörler uyumluluk ve şeffaflıđa önem vermektedir. Tam sistem entegrasyonu ve KPI izleme, tedarikçi güvenilirliđi, uyumluluk ve verimlilik gibi ölçülebilir faydaların elde edilmesi için kritik öneme sahiptir.

Genel olarak, çalışma, stratejik e-tedarik benimsemesinin organizasyonel performansı artırdığını doğrulamakta ve KOBİ yöneticilerine, zorlu ekonomik ve kurumsal koşullar altında teknoloji, süreç ve insan kaynaklarını optimize ederek faydaları maksimize etme konusunda uygulanabilir rehberlik sunmaktadır.

Anahtar Kelimeler: E-tedarik, KOBİ, Lübnan, organizasyonel performans, dijital benimseme, TOE çerçevesi, deđişim yönetimi

1 CHAPTER ONE: INTRODUCTION

1.1. Background

Over the past few decades, procurement has evolved significantly from a transactional, back-office function to a strategic driver of organizational value. Traditionally, procurement was viewed primarily as an administrative task focused on issuing purchase orders and managing logistics, with minimal influence on strategic decision-making (van Weele & van Raaij, 2014). Prior to the 20th century, less than 60% of organizational spend was typically managed by procurement, due to its limited visibility and authority (Sollish, Semanik & Sollish, 2011). However, as organizations began to recognize the correlation between external expenditures and overall revenue performance, procurement gained strategic prominence. Ross (2015) highlighted that more than 70% of industrial firms' external spending is now managed by procurement, underscoring its increasing strategic relevance.

Additionally, Paul, Ogugua & Eyo-Udo (2024) contend that improvements in procurement efficiency can produce financial returns greater than equivalent investments in sales efforts, further emphasizing procurement's critical role in organizational success. This paradigm shift has positioned procurement as a key enabler of cost reduction, supplier collaboration, and operational agility (Jayaram & Curkovic, 2018). A key development in this evolution has been the integration of structured sourcing processes into procurement, commonly referred to as strategic sourcing. This approach focuses on aligning suppliers with long-term business goals and provides several benefits, such as reduced risk, improved time-to-market, cost savings, and enhanced product quality (Sollish, Semanik & Sollish, 2011). By facilitating long-term supplier relationships, strategic sourcing has

contributed significantly to procurement's transformation into a core business function that drives organizational performance.

The most recent shift in procurement has been the rise of digitalization, or e-procurement. E-procurement systems incorporate various tools such as e-sourcing platforms, e-catalogs, supplier relationship management (SRM) systems, and e-payment solutions (Croom, 2016; Kraemer & Dedrick, 2002; Brigham, 2017; Jones & Stevens, 2019). These digital tools streamline procurement operations by automating tasks, centralizing data, and enabling real-time decision-making, thereby reducing operational waste and increasing efficiency (Bauer et al., 2019; Herold et al., 2022). High-performing companies that have adopted digital procurement tools report significant cost savings and process improvements (Kosmol, Reimann & Kaufmann, 2019). Additionally, emerging technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), and blockchain have shown significant potential for further innovation in supplier management, data security, and overall supply chain performance (Althabatah et al., 2023).

However, despite the many benefits, the adoption of e-procurement remains uneven, particularly in developing economies. Hallikas, Immonen & Brax (2021) and Harju et al. (2023) emphasize that while digital tools improve information processing and reduce supply chain uncertainty, significant barriers such as infrastructure limitations, organizational resistance, and insufficient digital maturity continue to impede widespread implementation. These challenges are particularly evident in developing economies, where procurement functions often struggle to integrate digital solutions due to institutional weaknesses and economic instability. Attaran (2020) notes that while digital procurement can enhance decision-making capabilities, organizations must overcome resistance to change and technical complexity to realize these benefits.

In advanced economies like the United States and Japan, the adoption of digital procurement systems has significantly improved supply chain performance, as evidenced by metrics such as inventory turnover, on-time delivery, and lead time. Japan's Logistics Performance Index (LPI) consistently ranks among the highest globally, reflecting the country's robust investment in logistics and digital procurement systems (Arvis, 2018). However, in many developing countries, these advances are not as readily achievable. For

instance, India grapples with high logistics costs and unreliable infrastructure, which contribute to inefficiencies in procurement processes (Banerjee, 2019; Sharma & Sachan, 2017). Similarly, Brazil and Nigeria face regulatory complexities and security concerns that undermine procurement efficiency (Jansen & Conti, 2018). In regions like Sub-Saharan Africa and Southeast Asia, structural challenges such as political instability, geographic complexity, and environmental concerns exacerbate procurement inefficiencies (Aluko, 2017; Pramudita, 2018).

Lebanon presents a unique context within this global discussion, particularly for private sector procurement. The country is undergoing severe economic and institutional crises, with a range of challenges that affect not only public procurement but also private sector operations. Lebanon's infrastructure quality is among the lowest globally, ranking 130th out of 137 countries in the World Bank's 2018 Infrastructure Index (World Bank, 2018). This lack of infrastructure investment and high national debt has led to systemic inefficiencies that directly impact private companies' ability to execute procurement processes efficiently.

Moreover, Lebanon is experiencing macroeconomic instability, characterized by hyperinflation, currency devaluation, shrinking foreign reserves, and strict banking capital controls. These factors have resulted in significant reductions in revenue collection, growing budget deficits, and business closures across various sectors. The country also faces the additional burden of managing a large refugee population, coupled with a rising tide of skilled worker emigration, all of which undermine the private sector's institutional capacity.

Private companies in Lebanon face additional challenges in adopting digital procurement systems. Despite efforts to modernize and reform procurement practices, many companies struggle due to the lack of a robust digital infrastructure, limited technical expertise, and financial constraints. As businesses face heightened uncertainty, economic instability, and increasing competition, the need for a strategic, digital procurement function has never been more urgent. The implementation of e-procurement systems could provide the Lebanese private sector with tools to streamline procurement processes, enhance cost-efficiency, and improve operational performance, helping businesses remain competitive in a challenging environment.

This study aims to explore the strategic impact of e-procurement adoption on organizational performance in Lebanese private sector companies, with a focus on cost control, operational agility, supplier relationship management, and overall procurement efficiency. By analyzing the barriers to digital procurement adoption and its potential benefits in Lebanon's current economic and institutional context, this research seeks to provide actionable insights for private sector companies striving to enhance procurement processes amidst economic instability and institutional challenges. Ultimately, this study aims to fill a gap in the literature on e-procurement in the private sector in Lebanon and similar developing economies, contributing to both academic knowledge and practical solutions for private organizations seeking to leverage digital procurement for improved performance.

1.2. Problem Statement

In today's competitive and rapidly evolving business environment, procurement has evolved from a tactical function to a strategic driver of organizational value. However, many companies, particularly in developing economies like Lebanon, continue to face significant challenges, including inefficiencies, cost overruns, and operational delays due to fragmented and outdated procurement practices. Despite global advancements in adopting E-Procurement technologies to streamline operations and enhance performance, Lebanese companies are struggling to implement these systems effectively. This technological gap is exacerbated by Lebanon's broader economic instability, political uncertainty, and infrastructural deficiencies. These challenges raise critical questions regarding the readiness of Lebanese firms to adopt digital procurement, the alignment of these practices with business strategy, and the overall impact of e-procurement on business performance. Despite the availability of digital tools and successful global models, there is limited empirical research on how Lebanese companies are utilizing e-procurement and whether it leads to tangible improvements in procurement efficiency, project execution, and organizational outcomes.

1.3. Objectives of the Study

The objective of this thesis is to examine the strategic impact of e-procurement adoption on the organizational performance of medium to small companies in Lebanon. The study aims to assess how the implementation of e-procurement tools influences critical performance areas, including cost efficiency, operational agility, supplier relationship management, and market responsiveness. Furthermore, it seeks to identify the key organizational, technological, and environmental factors that facilitate or constrain the effective integration of digital procurement practices. By generating evidence-based insights, this research intends to support managerial decision-making, guide solution providers in the procurement technology space, and contribute to policymaking efforts aimed at enhancing supply chain performance and competitiveness in the Lebanese business environment.

1.4. Research Questions/Hypotheses

To achieve this objective, the study will address the following research questions:

1. What organizational, technological, and environmental factors influence the adoption and integration of e-procurement systems in Lebanese companies?
2. What strategic and operational challenges did the companies face during the implementation of e-procurement systems, and how were these challenges addressed?
3. What are managers' perception of the impact of e-procurement adoption on organizational performance, including cost efficiency, operational effectiveness, and supplier relationship management?

Hypothesis:

- *H1: There is a positive relationship between the strategic adoption of e-procurement technologies and organizational performance (measured by cost*

efficiency, project success, and supply chain responsiveness) in Lebanese companies.

1.5. Justification

The adoption and integration of e-procurement systems have become critical for businesses aiming to enhance operational efficiency, reduce costs, and sustain competitive advantage, particularly within the rapidly evolving digital economies of the Middle East and North Africa (World Bank, 2022). Small and medium-sized enterprises (SMEs), which constitute a significant portion of the business landscape, face unique challenges in leveraging digital technologies due to limited resources and infrastructure constraints (Al-Qirim, 2007).

Organizational, technological, and environmental factors play pivotal roles in the adoption process. Specifically, the availability of managerial support, clear regulatory frameworks, and integration capabilities significantly influence the successful implementation of e-procurement systems (Zhang & Dhaliwal, 2009). Furthermore, research into technology adoption within emerging markets highlights the importance of aligning internal capabilities with external technological opportunities to drive sustainable digital transformation (Oliveira, Thomas, & Espadanal, 2014).

Empirical studies underscore that effective supplier integration and internal organizational enablers, such as skilled personnel and process automation, are essential for realizing the cost and operational benefits of e-procurement adoption (Bai & Sarkis, 2020). These factors, combined with the overarching infrastructural and economic dynamics characteristic of the MENA region, frame the complex environment in which Lebanese enterprises operate (World Bank, 2022).

Therefore, understanding and addressing these multifaceted determinants is crucial to fostering e-procurement adoption and enhancing organizational performance in Lebanon's evolving business ecosystem.

1.6. The Scope of the Study and Target Population

This study focuses on small and medium-sized enterprises (SMEs) operating in Lebanon across diverse sectors, including pharmaceuticals, food, construction, technology, and medical equipment. The scope is deliberately limited to SMEs, as they represent a critical segment of the Lebanese economy and face distinctive challenges in adopting digital procurement systems.

The research examines both **internal factors**—such as organizational readiness, managerial support, and technological capabilities—and **external influences**, including supplier relationships, regulatory pressures, and market volatility. The unit of analysis is the organizational procurement function, with specific emphasis on e-procurement adoption, process integration, and their impact on operational performance.

Methodologically, the study relies on qualitative data collected through semi-structured interviews with procurement and supply chain professionals. The scope does not extend to detailed financial analysis or sector-specific benchmarking but instead provides rich, context-driven insights applicable across SMEs engaged in procurement modernization within Lebanon's volatile economic environment.

1.7. Structure of the Thesis

This thesis is organized into five chapters, each building toward a comprehensive understanding of how e-procurement influences organizational performance in Lebanese companies. Chapter 1 outlines the research context, clearly stating the problem, objectives, research questions, justification, and scope of the study. Chapter 2 reviews relevant literature on procurement and e-procurement practices, explores their link to performance metrics such as cost efficiency and supplier relationship management, and presents the conceptual framework. Chapter 3 details the research methodology, including the study design, sampling strategy, data collection tools, and analytical techniques, while

addressing issues of validity, reliability, and ethics. Chapter 4 presents and interprets the empirical findings, focusing on the extent of e-procurement adoption and its measured impact on organizational outcomes. Chapter 5 discusses the results in the light of existing literature, draws theoretical and managerial conclusions, acknowledges limitations, and offers practical recommendations and directions for future research.



2 CHAPTER TWO: LITERATURE REVIEW

2.1. The Evolution from Traditional Purchasing to Strategic Procurement

Managing the movement of goods and services as well as all the procedures that turn raw materials into completed commodities is known as supply chain management, or SCM (Investopedia, 2024). Its main goal is to establish a competitive edge and optimize supply-side operations to maximize customer value. Core activities include sourcing raw materials, managing production, and distributing finished goods to customers through warehouses, distribution centers, and retail outlets.

A variety of organizations, including manufacturers, suppliers, warehouses, transportation companies, distribution hubs, and retailers, make up the supply chain. Product development, marketing, operations, distribution, financing, and customer care are all integrated into this system, which is activated upon receiving a customer order. Effective supply chain management (SCM) lowers expenses and boosts profitability, but any interruption in the chain can have expensive consequences (Hayes, 2024).

For instance, the cement industry's supply chain procedure is depicted in Figure 2-1. From suppliers, raw materials travel to the manufacturing facility, warehouses, regional distributors, and ultimately, consumers. Information flows both ways, allowing suppliers and buyers to coordinate, whereas material flows just in one direction. This illustration shows how SCM effectively delivers value by integrating various processes and stakeholders.

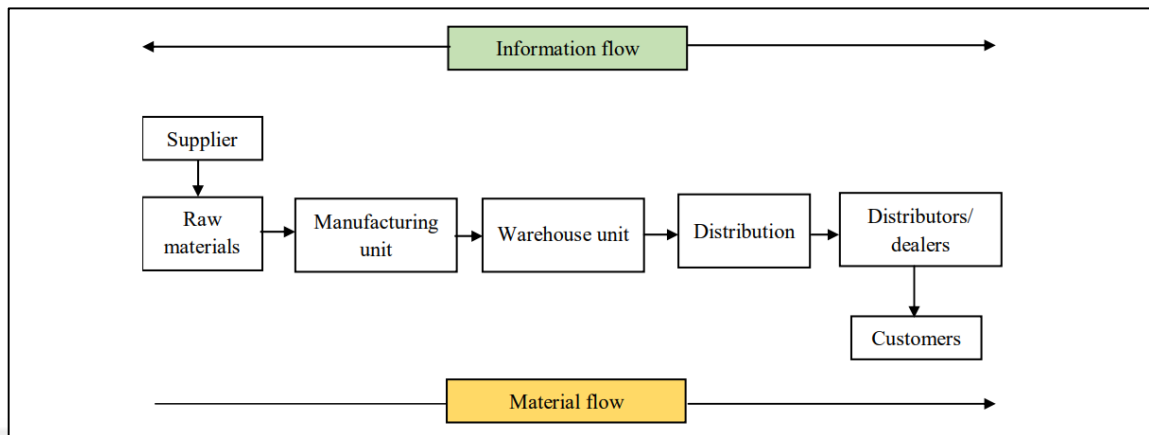


Figure 2-1: Supply Chain Process in Cement Industry

In this larger context, purchasing has historically been seen as a transactional function that is in charge of obtaining goods and services, including components and raw materials, in the appropriate quantity, quality, time, location, and cost. But in the face of growing global competition, intricate supply chains, and changing consumer needs, this constrained viewpoint is no longer sufficient. A more strategic procurement function that links purchasing choices with more general organizational objectives and competitive priorities is required in light of these difficulties.

Fraud risks, a lack of control mechanisms, a lack of uniform purchasing policies, strained vendor relationships, and inadequate performance indicators are just a few of the inefficiencies that organizations that continue to use antiquated purchasing procedures frequently face (Muheesi, 2022). These drawbacks highlight the pressing need for procurement to adopt a more integrated and strategic strategy (Hallikas et al., 2021).

Acquisition is no longer the only aspect of procurement. These days, it covers a whole process that includes determining the needs of the business, carrying out market research, choosing suppliers, entering into contracts, delivering goods, and continuously assessing performance (Schütz et al., 2019; Mothupi et al., 2022). By increasing cost effectiveness, boosting quality and delivery, encouraging innovation, and fortifying supplier relationships, procurement, when properly managed, makes a substantial contribution to organizational performance (Cao & Wang, 2022; Mohamud et al., 2023). According to Patrucco et al. (2019), procurement has evolved from an operationally

passive position to a strategic one that has a direct impact on long-term performance and organizational competitiveness.

The key distinctions between the contemporary procurement framework and the outdated purchasing model are listed in Table 2-1. It records shifts in organizational involvement, vendor engagement, sourcing techniques, process orientation, strategy, and general priorities. A greater focus on strategic, quality-based procurement methods that complement overarching corporate objectives has resulted from this change (Balaeva et al., 2021; Patrucco et al., 2016).

Table 2-1: differences between old purchasing-purchasing and modern purchasing-procurement

No#	Criteria	Purchasing	Procurement
1	Strategy	‘reactive’- responding to requests from user department	‘proactive’ – often developing purchasing policies and defines requirements
2	Process	‘transactional’ –processing purchase orders and contracts to secure the best deal	‘relational’ – long term best value is from long term collaborative relationships with selected suppliers
3	Vendor Relationship	‘tactical’ – focused on making efficient deals for that moment, do not care about a long term vendor relationship	‘strategic’- focused on contributing to the achievement of long term, high level organizational objectives such as profitability, competitive advantage etc based on win win situation
4	Method	‘buying’ in return to payment	embraces a number of ways in which goods and services are increasingly obtained e.g hiring, leasing, borrowing
5	Priority	Purchasing focuses more on the cost than the value it possesses	gives more importance to an item’s value than how much it costs

6	Contributor	involves a smaller number of people	involves a big number of people; each of them contributing to one of the parts of the whole process
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Figure 2-2 distinguishes between purchasing and supplier management, two fundamental aspects of the procurement function, to further highlight the shift from traditional purchasing to modern procurement. Supplier management exhibits a more strategic approach, but purchasing is still primarily concerned with transactional and commercial responsibilities like ordering, expediting, inventory maintenance, and payments. This covers tasks like finding and assessing international suppliers, involving suppliers early on, negotiating, keeping an eye on performance, and taking ethical and environmental concerns into account. These differences highlight how procurement has developed into a strategic enabler of corporate performance and competitiveness, going beyond simple operational duties.

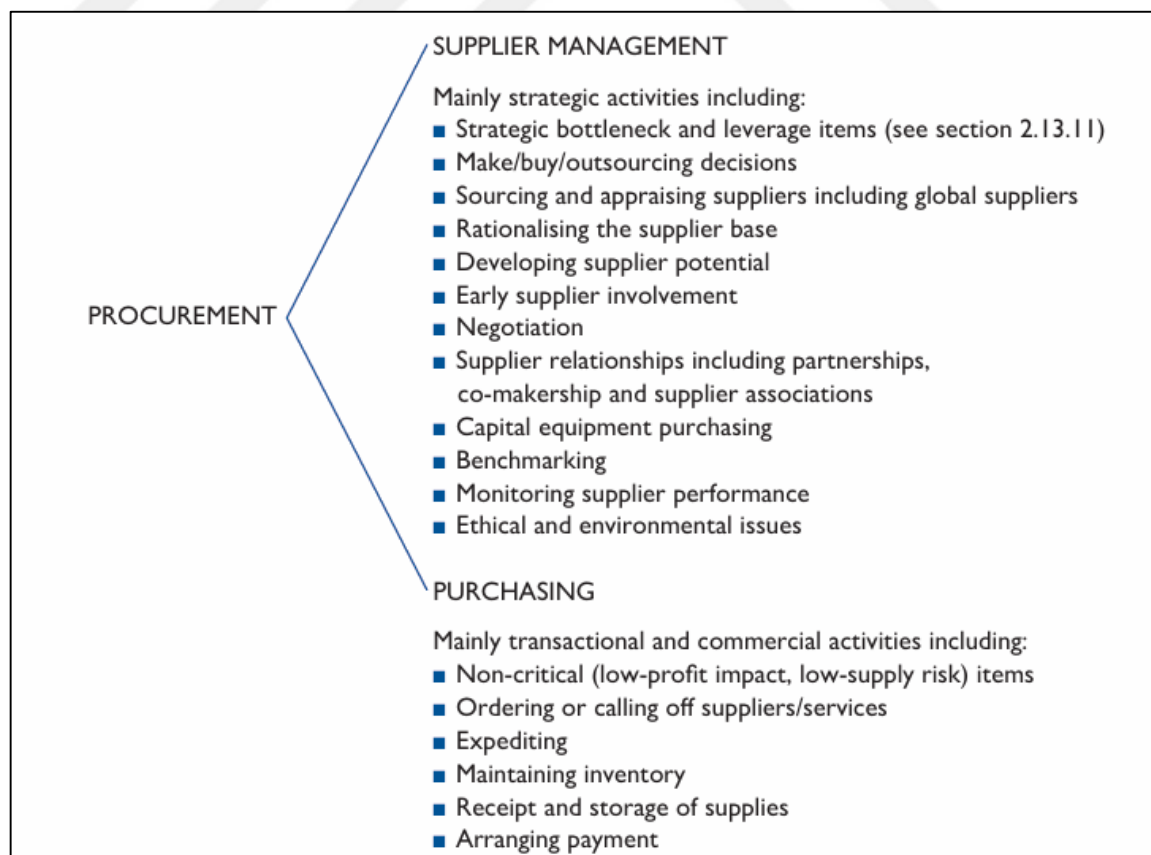


Figure 2-2: Strategic and Operational Dimensions of Procurement

2.2. Strategic and Global Sourcing in Modern Procurement

A sophisticated approach to procurement, strategic sourcing places a high priority on finding, cultivating, and collaborating with suppliers who offer the most value in line with the organization's overarching business goals. Strategic sourcing, as opposed to transactional purchasing, entails long-term planning with an emphasis on risk management, supplier capabilities, and total cost of ownership in order to enable ongoing innovation and competitiveness.

When used globally, strategic sourcing includes choosing suppliers from across boundaries, increasing access to a variety of resources, cutting-edge technologies, and untapped markets. Despite adding complexity, this improves organizational agility and fortifies competitive advantage in the global economy.

The supply management process is shown in Figure 2-3, from needs analysis to continuous supplier and contract management, highlighting the strategic and organized character of modern procurement (Sollish, Semanik, & Sollish, 2011).

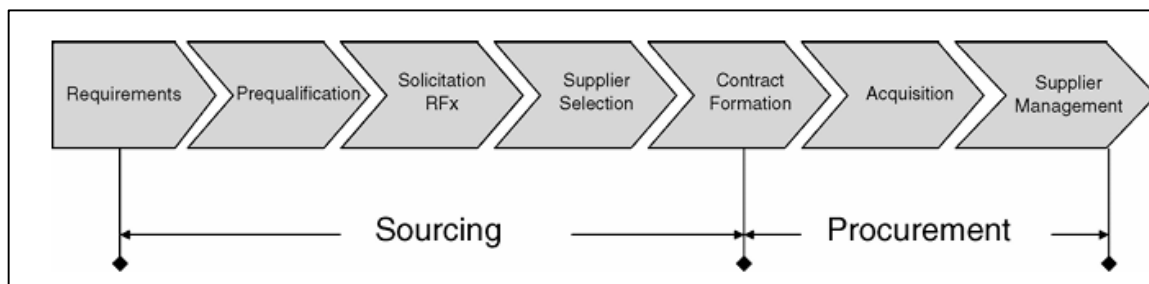


Figure 2-3: The Strategic Procurement and Supplier Management Process

To achieve supply chain management excellence, a thorough and exacting supplier selection procedure must be used. Suppliers must be able to lower overall costs, shorten time to market, reduce business risks, improve the quality of their goods and services, and provide flexibility through technical support and scheduling. It's crucial to remember that strategic sourcing ignores standard procurement duties like handling individual quotes,

logistics, quality control, performance evaluation, and payment processing in favor of concentrating on these high-level supplier selections and relationship-building activities. When contracts are signed or suppliers are officially qualified, strategic sourcing actually comes to an end, and daily procurement activities resume (Sollish, Semanik & Sollish, 2011).

The procurement role has evolved into a comprehensive, integrated operation in recent decades from a mostly transactional, standalone activity. The Source-to-Settle (S2S) strategy, which seamlessly connects the sourcing, procurement, and accounts payable activities, is becoming more and more popular in modern enterprises. Although it can be used in a variety of automated business environments, this integration is usually made possible by Business Process Outsourcing (BPO) or Enterprise Application Software (EAS) like SAP. The evolution of the S2S process is depicted in Figure 2-4, emphasizing the move toward end-to-end procurement integration (Sollish, Semanik & Sollish, 2011).

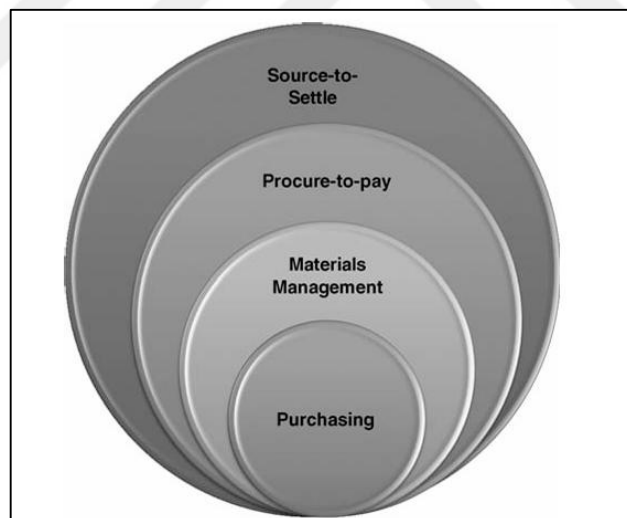


Figure 2-4: Evolution of Procurement from Transactional Purchasing to Integrated Source-to-Settle Framework

Digitalization is now a key facilitator of rapid, value-driven procurement processes as strategic and global sourcing methods change. Routine procurement procedures can be automated to save up staff time for strategic efforts, which directly supports sourcing objectives. Businesses that use digital procurement tools claim considerable increases in

cost savings, improved decision-making skills, and process efficiency (Kosmol, Reimann, & Kaufmann, 2019; Attaran, 2020; Harju et al., 2023).

Despite these advantages, scholarly research on digitalizing procurement is still a little dispersed and frequently concentrates on single technologies rather than comprehensive, end-to-end digital procurement systems (Althabatah et al., 2023). This restricts a thorough comprehension of the ways in which integrated digital solutions affect the results of strategic sourcing.

Procurement is becoming a proactive, strategic component of competitive advantage rather than a reactive, transactional role due to the supply chains' rapid digital change. According to Maleki et al. (2016), traditional manual processes were frequently sluggish and lacked the agility needed in today's dynamic marketplaces. Interactions with suppliers and other stakeholders have been transformed by digital developments such as e-procurement systems, which increase cost-effectiveness, operational efficiency, and transparency.

E-procurement is a collection of interconnected digital processes that improve supply chain efficiency and procurement agility. Together, these features provide a cohesive system that supports contemporary strategic and global sourcing goals, such as:

- **Supplier Selection**, which digital platforms streamline by lowering transaction costs and increasing access to a larger pool of suppliers, hence promoting resilience and diversity in the supply chain.
- **E-Sourcing**, allows for real-time buyer-supplier interactions that facilitate competitive bidding, dynamic pricing, and swift responses to market changes.
- **E-Tendering**, reduces administrative overhead, speeds up procurement timelines, and improves transparency by digitizing the issuance and receiving of tender documents.
- **E-Awarding**, which uses digital scoring and assessment methods to increase objectivity and match strategic goals with supplier selection.
- **E-Negotiation and E-Ordering**, which streamline order processing and contract administration, cut down on errors, and shorten lead times.
- **Order Status Monitoring**, offers proactive disruption control by offering end-to-end supply chain visibility.

- **E-Invoicing and E-Payment**, increase payment traceability, transaction speed, and financial correctness.
- **Monitoring and Follow-Up**, supporting data-driven oversight to guarantee quality and contractual compliance.

These interrelated digital operations work together to strategically modernize procurement, giving businesses more efficiency, transparency, and alignment with changing global sourcing requirements.

These interconnected digital procurement functions are summed up in Figure 2-5.

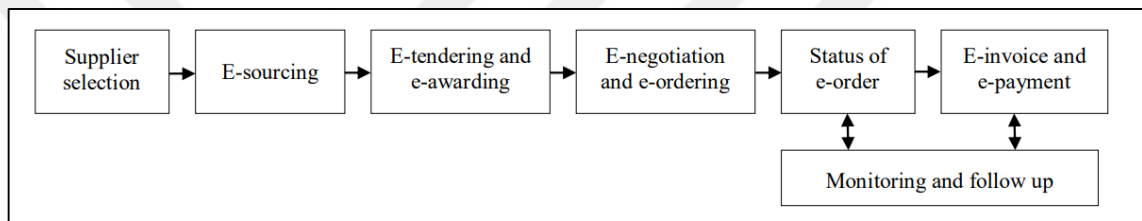


Figure 2-5: E-Procurement Process Model

2.3. Digital Procurement and the Competitiveness of Small Medium Enterprises in Emerging Economies

Globally, SMEs are defined by a number of factors, including sales volume, asset base, capital investment, managerial complexity, and staff numbers. The law allowing the National Institute of Deposits to invest in the "Société de Garantie des Crédits" is the only official legislative attempt to define SMEs in Lebanon. It defines SMEs as businesses with less than 20 employees (Naimy, 2011). The need for more thorough SME policy frameworks that incorporate digital procurement initiatives to promote sustainability and competitiveness is highlighted by this restrictive definition.

Particularly in developing nations, small and medium-sized businesses (SMEs) are vital sources of employment and economic expansion. They can react swiftly to changes in the market thanks to their innate agility and lean structures, but structural constraints usually impede their ability to grow and compete globally. According to Enaifoghe (2023), SMEs

frequently deal with a combination of issues, such as restricted financial access, complicated regulations, and a lack of management and technological expertise.

Deficits in digital infrastructure, such as erratic internet connectivity, inadequate logistics networks, and fragmented digital literacy, are a significant barrier to their global integration. Many SMEs are slow to implement critical technologies like cloud computing, e-commerce platforms, and enterprise resource planning (ERP) systems, despite the promise of digital transformation. Low absorptive ability, a lack of innovation-driven organizational initiatives, and persistent underinvestment in research and development (R&D) are commonly blamed for this technological gap (Enaifoghe, 2023). These shortcomings restrict their capacity to transform digital technologies into observable improvements in market response, procurement agility, and productivity.

SMEs can get beyond these obstacles with the support of digital procurement, especially in the form of e-procurement solutions. E-procurement platforms provide transparent, effective, and data-driven interactions between suppliers and customers, making them more than just a tool for cutting costs. Such solutions help SMEs streamline operations, gain access to new markets, and build institutional trust by automating repetitive processes, improving compliance, and speeding up transaction cycles (Enaifoghe, 2023; El Abiad, 2025). In nations such as Lebanon, where structural inefficiencies disproportionately impact SMEs, e-procurement provides a useful tool to boost competitiveness and support larger agendas for digital transformation.

By optimizing their strategic strengths and immediately addressing enduring operational and institutional deficiencies, digital procurement technologies can strengthen SME resilience, as shown in Table 2-2.

Table 2-2: Small-Medium Enterprises Strengths Improved by E-Procurement

Strengths	Details	Relevance to E-Procurement Management	Implication for Organizational Success
Flexibility	Ability to adapt quickly to environmental changes	E-procurement platforms are scalable and adaptable, supporting agile responses to market and supplier dynamics	Enhances resilience and responsiveness in procurement operations
Efficiency	Low structural/operational costs	E-procurement reduces manual processes and administrative overhead	Further cost savings and process optimization
Simplicity in social relations	Easier internal coordination due to small size	Easier implementation of centralized digital procurement tools	Faster adoption and better internal compliance

Limited access to strategic resources, including knowledge networks, financial capital, and trained talent, is a significant obstacle to SMEs' ability to compete. In places like Lebanon, where institutional flaws and ineffective regulations further impede the expansion of SMEs, these difficulties are particularly acute (Enaifoghe, 2023). Digital changes and focused policy action are needed to overcome these barriers. By lowering transaction costs, boosting transparency, and fostering institutional trust, e-procurement solutions provide SMEs a practical way to better integrate into supply chains. By automating compliance procedures and streamlining supplier contacts, these digital platforms lessen the strain of intricate regulations (Enaifoghe, 2023).

But there are drawbacks to digitalization as well. SMEs must constantly adjust to increased global competition, quick technical advancements, and shorter business model lifecycles. SMEs are disproportionately affected by public sector inefficiencies, such as uneven

enforcement and corruption, in comparison to larger businesses (Enaifoghe, 2023). A comprehensive approach that extends beyond digital literacy and infrastructure is needed to address these issues. In order to promote market access, transparency, and resilience—all of which are essential components of sustainable competitiveness in emerging economies—policymakers must encourage SMEs to adopt e-procurement (Enaifoghe,2023).

Table 2-3 below lists typical SME problems and shows how e-procurement systems can help address them, providing useful avenues to improve SME growth and performance.

Table 2-3: Small-Medium Enterprise Weaknesses Addressed by E-Procurement

Weaknesses	Details	Relevance to E-Procurement Management	Implication for Organizational Success
Funding limitations	Instability of self-financing and limited credit access	E-procurement can improve cash flow visibility and help negotiate better supplier terms	Improves financial planning and supplier trust
Limited managerial expertise	Lack of experience in finance, marketing, accounting, etc.	E-procurement systems offer data analytics, reporting tools, and automation that reduce the reliance on high-level expertise	Empowers better decision-making with minimal resources
Payment imbalances	Long customer payment terms vs. short supplier deadlines	E-procurement improves invoice tracking, automates payment cycles, and supports early-payment discounts	Optimizes working capital and improves supplier relationships

Table 2-4 Continued: Small-Medium Enterprise Weaknesses Addressed by E-Procurement

Weaknesses	Details	Relevance to E-Procurement Management	Implication for Organizational Success
Informality	Fear of formalizing business operations ("working in the clear")	E-procurement introduces formal, auditable processes that build credibility	Enhances trust with stakeholders, including suppliers and regulators
Lack of competitiveness	Limited human, financial, and material resources	E-procurement systems level the playing field by providing access to digital tools that improve procurement performance	Increases operational competitiveness and sustainability

2.4. Procurement Process: Stages, Planning, and Evaluation in Small Medium Enterprises

In procurement, a variety of parties, including manufacturers, suppliers, financing agencies, and regulatory organizations, are involved in the acquisition of goods, services, and equipment in accordance with relevant local, national, and international rules and regulations (Sönnichsen & Clement, 2020). According to Muheesi (2022), the Procurement Management Cycle is depicted in Figure 2-6 and includes all of the crucial phases of procurement, including needs analysis, planning, sourcing, ordering, delivery, and evaluation. This cycle model highlights how procurement is a dynamic process that needs to be continuously monitored and improved in order to meet shifting demands and enhance organizational performance.

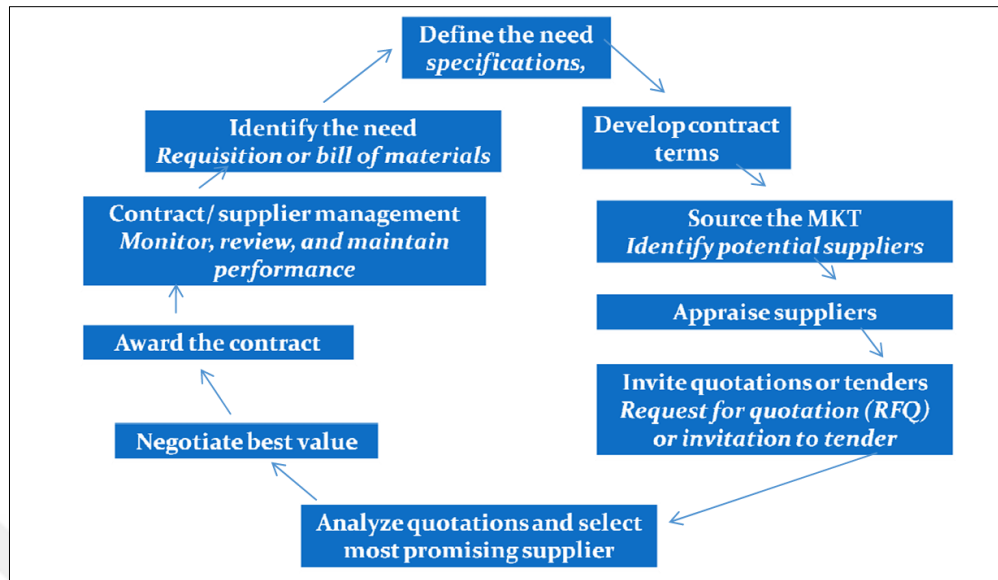


Figure 2-6: Procurement management cycle

Building upon this framework, the procurement process starts with product needs selection, forecasting, and quantification. Next, detailed specifications are developed, and budgeting is used to get the required funding (Mohammed et al., 2019; Banaeian et al., 2018). Coordination between numerous stakeholders is required for procurement, which includes the purchase of goods, services, and equipment in compliance with applicable rules and regulations at all levels—local, national, and international (Sönnichsen & Clement, 2020).

Managing relationships between agencies, financing sources, suppliers, and manufacturers while guaranteeing on-time delivery and quality compliance is what makes procurement hard. In order to guarantee that goods or services are accessible when needed, procurement planning focuses on combining demands and scheduling procurement activities (Banaeian et al., 2018).

Lastly, program managers need to keep an eye on and assess every phase of the procurement cycle in order to keep the system functioning effectively. To find and fix bottlenecks or inefficiencies, this entails setting baseline indicators, monitoring order status, controlling inventories, and conducting recurring assessments (Luan et al., 2019).

2.5. Why Source to Settle?

By consolidating procurement processes into an integrated, end-to-end framework, the Source-to-Settle (S2S) operational strategy helps organizations move past disjointed and isolated purchasing functions. By standardizing procedures, enhancing spend visibility, and enforcing compliance, S2S helps firms move toward comprehensive supply chain management and promotes agility in satisfying consumer demand (Sollish, Semanik, & Sollish, 2011).

Table 2-4 lists the significant procurement issues that existed before S2S deployment along with the quantifiable advantages that were later experienced. These include automating operations, improving supplier communication, and overcoming departmental fragmentation and uneven sourcing policies. Cost reductions, improved risk management, and easier regulatory compliance are all results of such advancements.

Essentially, S2S helps SMEs become more resilient in quickly changing markets by addressing operational inefficiencies and coordinating procurement procedures with strategic company objectives.

Table 2-5: Procurement Pain Points Before and After Source-to-Settle

Category	Why S2S Was Needed	What Went Wrong Without S2S	Benefits Realized with S2S
Fragmentation	Procurement activities were siloed across departments and locations, lacking centralized control and strategy.	Inconsistent sourcing practices, duplicate efforts, and missed cost-saving opportunities.	Centralized sourcing strategies, consistent supplier management, and increased efficiency.

Table 2-6 (Continued): Procurement Pain Points Before and After Source-to-Settle

Category	Why S2S Was Needed	What Went Wrong Without S2S	Benefits Realized with S2S
Process Standardization	Needed uniform sourcing, contracting, and purchasing methods (e.g., eRFx, scorecards, MSAs) to ensure repeatability.	Fragmented processes led to policy inconsistencies, inefficiencies, and poor performance tracking.	Uniform workflows, better control, and easier onboarding of new suppliers.
Spend Visibility	Accurate, centralized data was needed to analyze purchasing patterns and drive supplier consolidation.	Lack of insight into spend, missed economies of scale, and inefficient supplier management.	Real-time spend dashboards, category spend insights, and more informed sourcing decisions.
Compliance & Policy Enforcement	Required stronger controls to enforce procurement policies (approval workflows, conflict of interest rules).	Off-contract spending, non-compliance with regulations like SOX, and audit risks.	Reduced non-compliance, stronger internal controls, and clearer audit trails.
Cost Management	To reduce procurement costs and avoid unnecessary purchases through automation and smarter sourcing.	Higher operational costs, inefficient approvals, and lost discount opportunities.	Lower purchase costs, early payment discounts, and reduced overhead.

Table 2-7 (Continued): Procurement Pain Points Before and After Source-to-Settle

Category	Why S2S Was Needed	What Went Wrong Without S2S	Benefits Realized with S2S
Regulatory Adherence	Needed systems to ensure compliance with regulations like SOX and FAR, with audit-ready data.	Difficulty producing required reports and risk of non-compliance with financial or government mandates.	Full traceability and automated compliance reporting.
Workflow Automation	Manual paperwork and processes slowed down operations and introduced errors.	Lengthy approval cycles, invoice mismatches, and high transactional overhead.	Faster requisition-to-payment cycles and fewer manual touchpoints.
Supplier Collaboration	To improve supplier integration via SRM tools and shared performance metrics.	Weak supplier relationships, delayed payments, and inability to leverage strategic partnerships.	Improved supplier performance, stronger partnerships, and better service levels.
Risk Management	Better monitoring of supplier stability, contract obligations, and geopolitical risk was necessary.	Exposure to supplier failures, outdated contracts, and volatile market impacts with no mitigation strategy.	Predictive risk analytics, scenario planning, and better business continuity.

2.6. Requirements for a successful Implementation of a Source-to-Settle Process

The systematic integration and optimization of key functional areas is a must for an organization to fully reap the benefits of a Source-to-Settle (S2S) approach. Effective procurement is both strategically and operationally influenced by each stage of the S2S cycle. The essential components needed for a successful S2S deployment are listed in Table 2-5, which also highlights the main roles in accounting, analysis, sourcing, procurement, and inventory control. All of these components work together to improve supplier performance, compliance, transparency, and cost control throughout the procurement process. (Sollish & Semanik, 2011)

Table 2-8:Key Elements for Successful Implementation of a Source-to-Settle System

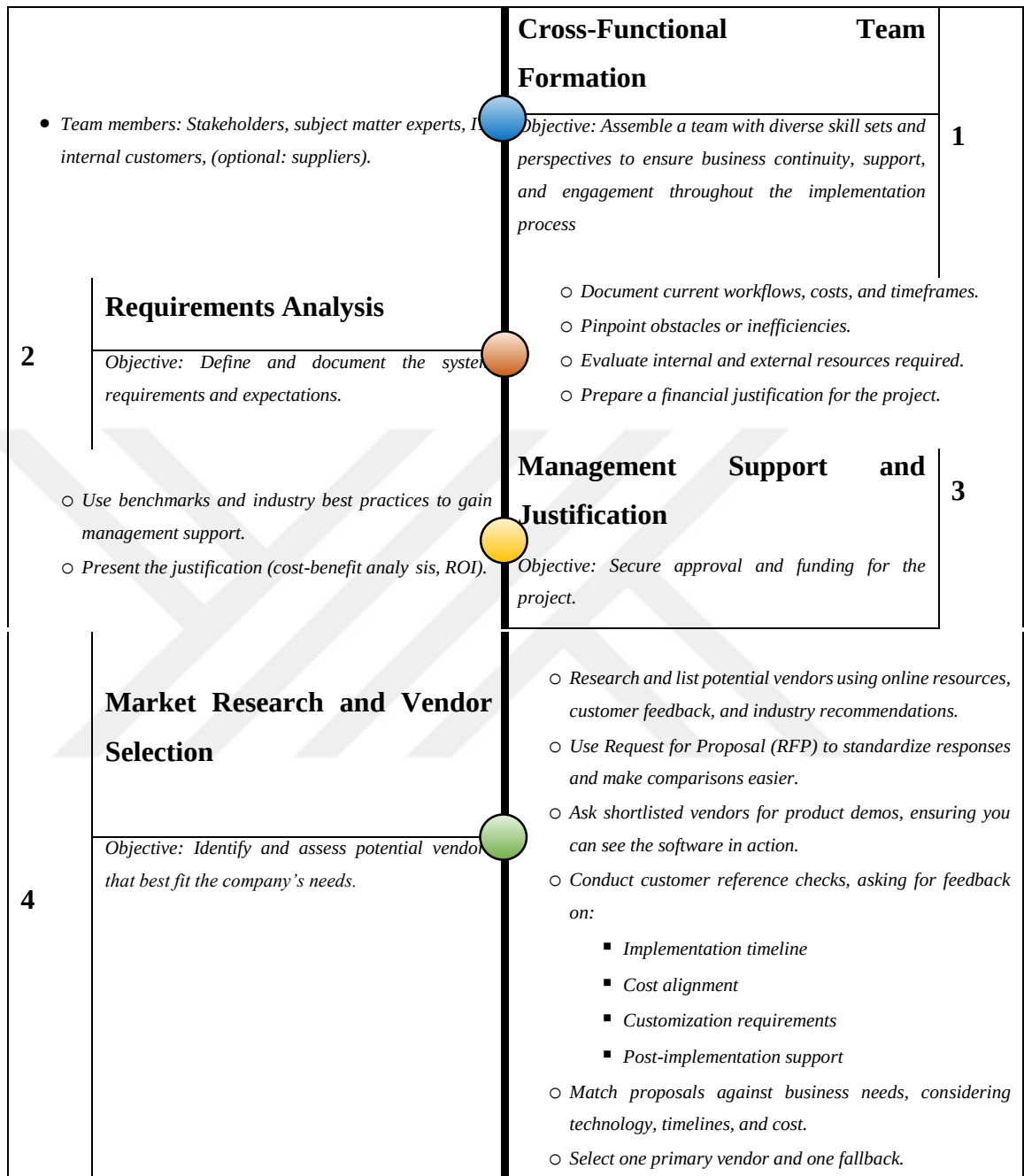
No#	Element	Description
1	Sourcing	- Supplier competitive bidding, RFPs, quotations, and electronic reverse auctions. - Supplier rationalization, analysis, financial profiles, capabilities, and operational capacity analysis.
2	Procurement	- Electronic catalogs, requisitioning, work flow routing for approval, purchase order generation. - Supplier order acknowledgment, shipping notice, delivery tracking, and receiving.
3	Inventory Control	- Order releases to suppliers (blanket purchase orders/Master Agreements). - Stock on hand, scheduled releases, inventory valuation, and reconciliation with physical counts.
4	Accounting & Settlement	- Invoice receipt and entry, payment (check or electronic), tax accounting, purchasing card management, and financial cost accrual.

		- Discrepancy reconciliation and budget interface.
5	Analysis	- Spend analysis by product/supplier, usage data by cost center, supplier performance metrics. - Spending against budgets, maverick spending, and variance of actual vs. budgeted costs.

2.7. Successful Implementation of a Source to Settle System: Key Factors for Success

A Source-to-Settle (S2S) system's implementation is a strategic shift that calls for careful planning, cross-functional cooperation, and resolute leadership backing. In addition to implementing new technology, it entails reworking processes, including stakeholders, and making sure the system supports corporate objectives.

Establishing a cross-functional team, carrying out a comprehensive requirements analysis, gaining executive support, choosing the best system through market research, and carrying out a comprehensive implementation plan with risk management and training components are all crucial stages in the implementation process (Sollish, Semanik & Sollish, 2011). The Strategic Roadmap for Successful S2S System Implementation is depicted in Figure 2-7, emphasizing crucial stages such system integration, change management, readiness evaluation, and continuous performance monitoring to guarantee long-term success.



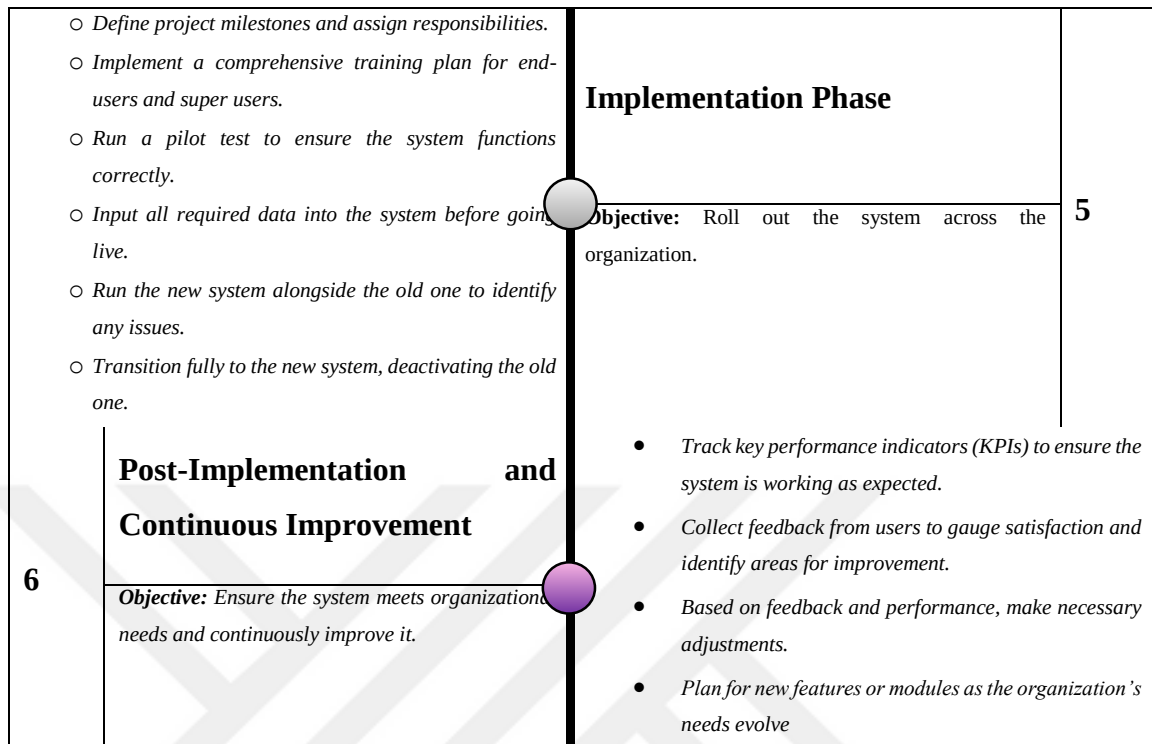


Figure 2-7 Continued: Strategic Roadmap for Successful Source-to-Settle (S2S) System Implementation

2.8. Impact of Procurement Practices on Organizational Performance

Effective procurement has a major impact on organizational performance, which includes financial results, operational efficiency, and the accomplishment of strategic goals (Harb et al., 2019). Effective procurement procedures help businesses to better allocate resources, manage expenses, and improve supplier cooperation—all of which are essential for maintaining a competitive edge.

To be competitive in the market, businesses aim for improved performance. However, businesses need to be able to effectively and efficiently manage procurement activities if they want to increase performance. Because of this, a lot of research has been done on how efficient procurement affects organizational performance.

Organizational efforts should create and put into place an efficient organizational performance framework in order to achieve a reliable supplier sourcing and a seamless procurement process, which will lead to the desired level of procurement performance:

- **Procurement Competencies:** It is crucial to have competent procurement experts with technical know-how, strong communication skills, and risk management abilities. These skills enhance problem-solving, negotiating, and supplier selection, all of which have a direct impact on procurement results (Lacity & Willcocks, 2017; Bag et al., 2021).
- **Risk management:** Strong risk detection and mitigation techniques are essential as businesses depend more and more on outsourcing and third-party providers. Establishing governance frameworks and fostering a risk-aware culture assist protect procurement operations from interruptions, which stabilizes corporate performance (Damayanti & Augustine, 2019; Abdullahi & Mohamud, 2023).
- **Adoption of Digital Procurement:** Including e-procurement technology improves supply chain innovation, speeds up procedures, and increases transparency. However, in order to overcome obstacles, successful adoption necessitates not only technological investment but also organizational change management and workforce capability development (Ibrahim et al., 2023; Salvi et al., 2021; Wamba et al., 2017).
- **Governance and Leadership:** Quality procurement results are built on a foundation of strategic procurement frameworks, executive commitment, and integrated procurement policies. Support from the leadership guarantees resource allocation, responsibility, and ongoing development (Aulia & Isvara, 2022; Patrucco et al., 2021).
- **Supplier Relationship Management:** Fostering cooperative, trustworthy relationships with suppliers improves information sharing, mutual value creation, and supply chain flexibility. However, in order to leverage strategic gains and prevent dependency concerns, businesses need to properly manage these connections (Matopoulos et al., 2019; Alghababsheh & Gallear, 2020).

In conclusion, companies are better positioned to save costs, enhance product quality, and raise customer happiness when they deliberately build procurement capabilities, use digital technology, and cultivate strong supplier connections. Superior organizational performance and long-term competitive positioning in dynamic marketplaces are the results of these advantages.

3 CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Research Design

The adoption and integration of e-procurement systems in Lebanese SMEs are examined in this study using a qualitative exploratory research design. Because stakeholder coordination, technology integration, and organizational processes are complex and context-specific, a qualitative approach is needed. These factors cannot be adequately represented by quantitative surveys alone. With an emphasis on experiences following implementation, the study offers insights into adoption methods, obstacles, and perceived effects on organizational performance.

The following inquiries form the framework of the research design:

1. What organizational, technological, and environmental factors influence the adoption and integration of e-procurement systems in Lebanese companies?
2. What strategic and operational challenges did the companies face during the implementation of e-procurement systems, and how were these challenges addressed?
3. What are managers' perceptions on the impacts of e-procurement adoption on organizational performance, including cost efficiency, operational effectiveness, and supplier relationship management?

The interview was directly impacted by these questions, which improved the analysis of stakeholder coordination, internal communication, ERP system integration, and corporate decision-making.

3.2. Participant Selection

Based on their involvement and importance in Lebanese SMEs' procurement and e-procurement implementation, participants were purposefully chosen. Five participants were interviewed from a variety of industry sectors, including technology, medical equipment, construction, food distribution, and pharmaceuticals.

Since each participant had a managerial or officer-level role in IT, logistics, or procurement, they were all qualified to offer in-depth analyses of the strategic and operational facets of e-procurement adoption.

3.3. Data Collection Method

Five in-depth, semi-structured interviews with businesses were conducted to gather data during the E-procurement system's post-implementation phase.

The following were important elements of the data collection process:

- **Mode and Length:** Depending on participant availability, each interview was performed in-person or virtually, lasting 15 to 20 minutes.
- **Recording and Transcription:** In order to maintain accuracy and context, all interviews were handwritten and recorded with participant approval.

By recording both pre- and post-implementation experiences pertinent to the adoption of e-procurement, our approach guaranteed the collection of comprehensive, context-specific data.

3.4. Research Instrument

The main research instrument used to examine the integration and uptake of e-procurement systems in Lebanese SMEs was a semi-structured interview guide. The guide was divided into four primary sections, each of which was created to explicitly address the research questions and hypotheses of the study:

- **Organizational Context (Q1–Q2):** Look at strategic adoption objectives, inefficiencies, and pre-implementation workflows. RQ1, which identifies organizational and environmental factors impacting adoption, is addressed by these questions.
- **Q3–Q7: System Selection and Implementation**
Examine supplier onboarding, staff training, stakeholder participation, and system selection criteria. These inquiries address RQ2 by identifying human and technical obstacles as well as effective implementation techniques.
- **Q8–Q11 System Impact:**
Evaluate system integration, interdepartmental communication, supplier performance, cost savings, and operational efficiency. These inquiries respond to RQ3 and support H1, which relates adoption to organizational effectiveness.
- **Analysis and Suggestions (Q12–Q13):**
Compile information about best practices and lessons learned, offering SMEs useful advice. In addition to highlighting sector-specific considerations, this guarantees managerial relevance.

The interview questions were thoughtfully constructed to capture a thorough picture of the adoption of e-procurement, examining implementation problems, managerial perceptions of performance outcomes, and organizational, technological, and environmental causes. Participants were able to give thorough, contextualized answers while retaining consistency throughout the interviews thanks to the semi-structured design, which made sure that the data gathered would adequately support analysis and be in line with the goals of the study.

Participants were able to go into further detail about their experiences while maintaining uniformity throughout the interviews because to the semi-structured design. To elucidate answers and gather detailed, contextual information, probes and follow-up questions were employed.

This interview protocol ensures that data collection systematically supports the research questions, facilitates alignment with theoretical frameworks, and strengthens the validity of findings, including the 13 child codes identified in the cross-case analysis.

3.6. Analysis Techniques

Thematic analysis, one of the most adaptable and often used methods in qualitative research, was used to examine the qualitative data gathered from five semi-structured interviews. The study used Braun and Clarke's (2006) six-step structure to guarantee a methodical and exacting procedure. Clarke and Braun, 2022b. In figure 3-1, this framework is shown:

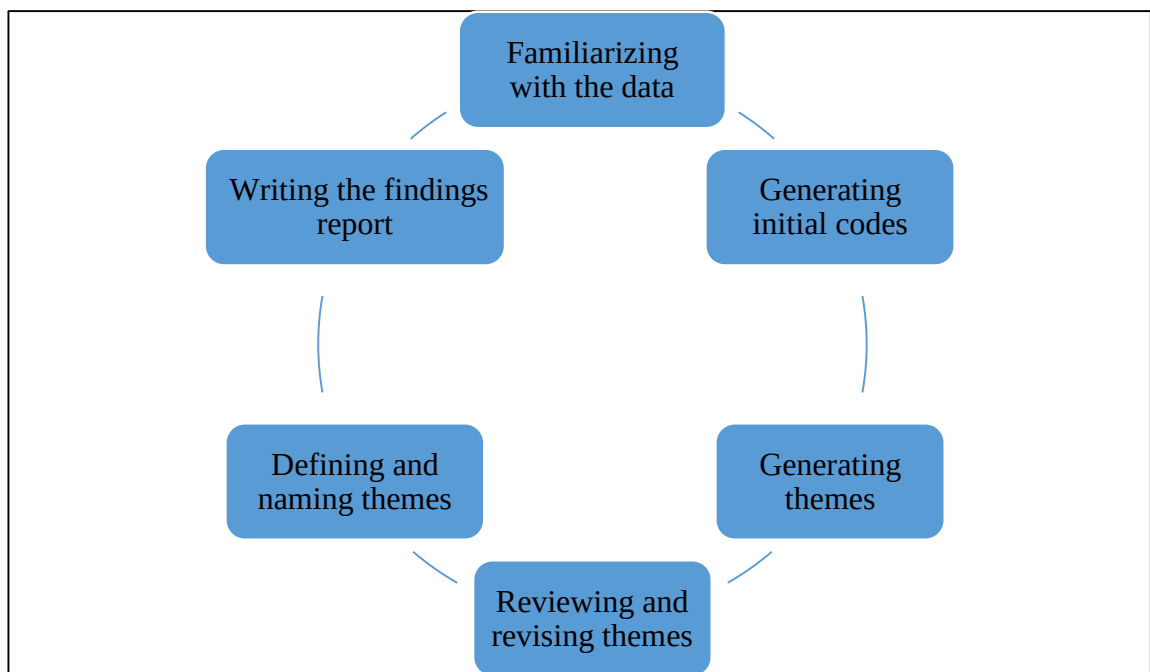


Figure 3-1: the Braun and Clarke six step framework

In order to become acquainted with the responses given by the interviewees and to understand the subtleties of their responses, the researcher started by reading their transcripts in accordance with the first step of the Braun and Clarke, six-step framework for thematic analysis. The researcher also identified certain important observable concerns based on interview responses.

After that, the researcher proceeded to the second phase of the six-step framework for theme analysis developed by Braun and Clarke, which is the creation of preliminary codes (Braun and Clarke, 2022a). A code, according to Byrne (2021), is a designation or an explanation for any data that is significant to our study questions or goals. Thus, the researcher coded all the required information after reading and rereading each participant transcript line by line in order to create the initial codes.

The researcher proceeded to the third phase of the six-step framework for thematic analysis developed by Braun and Clarke, which is the generation of themes, after creating preliminary codes for each transcript and editing them (Braun and Clarke, 2022b). The researcher searched for a common meaning among the original codes in this step. A theme was used to group codes that shared a common pattern of meaning.

After creating initial themes, the researcher proceeded to the following phase of the six-step framework for thematic analysis created by Braun and Clarke, which was to review and refine the themes (Braun and Clarke, 2022a). In order to make sure that every topic conveyed a clear meaning, the researcher integrated and modified them in this step based on shared meaning. The fifth step of the six-step framework for thematic analysis developed by Braun and Clarke was the researcher's addition of definitions and descriptions to the final topics after the themes had been reviewed. This table lists every theme that was created in MAXQDA along with a description of it.

Following the development of the final themes, the researcher proceeded to the preparation of the findings report, the last phase in the Braun and Clarke six-step framework for thematic analysis. The findings report presented a narrative of the key

conclusions that emerged from the data analysis process and was composed of quotes, codes, and themes (Naeem et al., 2023).

MAXQDA software, a well-known computer-assisted qualitative data analysis program (CAQDAS), was used to help the process. It made it easier to organize, classify, and retrieve coded data. To better understand the organizational, technological, and environmental variables impacting the adoption of e-procurement, parent and child codes were created to reflect the hierarchical structure of themes. The study guaranteed both analytical rigor and openness in drawing conclusions from the interview data by fusing the technical prowess of MAXQDA with the structured framework developed by Braun and Clarke.

As explained below, the analysis placed a strong emphasis on qualitative, thematic, and comparative approaches:

- a) Thematic Coding: Child codes that corresponded to certain insights were used to code each interview transcript.
 - To create overarching themes, related child codes were grouped under parent codes.
 - This method preserved the depth of individual replies while enabling the systematic but adaptable identification of trends across businesses.
- b) Comparative Analysis of Cross-Case
 - To find commonalities, variations, and distinctive experiences, the data from all businesses in the same implementation phase (Post) were examined.
 - This stage was essential for investigating how environmental, technological, and organizational factors affected the adoption of e-procurement in various scenarios.
- c) Interpreting Coded Segments Qualitatively
 - Illustrative excerpts were chosen to highlight important themes once coded portions were extracted and subjected to narrative analysis.

- The main goal was to comprehend how perceived operational outcomes and organizational performance were impacted by organizational practices, implementation tactics, and difficulties.

Table 3-1 displays the primary coding structure:

Table 3-1: Parent and Child Code Categories in MAXQDA

Parent Code	Child Code
<i>Organizational Context</i>	• Strategic goals • Pre-implementation workflow
<i>Systems Selection and Implementation</i>	• Supplier onboarding • Staff training • Implementation challenges • Stakeholder involvement • Selection criteria
<i>System Impact</i>	• System integration • Interdepartmental communication • KPI cost efficiency • Operational efficiency
<i>Reflection & Lessons Learned</i>	• Advice to SMEs • Re-implementation insights

To guarantee relevance, each parent and child code was matched to the study questions: RQ1 (factors impacting adoption) was covered by Systems Selection and Implementation and Organizational Context, whereas RQ2 (implementation obstacles and lessons learned) was covered by Systems Selection and Implementation and Reflection & Lessons Learned. Though it is recognized that these insights are qualitative and do not include objective performance measurements, System Impact codes offered perceptions of organizational performance related to RQ3, which limited the ability to generalize findings regarding operational effectiveness or cost efficiency. To increase rigor and guarantee that the results are managerially relevant, the analysis was conducted using a three-step process: familiarization, coding, and theme development. Through

independent coding review, triangulation, and topic saturation confirmation, reliability and validity were further reinforced.

3.7. Ethical Considerations

The purpose of the study was explained to the participants, and they were reassured that participation was entirely up to them and that they could cancel their participation at any time without suffering any consequences. Since there was not any personal data in the interview transcripts, remain anonymous and private were ensured.

Informed consent was requested, prior to conducting interviews, and only the research team had access to the information. Participants were not intimidated because the study concentrated only on professional experiences and avoided sensitive subjects and. Measures were taken to ensure that participation was free from coercion and to reduce power disparities.

4 CHAPTER FOUR: ANALYSIS AND RESULTS

4.1 Insights from The Post Implementation Interviews

The results of five semi-structured interviews that were subjected to the six-step thematic analysis by Braun & Clarke and MAXQDA are presented in this chapter. Four parent codes—Organizational Context, Systems Selection and Implementation, System Impact, and Reflection & Lessons Learned—are used to arrange the findings. Cross-case comparison is possible since each parent code has several child codes, all of which were reported by the five interviewers. Quotations are used as examples to highlight trends.

4.1.1 Organizational context

4.1.1.1 Strategic Goal

The findings of the cross-case analysis for the child code-Strategic Goal are displayed in Table 4-1. It has been observed that the adoption of e-procurement is universally driven by efficiency and compliance, with cost reduction coming in second. While operational sectors like construction, food, and technology place a higher priority on speed and precision, regulated sectors like pharmaceuticals and medical equipment place more emphasis on compliance and operational transparency.

These results show that organizational priorities and environmental constraints have a significant impact on adoption decisions, which is consistent with the TOE (Technology-Organization-Environment) concept (Gunasekaran et al., 2017). Instead of being the main motivator, cost reduction is frequently a byproduct.

Instead than concentrating only on cost savings, SMEs should give priority to system capabilities that support strategic goals, including compliance and operational efficiency.

Table 4-1: MAXQDA Child Code 'Strategic Goal' – Industry-Specific Objectives and Insights

Industry	Primary Strategic Goals	Secondary Goals	Key Insight
pharmaceutical	Efficiency, regulatory compliance, transparency, reduce approval cycle	Cost reduction	Compliance and patient safety drive adoption more than cost savings
food distribution	Operational efficiency, error reduction, order visibility, supplier relationships	Cost reduction	Visibility and supplier engagement prioritized over cost
construction	Real-time material tracking, efficiency, error minimization, reduce delays	N/A	Process transparency and timeliness are top priorities
technology	Efficiency, accuracy, compliance, ERP integration with Finance, QA, Production	Cost reduction	Integration supports operational efficiency
medical equipment	Efficiency, hospital delivery speed, compliance, supplier tracking	Cost reduction	Speed and service readiness prioritized in healthcare delivery

4.1.1.2 Pre-Implementation Workflow

Table 4-2 confirms that all enterprises experienced operational disruptions, delays, and errors as a result of manual procurement methods. Bottlenecks raised expenses and put compliance at risk in industries with regulations.

Analysis: Organizational and environmental constraints driving adoption include operational inefficiencies and compliance exposure. These results highlight how crucial it is to identify workflow inefficiencies prior to implementing new technology.

Managerial insight: SMEs should focus on adoption in areas where strategic objectives are most impacted by operational constraints, making sure that e-procurement tackles both risk mitigation and efficiency.

Table 4-2: MAXQDA Child Code 'Pre-Implementation Workflow' – Industry Workflows, Bottlenecks, and Impacts

Industry	Workflow Before E-Procurement	Major Bottlenecks	Quantified Impacts
pharmaceutical	Manual paper/email requests, approved by dept. heads, manual PO creation	Approval delays, duplicate orders, supplier documentation errors	Avg 5 days delay, ~8% duplicate orders
food distribution	Excel/email-based	Lost emails, missed approvals, supplier errors	N/A
construction	Paper/email-based, approvals by site managers	Delayed approvals, miscommunication, emergency deliveries	20% emergency orders, \$50K extra costs
technology	Semi-manual ERP-supported	Inconsistent supplier documentation, approval delays	~18% delayed orders
medical equipment	Email/Excel-based	Delayed hospital deliveries impacting service readiness	~20% delayed orders

4.1.2 Systems Selection and Implementation

4.1.2.1 Supplier Onboarding

All businesses relied on feedback loops, pilot testing, and practical instruction, as Table 4-3 demonstrates. Particularly in regulated industries, smaller or more reluctant suppliers needed specialized assistance.

Analysis: ROI, compliance, and operational effectiveness are all directly impacted by supplier preparedness. In addition to lowering adoption risk, structured onboarding guarantees that vendors adhere to company requirements.

Managerial insight: SMEs should spend money on supplier support systems and training, especially in cases where timely delivery or regulatory compliance are crucial.

Table 4-3: MAXQDA Child Code 'Supplier Onboarding' – Strategies, Challenges, and Outcomes Across Industries

Industry	Strategy / Practices	Challenges / Barriers	Outcome / Metrics	Insight
pharmaceutical	Step-by-step portal tutorials, live webinars, pilot orders	Initial supplier reluctance	90% adoption within 2 months	Hands-on support and feedback loops increase supplier readiness and reduce adoption lag
food distribution	Account managers, step-by-step guides, mock transactions, live support	Smaller suppliers struggled	Gradual adoption	Personalized support for small suppliers is critical for operational success
construction	Live demonstrations, mock orders, dedicated support lines	Hesitant suppliers	Improved engagement	Direct engagement and real-world simulations improve compliance and adoption
technology	Dedicated support, test transactions, follow-up coaching	Smaller supplier familiarity	Gradual onboarding	Continuous coaching ensures consistent adoption and reduces errors
medical equipment	Training, Q&A sessions, step-by-step guides	Supplier unfamiliarity with portal	90% acknowledged orders within 24 hours	90% acknowledged orders within 24 hours

4.1.2.2 Staff Training

Staff training coupled practical workshops with observable operational advantages, as seen in Table 4-4. In order to lessen resistance, engagement was crucial.

Analysis: In line with change management, employee engagement is a strategic facilitator where Adoption is encouraged and resistance is decreased through tangible

successes and hands-on training.

Managerial insight: Training acceptance is accelerated when it is aligned with operational results, especially in industries with stringent compliance requirements.

Table 4-4: MAXQDA Child Code ‘Staff Training’ – Approaches, Resistance Management, and Outcomes Across Industries

Industry	Training Approach	Resistance / Mitigation	Outcome / Metrics	Insight
pharmaceutical	Role-specific workshops for 50 staff over 4 weeks	~20% resistance mitigated via pilot projects and feedback sessions	Staff adoption improved; efficiency & compliance emphasized	Pilot projects + feedback demonstrate operational benefits, reducing resistance
food distribution	Workshops + e-learning for 30 staff	Resistance reduced by showing order cycle reduction (7 → 3 days)	Faster processing recognized as benefit	Linking training to measurable efficiency gains improves engagement
construction	Hands-on exercises for 40 staff	Resistance mitigated by demonstrating faster material availability	Improved operational efficiency	Visual demonstration of outcomes motivates adoption in field-intensive sectors
technology	Workshops and role-specific sessions	Resistance addressed by emphasizing compliance and efficiency benefits	Smooth adoption, fewer errors	Demonstrating alignment with organizational priorities facilitates uptake
medical equipment	Role-specific workshops + Q&A sessions	Highlighted faster processing and fewer errors	Staff adoption increased	Hands-on support with real-time feedback accelerates proficiency and confidence

4.1.2.3 Implementation Challenges

The difficulties were both human-centered (adoption, supplier familiarity) and technological (integration), as Table 4-5 demonstrates. Risk was reduced by pilot testing, phased rollouts, and consultant assistance.

Analysis: SMEs encounter both technological and interpersonal obstacles. Adoption chance is increased by structured implementation tactics, such as expert support and piloting.

Managerial insight: SMEs should proactively implement mitigation methods and foresee issues with people, processes, and technology.

Table 4-5: MAXQDA Child Code 'Implementation Challenges' – Key Issues, Mitigation Strategies, and Outcomes Across Industries

Industry	Key Challenge	Resolution / Mitigation	Outcome / Metrics	Insight
pharmaceutical	Aligning legacy SAP modules with e-procurement workflows	Phased integration, vendor consulting, rigorous UAT	Smooth alignment with ERP & compliance modules	Phased rollout reduces operational disruption and ensures regulatory compliance
food distribution	Integrating supplier data into the system	Data cleansing, phased onboarding, testing with high-volume suppliers	Accurate data integration	Data integrity is essential for system reliability and adoption
construction	Field staff adoption	Mobile-friendly interfaces, on-site training	Faster material delivery, higher field engagement	User-friendly interfaces reduce resistance and operational delays

Table 4-6 (Continued): MAXQDA Child Code 'Implementation Challenges' – Key Issues, Mitigation Strategies, and Outcomes Across Industries

Industry	Key Challenge	Resolution / Mitigation	Outcome / Metrics	Insight
technology	Aligning legacy inventory/accounting systems	Phased rollout, consultant guidance	Phased rollout, consultant guidance	External expertise ensures smoother integration with minimal disruption
medical equipment	Suppliers unfamiliar with portal	Hands-on training, step-by-step guides, test orders	Rapid supplier adaptation	Practical demonstrations bridge knowledge gaps and ensure system usability

4.1.2.4 Stakeholder Involvement

As demonstrated in Table 4-6, stakeholder participation is essential for accountability, alignment, and successful adoption. Standardized procedures and reduced conflict were achieved through cross-functional governance and organized communication.

Analysis: Communication, process standardization, and adoption rates are all enhanced by stakeholder engagement.

Managerial insight: SMEs should set up governance systems and guarantee that every functional area participates actively.

Table 4-7: MAXQDA Child Code 'Stakeholder Involvement' – Departments, Alignment Strategies, and Insights Across Industries

Industry	Departments / Stakeholders Involved	Alignment Strategy	Insight
pharmaceutical	Procurement, IT, QA/QC, Production, Finance, Top Management	Cross-department workshops, steering committees	Structured governance ensures accountability and cross-functional alignment
food distribution	Procurement, IT, Finance, Operations, Senior Management	Bi-weekly steering meetings	Regular engagement prevents bottlenecks and enhances decision-making
construction	Procurement, Operations, Finance, IT	Weekly workshops with office and field staff	Inclusive workshops integrate field and office perspectives
technology	Procurement, IT, QA, Production, Finance, Management	Steering committee meetings	Governance structures ensure coordination across critical departments
medical equipment	Procurement, IT (cross-functional team)	Workshops and pilot programs	Pilot programs enhance cross-department understanding and collaboration

4.1.2.5 Selection Criteria

Table 4-7 demonstrates that integration, operational visibility, and regulatory compliance were continuously given precedence over strictly technical concerns in the selection criterion.

Analysis: Choosing the right technology is a strategic decision that promotes scalability, compliance, and operational efficiency.

Managerial insight: SMEs need to assess how well e-procurement solutions match sector-specific requirements and organizational objectives.

Table 4-8: MAXQDA Child Code 'System Selection Criteria' – Key Factors, Critical Departments, and Insights Across Industries

Industry	Key Criteria	Critical Departments / Notes	Insight
pharmaceutical	SAP ERP integration, QA/QC, regulatory reporting, real-time supplier tracking, audit trails, scalability	Production & QA/QC critical for batch-sensitive materials	System selection should reflect strategic priorities and regulatory requirements
food distribution	Accounting/inventory integration, automated approvals, supplier portal access	Operations & Finance critical	Integration with operations ensures efficiency and reduces errors
construction	ERP integration, inventory visibility, supplier performance, cost control	Production/Operations critical to avoid site delays	Selection must prioritize operational continuity and cost mitigation
technology	ERP integration, compliance tracking, automated reporting, supplier performance metrics	QA & Production integration critical	Alignment with operational and regulatory processes enhances adoption
medical equipment	Finance, inventory, compliance reporting, supplier dashboards	Procurement, Finance, IT, Operations	System selection should optimize efficiency, transparency, and compliance

4.1.3 System Impact

4.1.3.1 System Integration

Table 4-8 demonstrates how the integration improved operating efficiency, visibility, and compliance. Operational sectors gave priority to precision and speed, whereas regulated sectors focused on compliance. Possible workflow limitations were brought to light by Food's partial integration.

Analysis: Integration guarantees that technology is in line with strategic goals. The efficiency of the entire workflow is limited by partial integration, indicating that value realization is driven by strategic alignment.

Managerial insight: To optimize operational and strategic benefits, SMEs should aim for complete system integration.

Table 4-9: MAXQDA Child Code ‘System Integration Modules’ – Modules, Benefits, and Insights Across Industries

Industry	Modules Integrated	Key Benefits / Notes	Insight
pharmaceutical	Finance, Inventory, QA/QC	Full departmental visibility; compliance ensured	Integration ensures regulatory compliance and operational transparency, critical for Pharma’s strategic priorities
food distribution	Finance, Inventory	Limited 3PL integration; manual updates needed	Partial integration highlights risk of workflow gaps; complete end-to-end integration is needed for efficiency
construction	ERP, Inventory	Dashboards support real-time decision-making	Enables data-driven operations; critical in project-based, time-sensitive environments
technology	Finance, Inventory, QA	Seamless workflow across modules	Reduces manual errors, enhances compliance tracking, and supports cross-department efficiency
medical equipment	Finance, Inventory, Compliance	Real-time visibility across department	Comprehensive integration improves hospital delivery readiness and service quality

4.1.3.2 Interdepartmental Communication

Real-time updates and automated notifications enhanced responsiveness and decreased delays, as Table 4-9 demonstrates. Persistent benefits are at danger from persistent IT

dependence or connectivity problems.

Analysis: Competitive advantage and increased operational efficiency are two benefits of improved communication. For dependable performance, IT infrastructure must be maintained.

Managerial insight: To fully benefit from e-procurement communication, SMEs need to invest in a robust IT infrastructure.

Table 4-10: MAXQDA Child Code 'Interdepartmental Communication' – Improvements, Challenges, and Insights Across Industries

Industry	Communication Improvements	Remaining Challenges / Notes	Insight
pharmaceutical	Real-time notifications; automated updates to Production; QA/QC linked to POs	None reported	Automation reduces email load, speeds approvals, and improves data accuracy
food distribution	Automated notifications to Operations; Finance invoice matching	Custom reports still require IT	Streamlined communication improves coordination; reliance on IT remains a bottleneck
construction	Real-time field-office alignment	Occasional connectivity issues	Critical for project execution; highlights dependency on infrastructure
technology	Automated notifications reduced emails	Custom reports require IT support	Reduces communication overhead but reporting self-service is limited
medical equipment	Real-time notifications for Procurement, Finance, Operations	Complex reports require IT	Automation enhances responsiveness; complex tasks still need support

4.1.3.3 KPI: Cost Efficiency / Performance Metrics

Efficiency, compliance, and supplier reliability have all improved as a result of the post-adoption KPI tracking shown in table 4-10. Dashboards made it possible to evaluate ROI and make data-driven decisions.

Analysis: KPI tracking helps to connect operational performance with strategic goals and promotes continuous improvement. Sectoral disparities represent strategic concerns, such as cost and speed management in technology and construction, and compliance in pharmaceuticals and medical equipment.

Managerial perception: SMEs can maintain performance improvements and assist with strategic planning by incorporating KPI dashboards into daily operations.

Table 4-11: MAXQDA Child Code 'KPI Efficiencies' – Key Performance Improvements and Insights Across Industries

Industry	Key KPI Improvements	Tracking / Notes	Insight
pharmaceutical	On-time approvals 70% → 95%; invoice errors - 40%; supplier reliability +10%	ERP dashboards	Measurable efficiency gains demonstrate ROI and support regulatory compliance
food distribution	Supplier reliability 80% → 93%; procurement errors -35%	Dashboards	KPI improvements reduce operational risk and cost inefficiency
construction	Order cycle -40%; emergency deliveries reduced; material shortages - 30%	Dashboards	Enhanced operational efficiency reduces delays and improves project performance

Table 4-12 (Continued): MAXQDA Child Code 'KPI Efficiencies' – Key Performance Improvements and Insights Across Industries

Industry	Key KPI Improvements	Tracking / Notes	Insight
technology	Procurement cycle 12 → 7 days; compliance 92% → 98%; defect-free shipments 92% → 97%	ERP dashboards	Performance metrics highlight improved cycle times and reduced errors, supporting strategic operational goals
medical equipment	Order cycle 10 → 6 days; on-time delivery 80% → 95%; invoice errors -35%	Dashboards	KPI gains improve service readiness and customer satisfaction

4.1.3.4 Operational Efficiency

Table 4-11 illustrates how automation decreased errors, cycle times, and manual labor. Efficiency improvements varied by sector: Construction, Techparts, and Food prioritized speed and cost reduction, while Pharma and Medquip concentrated on compliance and service readiness.

Analysis: Improvements in operational efficiency are important from a tactical and strategic standpoint. SMEs' use of e-procurement technologies is guided by sector-specific priorities.

Managerial insight: In order to match sector-specific priorities with operational workflows, SMEs should customize adoption methods.

Table 4-13: MAXQDA Child Code 'Operational Efficiencies' – Improvements, Quantitative Impacts, and Insights Across Industries

Industry	Operational Improvements	Quantitative Impact / Notes	Insight
pharmaceutical	RFQs auto-generated; POs approved in 24h vs 5 days; automated reporting	Streamlined daily operations	Automation reduces manual workload, speeds approvals, and improves reporting accuracy
food distribution	RFQs, POs, reporting automated; manual follow-ups reduced 70%	Efficiency gains	Process automation increases throughput and reduces error rates
construction	RFQs, POs, inventory reporting automated; improved site stock visibility	Faster material tracking	Real-time visibility supports project management and reduces delays
technology	RFQs, POs automated; manual follow-ups reduced 60%	Reduced administrative overhead	Workflow efficiency frees staff for strategic tasks
medical equipment	RFQs, POs, reporting automated; manual follow-ups reduced 70%	Faster hospital delivery	Operational improvements directly impact service quality and readiness

4.1.4 Reflection & Lessons Learned

4.1.4.1 Advice to SMEs

As seen in table 4-12, proactive supplier onboarding, early stakeholder alignment, and KPI monitoring are important lessons. Priorities vary per sector: operational sectors prioritize usability and adoption support, whereas regulated sectors prioritize compliance and operational preparedness.

Analysis: People, processes, and technology must be strategically integrated for success.

Managerial insight: SMEs should view the adoption of e-procurement as a strategic endeavor rather than a solely technical implementation.

Table 4-14: MAXQDA Child Code 'Reflection & Lessons Learned' – Key Recommendations and Strategic Insights Across Industries

Industry	Key Advice / Recommendations	Insight / Strategic Implication
pharmaceutical	Ensure early cross-department alignment; invest in supplier onboarding; continuously track KPIs; emphasize compliance benefits	Early alignment reduces implementation risks and ensures compliance; KPI tracking provides measurable ROI; aligns with strategic objectives in regulated sectors
food distribution	Pilot departments first; measure KPIs early; invest in change management; assign dedicated supplier support	Piloting reduces operational disruption; structured change management increases adoption success; supplier support ensures smooth onboarding, critical in SMEs with limited resources
construction	Involve field staff early; ensure supplier portal usability; monitor KPIs; integrate mobile solutions for remote sites	Early engagement and mobile infrastructure address operational challenges in decentralized environments; continuous KPI monitoring supports efficiency and project performance
technology	Align departments early; invest in supplier onboarding; track KPIs; focus on integration testing	Alignment and rigorous testing reduce errors and support operational continuity; KPI tracking ensures measurable performance improvements
medical equipment	Involve suppliers early; track KPIs; provide role-specific training; monitor adoption closely	Supplier engagement and targeted training improve adoption rates and service readiness; KPI monitoring ensures accountability and continuous improvement

4.1.4.2 Re-Implementation Insights

As indicated in table 4-13, preparation, piloting, resource allocation, and technical readiness are critical facilitators of successful re-implementation. Priorities vary by sector; for example, transportable infrastructure is essential in the construction industry, whereas supplier compliance and readiness are paramount in the pharmaceutical industry.

Analysis: Performance monitoring, ongoing training, and iterative implementation

reduce risk and maximize adoption results. Future digital endeavors are enhanced by the lessons learned.

Managerial insight: To improve system ROI, lower risks, and improve implementation tactics, SMEs could take advantage of past adoption experiences.

Table 4-15: MAXQDA Child Code 'Re-Implementation Insights' – Lessons Learned and Strategic Implications Across Industries

Industry	Key Re-Implementation Lessons	Insight / Strategic Implication
pharmaceutical	Pilot all high-risk suppliers simultaneously; accelerate training; run parallel reports from legacy systems	Piloting high-risk suppliers mitigates operational and compliance risks; parallel reporting ensures audit readiness and reduces disruption
food distribution	Prioritize supplier onboarding; standardize master data before go-live	Data standardization and supplier readiness prevent errors; ensures smoother go-live and reduces operational delays
construction	Provide mobile devices to all field staff before go-live	Infrastructure readiness supports real-time adoption in decentralized operations; minimizes implementation delays
technology	Pilot all high-volume suppliers; run parallel reporting from legacy systems	Targeted piloting reduces operational disruption; parallel reporting ensures continuity and performance accuracy
medical equipment	Dedicate more resources to supplier onboarding before go-live	Resource allocation accelerates adoption and maintains service continuity, especially in high-volume, service-critical environments

4.2 Linking Research Questions to the Hypothesis

This thesis used 13 cross-case findings from five business interviews to investigate the motivations, difficulties, and performance outcomes of e-procurement adoption in Lebanese SMEs. While the main hypothesis (H1) examined whether the adoption of e-procurement improves organizational performance, the research questions served as a guide for the investigation. The results demonstrate a logical progression: H1 is confirmed by the convergence of the adoption circumstances (RQ1), the difficulties encountered and overcome (RQ2), and the performance impacts noted (RQ3).

4.2.1 RQ1: Organizational, technological, and environmental factors influencing adoption

The results show that a mix of sector-specific pressures, inefficiencies in manual operations, and strategic agendas influenced adoption decisions.

- The strategic objectives (Table 4-1): The primary motivators were efficiency and compliance, followed by cost reduction. While operational industries (construction, food, and technology) prioritized speed and accuracy, regulated sectors (pharmacies, medical equipment) placed more emphasis on compliance.
- Bottlenecks in manual procurement (Table 4-2): All businesses reported delays, mistakes, and interruptions when using manual processes, which are especially troublesome for compliance in industries with regulations.
- System selection criteria (Table 4-7): Integration, visibility, and regulatory compliance were given precedence by firms above simply technical aspects.
- IT infrastructure and integration (Tables 4-8 & 4-9): Stable IT infrastructure was required to maintain benefits, whereas full integration increased efficiency and compliance while partial integration restricted gains.

All of these results show that strategic demands for efficiency, compliance, and visibility drove adoption rather than cost reductions. This reinforces the TOE concept by demonstrating how adoption is influenced by a combination of organizational priorities, technology capabilities, and environmental factors.

4.2.2 RQ2: Strategic and operational challenges and their resolution

Businesses adopted organized tactics to reduce risks, and the study found both technical and human implementation issues.

- Supplier onboarding (Table 4-3): To comply with compliance and delivery criteria, smaller and more reluctant suppliers needed individualized support, pilot testing, and hands-on training.
- Training of staff (Table 4-4): Workshops and demonstrations increased participation, decreased resistance, and guaranteed observable operational advantages.

- Implementation problems (Table 4-5): Piloting, consultant help, and phased rollouts were used to overcome both human (resistance, supplier readiness) and technological (integration) obstacles.
- Stakeholder engagement (Table 4-6): Structured communication, cross-functional participation, and governance procedures reduced conflict and increased adoption success.
- Takeaways (Tables 4-12 & 4-13): Businesses highlighted the importance of early alignment, resource allocation, iterative piloting, and ongoing monitoring in maintaining adoption.

These findings confirm that successful adoption required managing people, processes, and technology together.

4.2.3 RQ3: Managerial perceptions of performance impact

Cost savings emerged as a secondary but significant benefit, and managers in all five situations consistently noted gains in efficiency, compliance, and supplier management.

- KPI monitoring (Table 4-10): Dashboards allowed businesses to monitor increases in supplier dependability, efficiency, and compliance.
- Advantages of automation (Table 4-11): Sector-specific improvements were produced by shorter cycle times, fewer mistakes, and less manual labor: Pharma/Medical Equipment gained compliance and preparedness, and Construction/Food/Tech gained speed and cost savings.
- Insights for managers (Tables 4-1, 4-10, 4-11): Executives saw observable gains in supplier cooperation, transparency, and operational efficacy.

Adoption of e-procurement is associated with quantifiable performance outcomes, as the evidence supports. Although cost effectiveness was mentioned, efficiency, compliance, and supplier dependability were thought to be more urgent and strategically important.

4.2.4 Synthesis of Findings

Organizational, technological, and environmental factors interact dynamically to influence Lebanese SMEs' adoption of e-procurement, according to the data from the 13 coded results. Strategic objectives, such as efficiency and compliance, determined adoption priorities (Tables 4-1, 4-2). Staff training, supplier onboarding, and stakeholder involvement provided the procedural and human foundations for system acceptance (Tables 4-3 to 4-6). These measures had a direct influence on performance results, including quantifiable increases in supplier reliability, efficiency, and compliance (Tables 4-10 and 4-11).

Crucially, the study demonstrates that the three research questions are not sequential but rather interrelated. Only when the obstacles mentioned in RQ2 were successfully removed did the advantages noted in RQ3 become apparent. The enabling variables found in RQ1 laid the groundwork for overcoming these obstacles. For instance, systematic training and onboarding were required due to integration and compliance requirements (RQ1), which allowed for gains in efficiency and transparency (RQ3). This interaction demonstrates that performance improvements were the consequence of well-coordinated managerial efforts rather than the inevitable result of technology adoption.

4.2.5 Hypothesis Validation

The results offer solid but qualified support for H1: organizational performance in Lebanese SMEs is positively correlated with the strategic deployment of e-procurement technologies. Adoption was linked to better supplier management, efficiency, and compliance in all five businesses; cost reduction was achieved but remained a secondary result.

This beneficial association is conditional, though, as the research also shows. Benefits were increased by full system integration, reliable IT infrastructure, and organized onboarding, while performance was limited by incomplete integration (as in the food industry, for example) and lingering connectivity problems. Therefore, when organizational, technological, and environmental enablers are successfully integrated,

the hypothesis is most likely to hold, highlighting the significance of strategic adoption rather than merely technical adoption.



5 CHAPTER FIVE: CONCLUSIONS

5.1. Conclusions

This study looked at how adopting e-procurement affected Lebanese SMEs' organizational performance strategically. For businesses looking to increase operational efficiency, compliance, and supplier management in an environment marked by economic volatility, infrastructure difficulties, and regulatory demands, the use of digital procurement technologies is both essential and a strategic opportunity.

The data from five case studies shows that implementing e-procurement is a deliberate organizational endeavor rather than just a technical improvement. Businesses that successfully adopted these systems showed measurable improvements in productivity, operational transparency, and supplier dependability, especially when those adoptions were in line with strategic objectives and backed by organized change management procedures like supplier onboarding, staff training, and stakeholder engagement.

The conditional nature of adoption results is further highlighted by sectoral inequalities. While operating sectors (food, technology, and construction) placed a higher priority on speed, accuracy, and usability, regulated sectors (pharmaceutical and medical equipment) benefited most from compliance-focused workflows and complete system integration. The extent to which SMEs could fully utilize e-procurement was restricted by partial integration or insufficient IT infrastructure, suggesting that organizational preparedness and environmental alignment are just as important to adoption success as technology.

All of these results support the main hypothesis of this thesis by demonstrating that strategic e-procurement adoption improves organizational performance. Adoption of e-procurement is a multifaceted, strategic endeavor rather than a purely technical

investment, as this relationship is dependent on the alignment of people, processes, and technology.

5.1 Managerial implications

- Strategic Alignment: SMEs should make sure that, rather than concentrating only on cost reduction, e-procurement efforts represent corporate priorities, such as compliance, operational efficiency, and market responsiveness.
- Human and Process Enablement: To lower resistance and ensure adoption success, staff training, stakeholder involvement, and supplier onboarding are crucial.
- Technology Integration: End-to-end processes must be supported by the systems chosen, and stable IT infrastructure is a crucial component that makes sustained performance possible.
- Performance Monitoring: Consistent KPI tracking and dashboard reporting facilitate strategic decision-making, ROI evaluation, and ongoing improvement.

5.2 Limitations

This study has a number of limitations, mostly because of the current situation in Lebanon:

- a) Socio-Political and Economic Instability: Companies' access and participation were restricted by ongoing political tensions, security issues, and economic challenges.
- b) Restrictions on Sample Size: There were only five interviews done. However, in order to ensure rich, context-specific insights, instances were specifically chosen to represent a variety of sectors.

- c) Operational and Data Limitations: Detailed performance reporting was restricted for certain SMEs due to personnel turnover, a lack of digital infrastructure, and data sensitivity.
- d) Time and Resource Limitations: Careful planning and safety precautions were necessary when doing qualitative research in a volatile setting.

Notwithstanding these drawbacks, the study offers reliable and useful conclusions, especially for SMEs functioning in challenging and uncertain environments. The richness of qualitative insights makes up for sample size and provides significant proof of the strategic impact of e-procurement.

5.2. Recommendations for Future Research

- For greater generalizability, enlarge the sample to include additional SMEs from Lebanon or other developing nations.
- Perform longitudinal research to evaluate sustainability and long-term adoption results.
- To enhance qualitative insights, incorporate quantitative financial and operational measures.
- Look at how cutting-edge technologies like blockchain, AI, and IoT can improve e-procurement in settings with limited resources.
- To learn how environmental pressures impact adoption outcomes, compare SMEs operating in very unstable environments with those in more stable ones.

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APPENDIX A: POST IMPLEMENTATION OF E-PROCUREMENT SYSTEM INTERVIEW QUESTIONS

A. Organizational Context

1. Can you briefly describe your company's procurement workflow before implementing the e-procurement system? What were the main bottlenecks or inefficiencies?
2. What were the primary goals for adopting an e-procurement system in your organization? Was it more about cost-saving, efficiency, transparency, or scalability?

B. System Selection & Implementation

3. What criteria did your team use to select the current e-procurement system (e.g., Odoo ERP)? How important was integration with departments like Regulatory, QA/QC, and Production?
4. Who were the key stakeholders involved in the system selection process? Were all departments aligned on the decision?
5. Can you walk me through a significant challenge encountered during implementation? How was this resolved?
6. How did you manage staff training and adoption of the system? Was resistance encountered, and how was it handled?
7. Were any suppliers hesitant or unable to use the new system? What strategies did you use to onboard or support them?

C. SYSTEM IMPACT

8. How has the e-procurement system affected day-to-day operations in your department? Has it streamlined RFQ preparation, purchase orders, or reporting?
9. Have you noticed measurable changes in cost efficiency or supplier performance since implementation? If yes, how do you track these improvements?
10. How has interdepartmental communication changed since the system was adopted? What is now more efficient or more challenging?
11. How well does the system integrate with your existing business systems (finance, inventory, compliance)?

D. Reflection and Advice

12. If you were to re-implement the system today, what would you do differently?
13. What recommendations would you offer to other SMEs considering e-procurement adoption?