

Business Incubators as Institutional Intermediaries in Emerging Countries: The Case Study of Kazakhstan

by

Daniyar Medetov

Supervised by:

Professor Yelena Kalyuzhnova

Dr. Olena Khlystova

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Declaration

I confirm that this is my work and the use of all material from other sources has been properly and fully acknowledged.

Daniyar Medetov, 12th February 2025

Access to data collected for this study is subject to restrictions. Data contain information of a personal and sensitive nature and are available upon reasonable request only.

Abstract

Kazakhstan is currently undergoing a significant economic transition, shifting from resource dependency toward fostering innovation and entrepreneurship. Business incubators are central to this diversification strategy, serving as institutional intermediaries that bridge critical gaps in resources, networks, and expertise for early-stage ventures. This study explores the role of business incubators in facilitating entrepreneurship within Kazakhstan's institutionally void environment. The study uses institutional theory as a framework to consider how structural and contextual factors affect the way incubators work, with a focus on how they can change institutions. We collected data for this qualitative study through 66 semi-structured interviews with managers, incubatees, and policymakers from two prominent Kazakhstani incubators—MOST Inc. and NURIS—and analysed the data via thematic analysis and inductive reasoning techniques.

Analysis identified key structural challenges impacting incubators: limited funding, inadequate infrastructure, and weak institutional linkages. In this context, we found that business incubators take on dual roles, protecting entrepreneurs from external risks and bridging resource and network gaps. These roles themselves play a crucial role during the critical period when early-stage ventures are most susceptible to failure. The study also identified the dynamic influence of cultural and regulatory factors on incubators' ability to foster entrepreneurial success. Findings influenced the development of a context-specific framework for optimising business incubators in emerging economies. This framework integrates the inputs, processes, and outputs (IPO) model with business lifecycle stages and ecosystem dynamics, offering actionable insights for policymakers and stakeholders.

The study concludes that structural barriers and institutional voids constrain the effectiveness of business incubators, despite their pivotal role in Kazakhstan's entrepreneurial ecosystem. To maximise their impact, targeted policies and ecosystem development strategies are required. This research contributes to institutional theory and offers practical recommendations for enhancing business incubation in emerging economies.

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List of Acronyms

UKBI	UK Business Incubation Association
NBIA	National Business Incubation Association
RBV	Resource-based theory
KPI	Key Performance Indicators
BRIC	Brazil, Russia, India, and China
SPECA	Special Programme for the Countries of Central Asia
SMEs	Small- and medium-sized enterprises
GEM	Global Entrepreneurship Monitor
GDP	Gross Domestic Product
TTOs	Technology transfer organisations
KMS	Knowledge management system
CVBI	Cross-border virtual incubator
B2C/B2B	Business-to-customer/Business to business
AI	Artificial Intelligence
HGFs	High growth firms
HEIs	Higher Education Institutions
AIFC	Astana International Financial Centre

ABC	Astana Business Campus
VC	Venture Capital
QTV	Qaztech Ventures
NATD	National Agency for Technological Development
PPPs	Private-Public Partnerships
MLSP	Ministry of Labour and Social Protection
NIS	National Innovation System
GIS	Geographic Information System
ERP	Enterprise Resource Planning
UNECE	United Nations Economic Commission for Europe
NURIS	Nazarbayev University Innovation and Research
NU	Nazarbayev University
CPD	Continuing Professional Development
IoT	Internet of Things
CIC	Cambridge Innovation Centre
SBIR	Small Business Innovation Research

Introduction

Kazakhstan is currently undergoing a significant economic transition, shifting from resource dependency to fostering innovation and entrepreneurship. Central to this transformation is the role of business incubators as institutional intermediaries that bridge critical gaps in resources, networks, and expertise for early-stage ventures. This thesis explores the dynamic role of business incubators within Kazakhstan's institutionally void environment, addressing the structural and contextual factors that influence their operations and capacity to enact institutional change.

Business incubators are pivotal in entrepreneurial ecosystems, particularly in emerging economies where institutional support structures are underdeveloped. Institutional theory provides a valuable lens through which to understand how formal and informal institutions influence the functioning of these intermediaries. Despite extensive research on business incubators in developed economies, there is only a limited understanding of their role in contexts marked by institutional voids. This study addresses this gap, focusing on Kazakhstan as a case study to examine the dual role of incubators as buffers against external risks and bridges to essential resources and networks.

The concept of a business incubator emerged in the mid-20th century in the United States as a response to the challenges businesses faced in accessing infrastructure and support. After this, business incubators become recognised and distributed organisations designed to foster entrepreneurship by providing resources, mentoring, and support to firms and early-stage businesses (Hacket & Dilts, 2004; Dvoulety et al., 2018; Capatina et al., 2023). Business incubators play a critical role in nurturing innovation, reducing firms' failure rates, and contributing to local economic development (Bruneel, Ratinho, Clarysse, & Groen, 2012). Creating a business environment that promotes the improvement of a nation's entrepreneurial

infrastructure has been a longstanding priority for both developed and developing nations (Sarmiento & Figueira, 2015). Research into business incubators highlights their increasing sophistication and adoptability, showing the evolution from “first-generation” models offering basic office space and services to the “second-generation” models of the 1980s and 1990s, which included business development support like mentorship and financing (Brunel et al., 2012; Pauwels et al., 2016). By the 21st century, “third-generation” incubators were emphasising global networks, market access, and advanced technological support to meet the needs of entrepreneurs in a competitive landscape (Bruneel et al., 2012; Mian et al., 2016). This evolution illustrates how incubators have adapted to the changing demands of entrepreneurs, shifting from simple operational support to comprehensive ecosystems that facilitate growth and innovation.

Business incubators have become a cornerstone of modern entrepreneurial ecosystems, serving as essential institutional mechanisms to support startups and high-growth firms (InBIA, 2023). The latter exhibits irregular and unpredictable growth patterns that are characterised by rapid, sporadic, and often short-lived periods of expansion (Sarmiento & Figueira, 2015). Entrepreneurial ventures in their formative stages often encounter significant barriers arising from resource constraints, limited market access, and the absence of established networks. These challenges are particularly acute during what is commonly termed the “*valley of death*” a critical juncture in the firm’s lifecycle wherein it has progressed beyond the conceptual stage but has yet to secure sustainable revenue streams (Auerswald & Branscomb, 2003). During this phase, firms are especially vulnerable to failure due to the misalignment between escalating capital requirements and the reluctance of investors to commit funds amidst heightened risk and uncertainty. Business incubators play a pivotal role in addressing these vulnerabilities by bridging systemic gaps in the entrepreneurial ecosystem. They offer structured support in the

form of subsidised infrastructure, advisory services, and access to networks and early-stage finance. In doing so, incubators operate as institutional intermediaries that enhance the survival and developmental prospects of nascent ventures during this particularly precarious period. By providing infrastructure, shared services, and tailored support, incubators reduce operational barriers and help entrepreneurs focus on their core business activities. Research shows that incubated firms have higher survival rates compared to their non-incubated counterparts, demonstrating the effectiveness of incubation in reducing risks for new ventures (Schwartz & Hornyh, 2010; McAdam & McAdam, 2008). As ecosystems for fostering innovation and firms' growth, business incubators contribute significantly to the development of knowledge-based economies (Fithi et al., 2024). Business incubators function as platforms that nurture ideas, foster collaborations, and develop innovative products and services. Universities and research institutions form close links with business incubators, facilitating the transfer of knowledge and technology from academia to industry (Etzkowitz et al., 2005; Pauwels et al., 2015). This symbiotic relationship enhances the innovative capabilities of incubatees while at the same time contributing to the broader goals of regional and national economic development (Mian et al., 2016). This collaboration not only strengthens the incubatees' potential for success but also aligns with larger economic objectives, creating a cycle of growth and innovation that benefits both the local community and the economy at large (Lasrado et al., 2016; Redondo & Camarero, 2017; M'Chirgui et al., 2018; Kiran & Bose, 2020; Shekhar, 2023; Secundo et al., 2023).

Another key function of business incubators is their role as networking hubs. By connecting startups with investors, mentors, and industry experts, incubators provide critical social capital that accelerates the growth of new ventures (Hansen et al., 2000; Franco et al., 2018). This networking function is especially crucial in emerging economies, where

entrepreneurs often lack the institutional support and professional networks available in developed markets (Dutt et al., 2015; Kiran & Bose, 2020). Through strategic partnerships, incubators offer firms access to funding, market opportunities, and technological resources that would otherwise be out of reach. This study defines business incubator as a multidimensional organisational construct comprising three interrelated dimensions: supply, support, and delivery. First, incubators supply early-stage ventures with co-located infrastructure and shared services, including workspace, equipment, and administrative support (Bergek & Norrman, 2008). Second, they support the formation and development of new enterprises by facilitating access to both tangible and intangible resources, such as technical assistance, mentorship, and network connectivity, typically over a flexible timeframe and often funded by public or private sponsors (Korreck & Hausberg, 2018). Third, incubators deliver their value proposition through an educational process, thereby enhancing entrepreneurial learning and capability-building (Etzkowitz et al., 2005). This tripartite definition provides a comprehensive analytical lens through which the incubator phenomenon may be examined in emerging economy contexts. Likewise, this definition highlights the multifaceted role of business incubators, emphasising both the physical and intellectual resources they provide. By focusing on an educational approach, business incubators aim to enhance the capabilities of new businesses, ultimately contributing to their success and sustainability.

While business incubators have become an integral part of the entrepreneurial ecosystem, the scope and depth of academic research into them has yet to be comprehensively addressed (Albort-Morant & Ribeiro-Soriano, 2016; Cheng et al., 2023). This indicates that, despite their importance in supporting firms, there remains a significant gap in the associated literature in terms of the thorough exploration of the various aspects and roles of business incubators. Despite demonstrated benefits, the effectiveness of business incubators varies

widely depending on their institutional context (Mrkajic, 2017; Dvoulety et al., 2018; Ahmed et al., 2020). In developed economies, where regulatory frameworks, funding mechanisms, and infrastructure are well-established, incubators often function as efficient engines of innovation and growth (UNECE, 2021). On the other hand, emerging economies face significant challenges such as public service affordability (Parker et al., 2008), weak property rights enforcement, limited finance access, and underdeveloped markets (Khanna & Palepu, 1997; Kalyuzhnova et al., 2019). Under any circumstances, designing an effective and efficient regulatory framework is a complex task, but emerging economies significantly amplify the associated challenges (Figueira & Parker, 2011). In such settings, the regulatory environment often grapples with substantial capacity and resource constraints that hinder the development and enforcement of robust frameworks. These voids can manifest in various forms, including insufficient technical expertise, inadequate financial resources, and a lack of institutional stability that hinder the ability of business incubators to provide effective support and require innovative approaches tailored to local conditions (Duut et al., 2016; Mrkajic, 2017; Sydow et al., 2022).

As economies worldwide increasingly turn to innovation and entrepreneurship as engines of economic growth, understanding the dynamics of business incubators within different institutional contexts becomes vital (Wang, 2020). Kazakhstan offers a compelling case for examining the role of business incubators in an emerging economy. Over the past three decades, the country has undergone a significant economic transformation, shifting from a centrally planned system to a market-orientated economy (Yu et al., 2021). While this transition has been accompanied by substantial economic growth, driven largely by resource extraction industries, it has also exposed the economy to vulnerabilities associated with global commodity price fluctuations (Pomfret, 2019). To reduce its reliance on natural resources,

Kazakhstan has emphasised economic diversification and the development of knowledge-based industries (Heim et al., 2019; Heim, 2020). Business incubators are central to this strategy, serving as vehicles for fostering innovation and entrepreneurship (World Bank, 2020). However, the institutional environment in Kazakhstan presents unique challenges for business incubators. Limited financial resources, inadequate infrastructure, and cultural attitudes toward entrepreneurship often constrain the effectiveness of incubation programmes (Kalyzhnova et al., 2019; UNECE, 2021). Moreover, the lack of strong linkages among key ecosystem actors, such as government agencies, universities, and private sector organisations, further complicates the task of supporting firms (Kalyuzhnova et al., 2019). Understanding how incubators might be able to navigate these challenges and adapt their models to local contexts is critical to maximising their impact. Advocating for supportive institutional policies and infrastructure that enable firms to thrive is a critical component of the government strategy (Heim, 2020).

Critical gaps in the existing literature on business incubators, particularly in the context of emerging economies, drove the study's research questions and aims.

The research is guided by the following overarching question:

1. How do business incubators function as institutional intermediaries to shape and influence entrepreneurial ecosystems in emerging economies?

and three sub-questions:

- a. How do business incubators adapt to the institutional environment of emerging economies?
- b. What role do business incubators play, as institutional intermediaries, in overcoming barriers to entrepreneurial success?
- c. How do elements of the entrepreneurial ecosystem interact with business incubators to foster new ventures?

This study aims to:

1. To examine the characteristics, operational models, and institutional challenges faced by business incubators in Kazakhstan.
2. To develop a context-sensitive framework for enhancing the strategic and institutional effectiveness of business incubators in emerging economies.
3. To investigate how business incubators act as catalysts for entrepreneurship by enabling venture creation, facilitating resource mobilisation, and fostering innovation.

Adopting a qualitative case study methodology, the research investigates two prominent Kazakhstani business incubators: MOST Inc. and NURIS. Data collection involved 66 semi-structured interviews with managers, incubatees, and policymakers, as complemented by policy document analysis and archival records. Thematic analysis and inductive reasoning were employed to derive insights, ensuring a holistic understanding of the institutional and entrepreneurial dynamics at play. By addressing the main research question and three sub-questions and objectives, this thesis aims to contribute to the literature on institutional theory by extending its application to the context of business incubators in emerging economies.

First, this thesis advances institutional theory by reconceptualising the role of business incubators in emerging economies, not merely as passive enablers of entrepreneurial activity, but as active institutional intermediaries that both respond to and shape institutional environments. While prior studies (e.g., Carayannis & Zedtwitz, 2005; Bergek & Norrman, 2008; Pauwels et al., 2016) have examined incubators as structural components within entrepreneurial ecosystems, they have paid limited attention to their agency in reconfiguring institutional arrangements. This study offers novel theoretical insights by applying the tripartite framework of institutional theory, regulative, normative, and cognitive pillars to examine how incubators in Kazakhstan respond to, and influence, institutional voids. In doing so, it

demonstrates how incubators align fragmented ecosystem components while delivering critical resources and legitimacy to nascent ventures.

Second, the thesis contributes to a more nuanced understanding of institutional pressures by exploring how business incubators navigate and are shaped by coercive, normative, mimetic, and competitive forces across different stages of their organisational lifecycle. Extending the work of Ahmad & Thornberry (2016) and Nicholls-Nixon et al. (2020), the study reveals that institutional pressures are not static but evolve over time, necessitating adaptive responses from incubators as they mature. This dynamic framing adds depth to existing literature by highlighting how incubators both absorb and redirect institutional logics throughout their development.

Third, one of the theoretical contributions of this study is the recognition of the ecosystem's role in shaping these institutional pressures. The presence or absence of rules, regulations, and supportive policies within the entrepreneurial ecosystem generates various types of pressure that directly impact incubators. For example, the Kazakhstani government's top-down approach is a defining feature of the national ecosystem, exerting both supportive and restrictive pressures on incubatees. This duality affects their potential for both operational flexibility and growth, highlighting the nuanced ways in which elements of the ecosystem influence incubation processes. By integrating the ecosystem's impact on institutional pressures, this study provides a deeper understanding of the mechanisms through which external forces shape the effectiveness and adaptability of business incubators. These insights are vital to the development of context-specific strategies that enhance the resilience and functionality of incubators, particularly in emerging economies with distinct institutional characteristics (Duut et al., 2016). These insights are vital to the development of context-

specific strategies that enhance the resilience and functionality of incubators, particularly in emerging economies with distinct institutional characteristics (Duut et al., 2016).

Fourth, this thesis contributes to the evolving literature on incubator model development, particularly within the context of emerging markets. Building on Bruneel et al. (2012) and Grimaldi & Grandi (2005), it identifies a distinctive trajectory in the adaptation of incubator models in Kazakhstan, shaped by institutional deficiencies and context-bound challenges. Furthermore, the study deepens understanding of sponsorship dynamics within incubation processes. In alignment with Dutt et al. (2016) and Amezcua et al. (2013), it acknowledges the influence of sponsors on resource allocation and strategic direction. However, it moves beyond existing literature by showing that in settings marked by acute institutional voids, sponsorship not only influences service delivery but also necessitates the emergence of hybrid incubator models capable of addressing highly differentiated entrepreneurial needs. This insight offers a valuable contribution to discussions on intermediary adaptation in constrained institutional environments.

This study aims to enhance the existing body of qualitative research on business incubators by concentrating on Kazakhstan, a context that recent studies have largely overlooked. Through in-depth case studies of two leading incubators, MOST Inc. and NURIS, the research provides novel empirical data, addressing critical gaps in the literature on business incubators in emerging economies. By addressing these gaps, this study aims to provide empirical evidence of how institutional voids impact entrepreneurial ecosystems and how incubators can mitigate their effects. In doing so, it highlights the need for context-specific guidance in business incubator modelling that accounts for the unique institutional dynamics of emerging economies. By focusing on Kazakhstan, the research aims to provide valuable

insights for policymakers and practitioners seeking to enhance the effectiveness of business incubators in similar contexts (World Bank, 2020).

The thesis design guides the reader through a logical progression of ideas, from the theoretical foundation of the research to its empirical findings and their implications. Each chapter builds on the previous one, creating a cohesive narrative that addresses the research questions and aims.

Chapter I critically examines the existing body of research on business incubators, literature on institutional voids, and institutional theory. It identifies key gaps in the literature, particularly regarding the role of business incubators in emerging economies and their function as institutional intermediaries. By integrating insights from these fields, the chapter lays the groundwork for the study's theoretical framework, which guides the subsequent analysis. Chapter II provides an overview of the entrepreneurial ecosystem in Kazakhstan, highlighting the unique challenges and opportunities it presents. It explores the concept of institutional voids, and examines how they impact the functioning of business incubators.

Chapter III documents the study's key methodological decisions and details of the research process, including the study's interpretivist philosophy. The chapter then presents key research design decisions, which include the case study strategy, the selected research locations, access to business incubators, and the use of Gartner's (1990) approach as a rationale for selecting two particular business incubators: MOST Inc. and NURIS. Data collection was achieved via 66 semi-structured interviews with business incubator managers, incubatees, and policymakers. We collected data through observations and secondary sources, all within the framework of the case study methodology. The data was analysed using Creswell's 2009 iterative approach and thematic analysis techniques.

Chapter IV presents an in-depth analysis of MOST Inc. and NURIS as the two selected business incubators. It examines their organisational structures, operational strategies, and contributions to the entrepreneurial ecosystem. By comparing these two cases, the chapter highlights the diverse approaches to business incubation in Kazakhstan and identifies factors that influence their success and challenges. Chapter IV also presents the thematic findings from the case studies, addressing them and drawing theoretical and practical insights. It examines the broader implications of the findings for institutional theory and business incubator practices. The discussion highlights the role of incubators as agents of institutional change and offers recommendations for optimising their effectiveness.

The final chapter, Chapter V, further discusses the findings presented in Chapter IV, situating them within the broader theoretical and practical frameworks of business incubation. This chapter integrates insights about how business incubators adapt to the unique institutional environments of emerging economies, their intermediary role in overcoming institutional barriers, and the interplay between ecosystem elements and the business incubator in fostering SMEs.

The study's conclusion and recommendations section present the study's key contributions, discussing how they advance the understanding of business incubators in emerging economies and their relevance to institutional theory. It reflects on the novel contributions made by the study, providing a balanced perspective on its findings. Additionally, it outlines directions for future research, suggesting areas where further exploration could build on the insights generated. By addressing critical gaps in the literature and offering actionable insights, this thesis aims to advance the understanding of business incubators' role in fostering entrepreneurship and innovation in emerging economies.

Chapter I: Literature Review

The literature review forms the foundation of this study, offering a comprehensive analysis of business incubators and their evolving role within entrepreneurial ecosystems. By contextualising their historical development and adaptability, this chapter highlights their significance in bridging institutional voids in emerging economies. Business incubators have evolved significantly since their inception in the mid-20th century, transitioning from first-generation models focused on providing physical infrastructure to third-generation models emphasising networking, mentorship, and access to global markets. Early studies (Hackett & Dilts, 2004; Pauwels et al., 2016) traced this evolution, identifying the shift from shared office spaces to comprehensive ecosystems facilitating innovation. This transition underscores the dynamic nature of incubators and their response to changing entrepreneurial demands. Institutional theory provides a framework through which to understand how formal and informal rules shape organisational behaviour. North's (1990) distinction between formal institutions (e.g., laws, policies) and informal institutions (e.g., norms, values) is particularly relevant in emerging economies, where institutional voids often hinder market functioning. Business incubators serve as intermediaries that mitigate these voids, enabling entrepreneurs to navigate regulatory and resource challenges. While the role of business incubators in developed economies is well-documented, limited research exists on their function in contexts with institutional voids. Studies by Dutt et al. (2016) and Mrkajic (2017) emphasise the need for context-specific models, particularly in regions like Central Asia. This thesis aims to address these gaps by examining the dual role of incubators as buffers and bridges within Kazakhstan's entrepreneurial ecosystem.

This chapter synthesises existing research to propose a theoretical framework that integrates institutional theory with the lifecycle of business incubators. By focusing on the

interplay between incubators and their ecosystems, the study highlights how these entities adapt to and influence institutional environments. The literature reveals critical gaps in our current understanding:

1. How incubators adapt to institutionally void environments.
2. The mechanisms through which incubators influence entrepreneurial outcomes.
3. The role of cultural and regulatory factors in shaping incubator effectiveness.

Addressing these gaps forms the basis for the research objectives and the methodological choices outlined in subsequent chapters. The review concludes with a synthesis of theoretical and empirical insights, identifying best practices and limitations in existing models. This sets the stage for a detailed exploration of Kazakhstan's institutional context and the role of business incubators in fostering entrepreneurship in emerging economies.

1.1 Business Incubators: A Historical Genesis

The history of business incubators dates to 1942 in Ithaca, USA, where Student Agencies Inc. provided incubation for student companies. MIT alumni inceptioned the American Research Development Corporation in 1946 to produce risk capital, establishing the first external business incubator (Sharma et al., 2019). However, the modern evolution of business incubation emerged in New York (1959), when the first incubator programme started to highlight the significance of high-growth firms (HGFs) (Mian et al., 2016; Leblebici & Shah, 2004; Sharma et al., 2019). HGFs have non-linear and inconsistent growth patterns, with fast, erratic, and often temporary growth (Sarmiento & Figueira, 2015). They are characterised as “moving targets,” (Kolar, 2014) while Levy et al. (2011) defines them as a broad set of high-growth enterprises with two sub-sets: innovative high-growth ventures (Kolar, 2014); and high-growth SMEs (OECD, 2010).

A considerable variety of HGFs and SMEs became tenants of a privately owned 850,000 ft space (Adkins, 2001). Eventually, in the 1980s, the business incubation industry gained popularity as traditional industries faced collapse due to the dramatic rise in unemployment (CSES, 2001) and the failure of economic development policies that primarily targeted large corporates and industries (NBIA, 2012b). Developing local economies through technology transfer and encouraging innovation and entrepreneurship were the main drivers to establishing business incubators (Abetti, 2004; Hackett & Dilts, 2004; Phan, Siegel, & Wright, 2005; Wynarczyk & Raine, 2005). In the 1980s, three primary initiatives contributed to the rapid growth of business incubators in the USA: 1) the promotion of regional conferences through information dissemination; 2) the development of integrated programmes for comprehensive technology and manufacturing development; and 3) the implementation of public-private partnership programmes (NBIA, 2012b).

Hackett and Dilts (2004b) view the rise of the business incubation industry (in the 1980-1990s) differently and propose three other arguments: 1) the US Congress initiated the Bayh-Dole Act, lowering the uncertainty in financing federally funded research; 2) prioritising the importance of intellectual property rights and the increasing recognition of innovation by the US legal system; and 3) offering outstanding opportunities to generate profit from the marketing of biomedical research. They add that positive amendments to the policy environment, such as research commercialisation and legal support (IP rights), drove the US business incubation industry to establish the National Business Incubator Association in 1985, even though the dotcom boom of the 1990s challenged its introduction. While the US created the NBIA in 1985 (Leblebici and Shah, 2004), it took over a decade to establish the UK Business Incubation Association (UKBI, 2012). The rapid movement in developing business incubators started earlier, in the mid-1970s, through running enterprise agencies and the

transition of industrial estates to business innovation centres (OECD, 1999; NBIA, 2014). Recent government support has helped UK business incubators grow rapidly, despite a slower evolution. The National Business Incubation Association (NBIA) accounts for more than 10,000 business incubators worldwide (Eveleens et al., 2017). The current number of incubators in the UK is more than 250, while in the US this number is almost five times higher, and estimated at more than 1400 business incubators (Knopp, 2007; NBIA, 2021).

The literature also focuses on the historical evolution of business incubators in emerging countries. The pioneering study of business incubation industry evolution in emerging economies by Lalkaka and Abetti (1999) stated that although the business incubation industry in the US and the majority of European countries achieved a sophisticated level for two decades, rapid growth was still ongoing in emerging and industrialising countries such as China and Brazil. While developed countries have known the existence of business incubators since the 1960s, emerging countries have only acknowledged their significance after three decades, as noted by Scaramuzzi (2002). Chandra and Fealey (2009) note that, historically, the rise of business incubators in Brazil and China started in the early 1990s. Lalkaka and Abetti (1999) claim that China has the most significant business incubation industry among the emerging economies, with more than 700 incubators. As a result, many scholars published work on the phenomenon of incubators in emerging economies (Lalkaka, 1997; Scaramuzzi, 2002; Lalkaka, 2003; Al-Mubarak & Busler, 2012; Özdemir & Şehitoğlu, 2013; Al-Mubarak & Busler, 2013; Dutt et al., 2015; Mrkajic, 2017), while a majority focus on the Chinese incubation industry (Chen et al., 2003; Chandra et al., 2007; He and Chandra, 2009). According to data from the Chinese government, as of 2022 there were roughly 13,000 approved incubation facilities (Hu et al., 2022). However, compared to the knowledge about incubators in industrialised nations, the Chinese incubator ecosystem remains essentially undeveloped

(Xiao & North, 2018). Nonetheless, while illustrating the evolution, the existing research unexpectedly characterised business incubators as a very homogeneous organisation that has developed similarly, irrespective of the context. These studies derived the classification of incubators solely from data obtained from industrialised nations (e.g., Barbero et al., 2014; Grimaldi and Grandi, 2005; Pauwels et al., 2015). Although the majority of incubators are located in the United States and Europe, authors frequently fail to consider the inherent influence of the institutional context on incubator dynamics. These trajectories predominantly indicate a singular ultimate stage of evolution, precluding any coexistence of models “at equilibrium.” Scholars have only recently begun to analyse business incubators while considering the institutional environments in which they function (Dutt et al., 2015).

Table 1 (Bruneel et al., 2012; Mian et al., 2016) shows how the literature eventually draws the evolution of business incubators from three periodical stages. The first generation of the business incubation concept focused on proposing access to infrastructure and space and became very popular before the 1980s in the USA and in the UK (Barrow, 2001; Lalkaka and Bishop, 1996). The value-added of the first-generation business incubators was purely that of relatively cheaper office space and shared resources, providing opportunities for entrepreneurs to profit from economies of scale (CSES, 2002; McAdam and McAdam, 2008). However, the dramatic rise in unemployment in the heavy engineering and automobile sectors that occurred in Europe and the US in the 1980s forced the governments of these countries revitalise their economies (Reich, 1991). Innovation and technology-intensive companies were increasingly playing a crucial role in policy amendments that facilitated economic growth (Lewis, 2001). Clearly, in the 1980s and 1990s, the need for specialised services beyond office space and shared resources to develop advanced technology firms became crucial (Smilor & Gill, 1986). Business incubators in the USA proposed business support services such as training and

coaching (Knopp, 2007). Thus, business incubators underwent an evolutionary change, moving into their second generation. Following this evolution, third-generation incubators emerged in the 2000s, focusing on providing access to external resources through networks (CSES, 2002; Lalkaka & Bishop, 1996). Tenant firms received preferential access to potential clients, suppliers, and investors through business incubators (Hansen et al., 2000; Scillitoe & Chakrabarti, 2010). Likewise, facilitation of external networks provided learning opportunities and the acquisition of new resources.

Table 1 - Historical evolution of business incubators

Generation phase	Period	Country Level Analysis	Value proposition	Author (s)
First-generation	Before the 1980s	Developed (USA, UK)	Shared resources and office space	Brooks, 1996; Udell, 1990; Allen and McCluskey (1991); Lalkaka and Bishop (1996); Barrow (2001).
Second generation	1980-1990s	Developed and Developing (USA, UK, China, Brazil, Israel)	Specific training and coaching services	Plosila and Allen, 1985; Smilor and Gill, 1986;
Third generation of business incubators (network, virtual, and digital)	2000s- present day	Developed and Developing (USA, UK, China, Brazil, Israel, India, etc.)	Access to financial, professional and technological networks; digital learning and coaching.	Lalkaka, 1997, Scaramuzzi, 2002, Lalkaka, 2003; McAdam and McAdam (2008); Byarugaba (2016); Franco et al. (2018); Naidenkov (2017); Hochberg (2016); Khomenko et al. (2020)

Source: Author's own

In addition, Table 1 shows that research on business incubators started to emerge in the 1970s (Plosila & Allen, 1985; Allen & Weinberg, 1988). Hackett and Dilts (2004) summarised the evolution of the literature on incubation/incubators from the late 1980s to the 2000s. They noted that academics started by answering “what” questions by defining incubators/incubators in the 1980s, and then, a decade later, the research direction progressed to conceptualising both incubators’ and incubatees’ perspectives. During the initial phase (1970–1980s), incubators presented a straightforward value proposition by providing infrastructure (such as office space and shared resources) and capitalising on economies of scale derived from collaboration among incubatees (Barrow, 2001; Lalkaka & Bishop, 1996). These services would assist incubatees in reducing operational expenses and the effort required to manage ancillary services, enabling them to engage in and focus on their primary activities. The first support portfolio was beneficial; however, it failed to address the capability gaps necessary to empower entrepreneurs (Bruneel et al., 2012). Entrepreneurs generally possess the technical abilities required for their business concepts, although they exhibit a lack of business acumen in terms of effectively navigating rapid environmental changes and organisational dynamics. Passive experiential learning is beneficial but is a gradual and incremental process (e.g., Dosi et al., 2000), which impedes the rapid advancement of new initiatives. Following this evolution, many scholars examined the impact of the phenomenon itself, measurements of business incubators’ success, and outcomes between 1990 and 2000. During this period, other scholars attempted to apply various theories, including network theory and resource-based theory (RBV). RBV characterises a business incubator as an institution that holds resources complementary to those of the incubatees, and can share them without incurring significant costs (e.g., Colombo & Delmastro, 2002; McAdam & McAdam, 2008; Rice, 2002). An incubator model is defined as a framework through which an incubator provides support to incubated companies (Pauwels et

al., 2015). The second phase of incubators' evolution acknowledged this issue, and also included knowledge-based and educational services. At this stage, incubators could enlist specialists to provide training, coaching, and mentoring to incubatees, thereby expediting their learning process and assisting them in the acquisition of the necessary knowledge resources to manage a business endeavour (McAdam & McAdam, 2008). Various governments acknowledged business incubators to be an effective instrument of economic development for fostering the establishment of new technology-driven and innovative enterprises, particularly with the advent of know-how development support (Lewis, 2001).

From 2000 to date, a number of scholars have analysed the literature in business incubation further by covering the evolution of the phenomenon in terms of its value proposition, the relationship between business incubator managers and incubatees, as well as mentoring and coaching issues (Theodorakopoulos et al., 2014; Byarugaba, 2016; Franco et al., 2018; Naidenkov, 2017; Hochberg, 2016; Khomenko et al., 2020). Similarly, some scholars have attempted to analyse benchmarking in the business incubation literature (Torun et al., 2018), exploring key performance indicators (KPIs) to evaluate business incubators and shift the research focus towards a new phenomenon of private corporate incubators and accelerators (Hausberg & Korreck, 2018). The third generation of business incubators, that is, the current generation, has added a networking-related element to the total entrepreneurial ecosystem (Lalkaka & Bishop, 1996). According to research, networking can aid in the development of entrepreneurs under business incubators, and Barugahara et al. (2017) have proposed that networking is currently the most important factor in terms of influencing the success of the programmes run by business incubators. Essentially, business incubators that facilitate access to external networks make it easier to obtain valuable resources and specialised knowledge which, in turn, provides educational opportunities and aids in the rapid establishment of

legitimacy for new business endeavours (Franco et al., 2018).

Business incubators have helped early-stage companies to overcome fundamental issues related to a lack of critical resources, in addition to providing access to networks (Redondo & Camarero, 2017). This is because in the past, early-stage companies have frequently faced challenges in their development and subsequent expansion, primarily due to a lack of financial resources, skilled management teams, and competencies. However, according to research like that of Masutha and Rogerson (2014), these companies are now successfully overcoming their resource limitations to a large degree through networking, which also assists in the acceleration of their growth.

Another factor that contributes to the popularity of networks in the current generation of business incubation is their ability to assist companies to resolve problems, such as obtaining support on business ideas and investments, in a single day, a task that could have taken years if they had been operating fifty years ago (McAdam & McAdam, 2008). The internet and recent IT innovations pertaining to cloud computing, collaboration tools, mobile, social networks, gamification, crowdfunding, and crowdsourcing are largely responsible for making this possible (Sedita et al., 2019). Additionally, in the third generation, business incubators have observed that the internet both creates and resolves issues. This is partially due to the tech boom, which has quickly led to the growth and demise of numerous startup companies (Hewitt et al., 2020). During the third generation, a new concept emerged, known as the online incubator, networked incubator, or virtual incubator, as people realised they could apply new IT trends and technologies to the business incubation sector, potentially bringing about a drastic transformation. According to Byarugaba (2016), virtual incubators are those that connect entrepreneurs with advisors and investors while providing them with an online workspace. Stated differently, it is not always the case that these virtual incubators operate or offer their

services from a physical location; rather, they might decide to use online platforms to offer their services to entrepreneurs or startup companies. Therefore, we can think of them as conventional incubators without a physical location. Typically, people view virtual incubators as more effective than other incubators due to their ability to combine services, providing startups with accounting, legal, or consulting services while they develop their business plan (Naidenkov, 2017). Similarly, virtual business incubators (in a broader sense) are defined in Rusko's (2011) article as socio-economic development catalysts that offer a method for turning early-stage ideas into successful commercial endeavours. Additionally, they frequently offer entrepreneurs access to a network of connected services, and informal as well as formal learning opportunities. Process orientation, for which virtual incubators offer a methodical approach to incubation, is usually one of their key features. This also includes offering help to early-stage entrepreneurs and bundling services that are often in line with the procedures (Dai, 2011). Additionally, Saavedra et al. (2020) offered a comprehensive approach to virtual incubators, characterising this type of incubation in terms of five primary functions pertaining to providing entrepreneurs with digital and electronic auctions: investment, coaching, learning, and stakeholder management. Digitalisation and artificial intelligence implementation, which benefit entrepreneurs by improving the overall efficiency of the incubation process and the early stages of their startup businesses, are largely responsible for some of the most recent developments in virtual incubators (Khomenko et al., 2020).

In a similar vein, the developments in 3D mentoring and online learning are helping business owners to expand their horizons and acquire the skills necessary to navigate a dynamic ecosystem (Girard et al., 2011). In today's entrepreneurial ecosystems, the concept of seed accelerators is gaining popularity amidst these changes. These programmes, known as cohort-based or fixed-term programmes, offer mentorship and educational opportunities to

entrepreneurs (Hochberg, 2016). Standard seed finance packages, cohort-based entry and exit, a planned capacity development programme, mentorship, and physical co-location were the five key components that made up the business accelerator's ideal setup (Bliemel & Klerk, 2016). Cohort-based programmes with a set term for startups are known as business accelerators. Such programmes may incorporate mentorship sessions and educational components, culminating in a concluding event (Cohen et al., 2019). While some adopt a horizontal view and concentrate on region (Price, 2004), the majority of business accelerators target a particular industry, such as manufacturing, healthcare, IT (Hockberg, 2016), biotechnology, or telecommunications (Malek et al., 2014), and give an initial seed investment in exchange for services and space (Bliemel & Klerk, 2016). In 2005, Y Combinator introduced the first business accelerator. Since then, participants like Dropbox, Reddit, and Airbnb have largely contributed to the business accelerator's increased popularity. Since its founding in 2007, Techstars, another trailblazing business accelerator, has helped advance more than 2000 startups (Cohen et al., 2019). At least 200 accelerators are now operating globally, and the businesses in their portfolios have raised over \$14.5 billion in capital (Yu, 2018).

Today, both business incubators and business accelerators are valuable tools that support the expansion of business ventures. However, a few characteristics distinguish the two when examining their various definitions. One way that the two models differ is that a business incubator gives the business room to expand, whereas a business accelerator either does not offer such space at all or otherwise offers desk or co-working space of some kind (Cohen et al., 2019). A significant difference is that, whereas a business incubator does not allocate funds to its participants, a business accelerator does. Another differentiating feature is the programme's duration; business incubators' programmes endure for differing lengths of time and offer mentorship and support to help the business launch, which can occasionally take

years; a business accelerator programme, on the other hand, typically lasts three to six months. The main topics of business accelerator programmes are rapid expansion and solutions for organisational and operational challenges that the company may be facing or will encounter.

The goal of both the business incubator and business accelerator is to support entrepreneurial ecosystems. Bahrami et al. (1994) referred to the Silicon Valley community as the “ecosystem,” demonstrating that entrepreneurship frequently relied on a supportive atmosphere for startup companies. An entrepreneurial ecosystem is primarily defined as a collection of interdependent businesses (Jacobides et al., 2018). In order to assess the ecosystem’s performance, outputs, and impact, a deeper comprehension of its boundaries is necessary (Audretsch et al., 2018). Studies indicate that the third-generation incubator model, which emphasises bridging over buffering due to the potentially more profitable outcomes of such activities, is well-established and likely to dominate future efforts (Bruneel et al., 2012; Pauwels et al., 2015). However, Dutt et al. (2016) proposed that the analyses focused on industrialised nations and typically reached conclusions regardless of the level of institutional development in the environment. Academics have condemned this methodology, demonstrating that varying institutional settings obstruct the replication of effective techniques across different contexts (Levie et al., 2014). Researchers have identified the rise of new technologies and globalisation in the third generation (Table 1) as the driving forces behind innovative forms of business incubators, particularly accelerators and virtual incubators. These incubators assist entrepreneurs in playing a crucial role in economic development and progress. In other words, the creation of new goods, services, and business models, along with the use of online platforms, digital technologies, and infrastructures, contribute to the creation and growth of digital entrepreneurship (Kraus et al., 2019).

This holistic historical review revealed a notable emphasis among researchers on

business incubators in advanced economies since the early 1980s, with much of the published literature from various regions focusing on third-generation business incubators. The upcoming section will present the literature on institutional theory and institutional voids, along with a review and critical analysis of business incubators. This analysis aims to highlight gaps in the existing knowledge and identify opportunities for further research.

1.2 Institutional Theory, Institutional Voids, and Business Incubators

Institutional theory provides a framework for understanding how formal and informal rules shape organisational behaviour. North's (1990) distinction between formal institutions (e.g., laws, policies) and informal institutions (e.g., norms, values) is particularly relevant in emerging economies, where institutional voids often hinder market functioning. Business incubators serve as intermediaries that mitigate these voids, enabling entrepreneurs to navigate regulatory- and resource-based challenges.

The term "institution" encompasses various entities in our society, including hospitals, schools, universities, and corporations, amongst others. Institutional theory, as articulated by North (1990, p. 3), emphasises the role of formal and informal institutions in shaping economic and social interactions. North defines institutions as the set of laws, regulations, norms, and cultural practices that structure political, economic, and social activities in a society. These institutions are critical for reducing uncertainty, enabling cooperation, and fostering economic development by creating a stable framework within which individuals and organisations operate. Baldakhov and Heim (2020) note the importance of both formal and informal institutions in shaping a country's economic environment.

However, in many emerging economies, the institutional frameworks are either underdeveloped, absent, or dysfunctional, creating what Khanna and Palepu (1997) term

“institutional voids.” The term “institutional voids” refers to the absence or inadequacy of institutions necessary for the effective functioning of the market, such as regulatory bodies, financial systems, or reliable legal frameworks. These voids create challenges for businesses, including increased transaction costs, reduced trust, and limited access to resources or markets. For instance, in environments with weak legal systems, firms may struggle to enforce contracts or protect intellectual property, leading to inefficiencies and uncertainties. Understanding institutional theory and the concept of institutional voids is essential to contextualising the role of mechanisms, such as business incubators, which often emerge to fill these gaps (Gao et al., 2017).

The research domains of business incubators and institutions have occasionally intersected in academic studies; however, such integrated investigations remain relatively limited (Panakaje et al., 2024). This domain is of some significant value as it clarifies the mechanisms that establish, disseminate, and embrace diverse structures like conventions, routines, and regulations (Kalyuzhnova et al., 2019). There are limited works linking the support of business incubators with institutions or associating business incubators with institutional intermediaries. The literature review identifies a gap at the juncture where business incubators intersect with major institutions within the institutional framework of emerging economies. Several researchers have employed institutional theory in their studies on business incubators (Hackett & Dilts, 2004; Phan et al., 2005; Gstraunthaler, 2009; Dutt et al., 2016; Mrkajic, 2017; Sydow et al., 2020; Ahmed et al., 2020; Qi et al., 2023).

Hackett and Dilts (2004) describe the role of incubators as institutions from two perspectives. First, from an institutional perspective, incubators can act as intermediaries between the institution and incubated projects, which can enhance positive contributions and minimise negative impacts. According to the research, fulfilling this role alone can be

challenging for any individual, but being an institution can facilitate this process. Second, stakeholders should recognise the business incubator as an institution. This recognition should enable the study of how incubators influence incubatees through their organisational structures and processes. When relevant bodies treat incubators as institutions, this can enhance the incubators' contributions. Identifying and treating business incubators as institutions may significantly enhance their contributions to entrepreneurial ecosystems and, indeed, broader economic development. Drawing on institutional theory (North, 1990), institutions, whether formal, such as regulatory frameworks, or informal, such as cultural norms, play a vital role in reducing uncertainty and fostering cooperation. Business incubators, when viewed as institutions, could fulfil similar functions by embedding entrepreneurial support within the structured frameworks that provide stability, legitimacy, and access to critical resources. Such recognition could lead to greater alignment with the needs of the entrepreneurial community, fostering trust and credibility among stakeholders (Scott, 2001). Moreover, when incubators operate as institutional actors, they are better positioned to address institutional voids, particularly in emerging economies (Khanna & Palepu, 1997). By institutionalising their roles, incubators could formalise networks, improve policy advocacy, and provide a reliable bridge between entrepreneurs and other key players, such as investors, regulators, and industry leaders (Lalkaka, 2003).

Furthermore, viewing business incubators as institutions may encourage policymakers and governing bodies to invest in their sustainability and scalability, enhancing their capacity to drive systemic change. As McAdam and McAdam (2008) argue, institutionalised support mechanisms can lead to more consistent and impactful outcomes, particularly in environments marked by uncertainty and resource constraints. This perspective underscores the importance of framing business incubators not merely as service providers but rather as integral

components of the institutional landscape, thereby amplifying their ability to foster innovation, entrepreneurship, and economic growth.

Kalyuzhnova et al. (2019) note that the investigation of business incubation efficacy from the perspective of institutional theory might yield a more comprehensive evaluation of a business incubator's functioning. The regulative pillar aligns with North's formal rules (North, 1990), while the normative and cultural-cognitive pillars pertain to informal norms, and the "bases of legitimacy" and "bases of compliance" correlate to North's "enforcement mechanisms." They suggest that integration of institutional economics and sociological methodologies should yield a comprehensive framework through which to assess the efficacy of business incubators.

Another perspective on the application of institutional theory in incubator research, as presented by Phan et al. (2005), suggests that incubators view institutional theory as a means to expedite the transformation of firms into established institutions. Institutional theory roots this viewpoint on the assumption that organisations observe the behaviour of competitors and tend to conform to prevailing norms (DiMaggio & Powell, 1983; Zucker, 1987). Consequently, research stemming from this perspective often focuses on the process of institutionalisation and the influence of institutions on organisational structures and processes (Kuhns, 1999). In essence, incubators initially emerged as programmes developed within institutional divisions (Phan et al., 2005; Adi et al., 2017). Many institutions, including universities, government agencies, research institutes, and communities, affiliate with the majority of these incubators (Amezcuca et al., 2013; Etzkowitz et al., 2005). Incubators are recognised as entities that offer support to nascent businesses (Dutt et al., 2016; Mrkajic, 2017; Sydow et al., 2022). They function within a hierarchical structure, with decision-making processes typically following a vertical trajectory (Mrkajic, 2017).

Government and private initiatives have helped to establish many business incubators worldwide, and researchers using institutional theory argue that policies, laws, and various local authorities significantly influence their development (Eisenhardt, 1989; Scott, 2005; Corsi and Berardino, 2014). Government agencies, societies, and other organisations often support the establishment of non-profit incubators, implying that these systems heavily influence their operations (Phan et al., 2005). Business incubators typically derive their resources from local systems, such as governments and universities, rather than tailoring their procedures to market needs; the policies of the supporting bodies can thus exert a significant influence on them, especially in emerging countries where governments play a prominent role. Government regulations and laws can act as accelerators for economic and entrepreneurial development, with business incubators serving as key instruments for governments to achieve these aims (Gstraunthaler, 2010; Dvoulety et al., 2018; Xiao & North, 2018; Qi et al., 2023). Looking ahead, institutional theory holds promise for future research examining the influence of local, regional, and international institutions on both business incubators and incubatees (Gstraunthaler, 2009; Dutt et al., 2016; Mrkajic, 2017; Sydow et al., 2022; Ahmed et al., 2020; Qi et al., 2023). The literature suggests that institutional theory offers valuable insights into various aspects of incubator-related phenomena.

From the perspective of business incubators, institutional theory highlights the profound impact of cultural aspects, such as values, norms, beliefs, and assumptions, on shaping the preferences and behaviours of these entities within their ecosystems (Barley & Tolbert, 1997). These cultural dimensions gradually influence and define the social interactions and expectations within the entrepreneurial and business development landscape, becoming ingrained “facts” that are widely accepted and rarely questioned (Barley & Tolbert, 1997). Thus, institutional theory provides a lens through which to examine the foundational elements

that underpin the existence and operation of business incubators, from broader societal behavioural expectations to the internal rules, procedures, and evaluation criteria they adopt (Svejvig, 2009; Al-Somali, 2011). Svejvig (2009) adds to our knowledge of institutions by considering social constructs like belief systems, social norms, and cooperative practices. These are important to the functioning of incubators because they act as a bridge between entrepreneurs and their social and economic environments.

Drawing on North's (1990) analogy, we can view business incubators as "players" operating within the "rules of the game" established by the institutional framework. These rules, shaped by cultural and societal norms, define incubators' operational boundaries and strategic priorities. For instance, the repetitive behaviours and structured interactions within incubators—whether self-regulated or influenced by external policies—reflect the regulatory mechanisms described by Schotter (1981). These behaviours, often culturally influenced and widely accepted, establish incubators as critical agents for fostering entrepreneurial ecosystems. Business incubators, by embedding themselves within this institutional framework, not only shape existing cultural and institutional norms but also pivotally influence and potentially transform these norms to better support entrepreneurship and innovation (Hernández-Chea et al., 2021).

Interestingly, institutional logics and pressures provide a rich framework for understanding the dynamics of business incubators within their broader institutional and societal contexts. The concept of institutional logic, as defined by Friedland and Alford (1991), refers to material practices and symbolic constructions that guide organisational behaviour and decision making. For business incubators, this means aligning their operations with the prevailing institutional logic in their organisational fields, such as the entrepreneurial ecosystem or a broader economic development agenda. Scott (2001) further emphasises that

institutional logic consists of dominant beliefs and practices, which incubators must navigate to establish legitimacy and effectively support firms. Also, the focus of institutional theory has shifted from pressures to the interaction of conflicting institutional logics (Svejvig, 2009). This shift holds particular significance for incubators operating in diverse or rapidly changing environments. Thornton and Ocasio (2008) highlight that institutional logics influence mindful and rational behaviour, allowing incubators to act as agents of change by shaping and adapting to these logics. For example, an incubator in a technology-driven ecosystem may adopt innovation-focused logics, while one in a resource-scarce context may align with sustainability or social impact logics.

In addition, Svejvig's (2009) identification of macro-, meso-, and micro-levels in institutional theory offers a lens through which to analyse how incubators function across societal, organisational, and individual dimensions. At the macro-level, societal pressures and policies influence incubator practices, such as government funding models or international entrepreneurship standards; at the meso-level, incubators interact with their organisational fields, including networks of venture capitalists, mentors, and partner organisations, forming norms and expectations within these ecosystems; and at the micro-level, incubators influence individual entrepreneurs by instilling specific behaviours, values, and practices conducive to business success. Sanad (2012) describes the bi-directional pressures within institutional theory: top-down influences from high-status societal actors shape incubator operations, while bottom-up pressures from individual entrepreneurs and startups can prompt incubators to adapt their services and strategies to meet evolving demands. This interaction underscores the dynamic role incubators play in bridging societal structures and entrepreneurial behaviours.

Following this, the research also highlights institutional pressures, a concept first introduced by DiMaggio and Powell in 1983. These pressures describe the process by which

organisations in a field converge to resemble each other due to shared pressures. For business incubators, these pressures manifest as coercive, normative, and mimetic influences. Business incubators often emulate successful models within their field to gain legitimacy. For example, an incubator may replicate the mentorship structure or funding mechanisms of leading global incubators to enhance its reputation and attractiveness to startups (Haveman, 1993; Teo et al., 2003). Professional norms and values play a significant role in shaping incubator operations. For example, recommendations from advisory bodies or best practices shared at industry conferences can lead incubators to adopt standardised approaches, such as metrics for evaluating firms' success or frameworks for providing support services (Scott, 2008; DiMaggio & Powell, 1997). Moreover, regulatory bodies, funding agencies, and other authoritative organisations exert coercive pressure on business incubators. For instance, government-backed incubators may be required to focus on specific sectors, such as renewable energy or social entrepreneurship, as a condition for receiving funding (DiMaggio and Powell, 1991; Harcourt et al., 2005). Understanding and navigating these institutional dynamics is critical for incubators to remain effective and adaptive. By aligning with dominant institutional logics while selectively responding to institutional pressures, incubators can balance conformity with innovation (Harcourt et al., 2005). Moreover, incubators, acting as agents of institutional change, are in a unique position to question established logics and introduce fresh ones that promote entrepreneurial growth, especially in environments marked by institutional gaps or swiftly changing market demands. This dual role highlights the strategic importance of institutional theory in shaping the design and operation of business incubators (Gstraunthaler, 2010).

Following Hackett and Dilts (2004a), this study views incubators as institutions from two perspectives. Firstly, from an institutional standpoint, they serve as intermediaries between

the parent institution (government, venture funds, universities, etc.) and the firms they support, potentially exerting a positive influence. Secondly, we regard business incubators as institutions in their own right, influencing incubatees through their organisational structures and processes. Recognising incubators as institutions enhances their potential contributions, especially when engaging with relevant stakeholders.

Another stream in business incubator research is the theme based on institutional theory, which highlights the impact of institutional factors on organisational performance (Meyer & Rowan 1977). The primary characteristic of emerging economies is the existence of institutional voids (Khanna and Palepu 1997). Humans create institutions, which govern and regulate economic, political, and social activities. These institutions can be formal, such as rules and laws, or informal, such as cultural norms, as noted by North (1990, 1991). Formal institutions, including rules, are essential for entrepreneurs to mitigate business risks and to establish incentives and safeguards for entrepreneurial ambitions and firm initiation (Klystova et al. 2022). The significance of formal rules in the establishment of business incubators should not be overlooked (Kalyuzhnova et al., 2019). Their interaction with informal regulations illustrates the complete landscape of success determinants. Policymakers have frequently asserted that their development programmes for business incubators incorporate the following dimensions: offering financial assistance to incubators, establishing and endorsing specialised incubation programmes managed by the public sector, and creating specific conditions to facilitate access to incubators for underrepresented or disadvantaged entrepreneurial groups (Kalyuzhnova et al., 2019). Informal institutions comprise cultural norms, belief systems, traditions, practices, unwritten standards of conduct, and ideologies (Baumol 1990; Hofstede 1980).

There are market-related institutional voids that arise when “specialist intermediaries,

regulatory systems, and contract-enforcing mechanisms” (Khanna & Palepu 2006, p. 62) are lacking or inadequate. For example, prominent formal institutions may encompass intellectual property protections, contract enforcement, company entrance protocols, and the laws and regulations governing corporate rivalry and bankruptcy (Autio et al. 2014a). Moreover, if formed and enforced upon economic agents, transparent and impartial formal institutions could mitigate transaction issues and promote optimal economic, political, and social interactions (Khlystova et al., 2022). Formal institutions supporting entrepreneurs can create incentives for them to identify and capitalise on market opportunities, as long as these institutions are enforceable, and the agents follow the regulations.

Several studies have identified particular institutional voids in emerging contexts. In their study of the Brazilian entrepreneurial ecosystem, Arruda et al. (2013) identified institutional voids within the regulatory framework, market conditions, access to finance, the generation and dissemination of knowledge, entrepreneurial competencies, and cultural factors such as fear of failure. Junior et al. (2016) identified the primary impediment in the Brazilian entrepreneurial ecosystem as the insufficient engagement and collaboration between educational institutions and entrepreneurs. Manimala and Wasdani (2015) found nine gaps in the business environments of emerging economies in Brazil, India, Russia, and China (BRIC): weak institutions, unclear and inconsistent government policies, poor governance, broken infrastructure, limited funding options, a culture that limits creativity, personalised networks, an uncertain and poorly funded education system, and a reluctance to go global (Gretzinger et al., 2021). These studies collectively highlight the multifaceted institutional voids and systemic challenges that hinder entrepreneurial ecosystems in emerging economies.

In their examination of SPECA countries, including Kazakhstan, Kalyuznova et al. (2019) emphasised that certain Special Programme for the Countries of Central Asia (SPECA)

governments are implementing legislative measures to facilitate business incubation through appropriate laws, and that the prevailing economic conditions are advantageous for SMEs. However, this study outlined the constraints encountered during the establishment of their business incubators, emphasising the notably low engagement of private investors and startups, the hesitance of banks to extend funding, the general scarcity of financial resources, the elevated expectations of business angels, the frequent misinterpretation of the business incubator concept, the degree of bureaucracy that can hinder the flourishing of business incubators and, in certain instances, the limited perceived willingness to implement changes (Kalyuzhnova et al., 2019). The results underscore the significance of the regulatory framework, as articulated by Scott (2001, 2008), in influencing the institutional dynamics within which businesses function.

Guerrero and Urbano (2017a) conducted an examination of Mexican entrepreneurial ecosystems, identifying the detrimental impacts of adverse institutional conditions such as governmental bureaucracy, taxation, and insufficient support for societal issues like extortion by organised crime and impunity, as well as market challenges such as informal trade, on entrepreneurial endeavours. Related research on industrial clusters and innovation systems, such as that by Ghani et al. (2014), also reveals institutional voids, indicating that access to household banking and labour regulations significantly contributes to the promotion of local new venture development. These findings emphasise the critical role of institutional environments in shaping entrepreneurial ecosystems and highlight how institutional voids can act as significant barriers to entrepreneurship (North, 1990; Scott, 2014). Addressing issues such as regulatory inefficiencies, inadequate support systems, and market informality is essential to fostering entrepreneurial activity and innovation, particularly in emerging economies where institutional frameworks are often underdeveloped (Acemoglu & Robinson,

2012).

Studies like these usually say that gaps in institutional conditions make it hard for entrepreneurs to start their own businesses because they are unable to access the resources they need to grow or enter new markets. These gaps also hurt entrepreneurs' rights to property and contracts (Djankov et al. 2002; Manolova et al. 2008; Hernandez-Chea et al. 2021). Due to such factors, entrepreneurial entrance is often of inferior quality in environments marked by institutional voids and is more inclined towards necessity-driven rather than opportunity-driven entry (Reynolds et al. 2002). Empirical evidence substantiates this conjecture. Autio and Fu (2015) looked at data from the Global Entrepreneurship Monitor (GEM) and the World Bank and found that a one-standard deviation change in the quality of political and economic institutions can have a huge effect on the ratio of formal to informal business entry in low-income and emerging economies, with better institutional quality leading to increased formal, and decreased informal, entry. Furthermore, due to the breakdown of formal institutions, entrepreneurs in emerging economies function within a "suboptimal ecosystem." Adly and Khatib (2014, p. 11) assert that "suboptimality" results from the "final outcome of the inadequacy of formal structures and the insufficiency of alternative means for conducting business informally." The extensive foundation of small enterprises in emerging economies consists of informal entrepreneurship.

The application of institutional theory and the concept of institutional voids to business incubators could provide a unique lens through which to understand their role as intermediaries in addressing systemic gaps in emerging economies. Integrating these frameworks not only fills a critical gap in the literature but also challenges traditional views of business incubators as isolated entities, highlighting their dependence on, and influence within, institutional environments (North, 1990; DiMaggio & Powell, 1983). This approach highlights the need for

context-specific strategies to enhance their effectiveness and calls for deeper exploration of their dynamic interactions with institutional frameworks. It has the potential to make a substantial contribution to the body of knowledge by advancing the understanding of business incubators and expanding the foundation for future research in this field. The following section will present how a literature review was conducted and synthesised findings from primary research addressing specific questions, following the methodology proposed by Tranfield et al. (2003).

1.3 Synthesis of Theoretical and Empirical Studies on Business

Incubators

A literature review was conducted to consolidate and synthesise findings from primary research addressing specific questions, following the methodology proposed by Tranfield et al. (2003). The review focuses on studies related to business incubators, specifically examining the theoretical and empirical dimensions of business incubation, which to date have predominantly concentrated on advanced economies. This approach seeks to reveal distinctive features of business incubators and identify future research opportunities. Such reviews, as noted by Cook et al. (1997), differ from traditional reviews by employing exhaustive, neutral, scientific, and replicable processes, ensuring transparency and reproducibility. To maintain these standards, the review adhered to the three-stage procedure outlined by Tranfield et al. (2003), encompassing planning, conducting, and reporting.

We adopted a meta-narrative approach rather than a meta-analysis, emphasising the importance of critically understanding the literature and recognising differences in research traditions (Greenhalgh et al., 2005; Gough et al., 2017). Preliminary readings of key articles in

the field have facilitated the identification of search terms for a comprehensive and focused investigation. We selected the Web of Science ISI Social Sciences Index as the primary database for this review, which encompasses publications from 2005 to 2023. This database is considered highly comprehensive and is frequently used in business research due to its extensive coverage of high-quality academic journals (Hausberg & Korreck, 2021; Sohail et al., 2023). Although the concept of business incubators originated in the 1980s (Hackett & Dilts, 2004), the review focuses on the period from 2005 onwards due to the widespread academic attention this concept began receiving from that time onwards.

To ensure comprehensive coverage, multiple strategies were employed, including utilising personal networks of influential scholars and practitioners, manually searching working papers, and employing snowball techniques to analyse references within relevant articles. Additionally, focused searches of selected key journals were conducted to include articles that may not have explicitly used predefined keywords but that were still pertinent to the topic. A robust protocol for the literature search, selection, and exclusion was established (Appendix 1). Keywords were identified based on the available literature and prior systematic reviews (Hausberg & Korreck, 2021; Sohail et al., 2023; Lindelof & Hellberg, 2023). The search terms targeted combinations of terms such as “business incubator,” “institutions,” and “enforcement,” and included various synonyms commonly found in the academic literature. The Web of Science search string employed Boolean operators to refine the results, with terms used such as (*incubat OR business incubat OR business accelerat OR company builder OR innovation cent OR entrepreneurship cent*) AND (*institutions OR formal institutions OR government OR university*) AND (*impact OR support OR policy OR effect OR enforcement OR process OR intervention OR cooperation*). This initial search identified 12,425 articles (Figure 1). We applied specific constraints, such as publication period, research areas,

document type, and language, to enhance the rigour of the review. We included only articles published between 2005 and 2023 in the categories of business, economics, and operations management. To maintain relevance, we excluded fields such as engineering, biology, geography, healthcare, urban studies, and psychology. We further limited the search to articles published in English, review articles, and early access papers. These refinements yielded a final dataset of 2,396 articles (Figure 1).

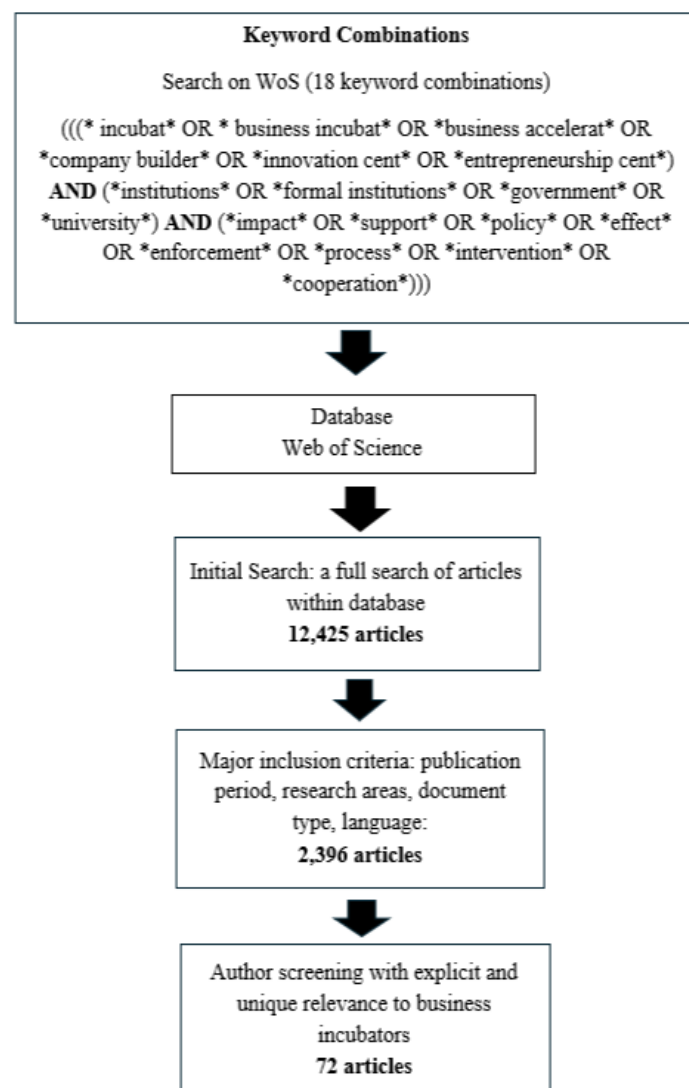


Figure 1 - The process of data collection

Source: Author's own

The review process involved eliminating duplicates, screening abstracts against inclusion and exclusion criteria and, where necessary, conducting full-text reviews. Sources focusing specifically on business incubation were included, while studies centring on unrelated topics, such as firm-level innovation, entrepreneurial ecosystems, and technology transfer organisations, were excluded. We systematically extracted data using Excel sheets, capturing key descriptors such as authorship, year of publication, journal, citations, and type of work. This review approach provided a transparent, replicable framework for analysing the extant literature on business incubators with the ultimate goal of advancing knowledge in the field and identifying avenues for future research.

The review focuses exclusively on the concept of business incubation, necessitating the exclusion of studies where the primary focus was not on business incubators (Figure 1). This included research on firm-level innovation, entrepreneurial ecosystems, open innovation, technology transfer organisations (TTOs), and science parks; these topics were considered outside the specific scope of the review. We removed duplicate entries to ensure accuracy and relevance, and screened the abstracts of the remaining sources using predefined inclusion and exclusion criteria. The inclusion criteria emphasised theoretical and empirical studies, specifically addressing business incubators, while the exclusion criteria targeted studies with divergent topics or those from unrelated disciplines. Each source underwent a systematic evaluation process. When the abstract did not confirm the relevance of a source, we conducted a full-text review to ascertain its inclusion suitability. Data extraction followed a structured approach using Excel sheets to document essential descriptors such as authorship, year of publication, article title, journal name, citation count, and type of work (Figure 1). To maintain rigour and consistency, a detailed protocol was established for the literature search, selection, and exclusion processes (Appendix 1). This protocol outlined four primary inclusion criteria,

ensuring the systematic identification of relevant studies. Tranfield et al. (2003) recommended principles of transparency and replicability to guide the review process, ensuring that other researchers could replicate the decisions made.

The literature review process integrated a series of iterative steps to refine the dataset, ensuring the inclusion of studies that directly aligned with the research objectives. Following the initial screening of abstracts, we conducted comprehensive full-text reviews to further exclude relevant studies. Verifying the relevance and quality of each study was crucial to retaining only those that provided substantial theoretical or empirical insights into business incubators. The rigorous review of full texts allowed for a deeper understanding of the scope and focus of each study, eliminating those that lacked sufficient alignment with the research framework. We employed snowball sampling techniques to augment the dataset by meticulously analysing the reference lists of the selected articles. This approach facilitated the identification of additional influential works that might not have surfaced through the primary keyword-based search due to variations in terminology or indexing. The snowball sampling strategy proved particularly effective in uncovering seminal studies and works from niche academic fields, broadening the scope of the review while still maintaining its relevance.

The combined use of abstract screening, full-text reviews, and snowball sampling contributed to the generation of a robust and comprehensive dataset. The application of exclusion criteria at each step further enhanced this multistage process, systematically removing irrelevant studies, duplicates, and those with insufficient empirical or theoretical contributions. Ultimately, the review yielded a refined dataset of 72 articles (Figure 1). These articles represented a diverse and comprehensive body of work that captures the theoretical and empirical nuances of business incubators, providing a solid foundation for further analysis and contributing to the broader understanding of this field. The rigorous methodology employed in

the review process underscores its reliability and ensured that the resulting dataset was both relevant and of high academic quality.

The studies reviewed demonstrate a diverse and evolving interest in business incubation, encompassing a range of geographical contexts, research methods, and thematic focuses (Appendix 2). The dataset includes a mix of empirical and conceptual studies published between 2005 and 2023, reflecting a growing academic interest in understanding the multifaceted roles of business incubators. From the dataset, it is evident that the number of studies focusing on business incubation has grown significantly over the years, with notable peaks in publication activity in recent years. This trend suggests increasing recognition of the importance of business incubation in fostering entrepreneurship and economic development. For example, the inclusion of studies such as those by Capatina et al. (2023) and Qi et al. (2023) highlights a surge in interest in understanding incubation dynamics in different contexts, particularly in emerging economies. Earlier foundational studies, such as those by Carayannis and Zedtwitz (2005) and Grimaldi and Grandi (2005), laid the groundwork for examining the structural and operational models of business incubators.

The majority of publications are empirical, emphasising data-driven analyses to better understand the impacts, processes, and outcomes of business incubators. For instance, studies like Schwartz and Hornyh (2010) employed regression analysis to explore patterns of cooperation amongst incubators, while Simon and Miller (2022) used interviews to examine cultural dynamics within incubators. Conceptual studies, though fewer in number, play a critical role in developing theoretical frameworks, such as the work by Lindelöf and Hellberg (2023), which employed bibliometric analysis to trace the evolutionary process of incubation.

The studies cover a wide geographical scope, with significant contributions from Europe (e.g., the UK, Germany, and Italy), Asia (e.g., China and India), and other regions such

as Africa (e.g., Nigeria and Kenya). This geographical diversity reflects the global relevance of business incubation as a mechanism for supporting entrepreneurship in varied socio-economic and institutional contexts. Notably, there is considerable representation from emerging markets, highlighting the role of incubators in addressing institutional voids and fostering innovation in such economies. A variety of research methodologies are employed in the studies, ranging from qualitative approaches, such as interviews and case studies, to quantitative methods, including regression analysis and structural equation modelling. Mixed-method approaches, like those used by Gorackowska (2020) and Tang et al. (2019), integrate qualitative and quantitative techniques to provide comprehensive insights into incubation processes (Appendix 2).

The publications are distributed across multiple journals, with *Technovation* contributing the highest number of studies (13 articles), followed by the *Journal of Technology Transfer* (nine articles). These journals are prominent platforms for disseminating research on business incubation, focusing on technological innovation and entrepreneurial ecosystems. Other journals, such as *Technological Forecasting and Social Change* and *Technology Analysis and Strategic Management*, also play critical roles in advancing the discourse (Appendix 3). The dataset reveals several key insights into the state of business incubation research. The increasing prevalence of empirical studies demonstrates a growing emphasis on evidence-based analyses, focusing on the impacts and effectiveness of incubators. Additionally, the geographical diversity of the studies highlights the universal relevance of incubation models while also reflecting the context-specific dynamics that influence their performance in different regions. The prominence of certain journals further underscores the central role of business incubation within broader academic discussions on innovation, entrepreneurship, and economic development.

The comprehensive nature of the review process enabled a nuanced understanding of the theoretical and empirical landscape of business incubators, ensuring that the studies included provided valuable insights into the field while at the same time identifying gaps in the existing literature. The emphasis on detailed documentation and adherence to a robust protocol underscores the methodological rigour and academic validity of the review process. The following section will present a holistic analysis of definitions and classifications of business incubators based on the dataset of articles derived from the synthesis of the literature.

1.4 Business Incubators: Definition Analysis

Researchers have proposed a wide range of definitions and classifications of business incubators over the years. The definition of business incubators itself remains discordant. Within the 72 sources in the dataset, 13 provided their own definition of the concept, 21 did not frame the concept in the form of a definition, and 38 compiled a definition using existing sources. Despite the lack of a commonly agreed definition, the analysis points to a diversity in how research presents what business incubators actually are. In fact, Table 2 shows three categories of business incubator definitions: as an organisation, as an institutional intermediary, and as a process.

Table - 2 List of key definitions of business incubators

Definition	Author (s)
Business incubator as an organisation	
“Incubators have been conventionally used to help startups (or “tenants”, “residents”, or “incubatees” surmount these challenges by providing various resources, tangible and intangible”	Capatina et al. (2023)

“[A] Business Incubator is an organisation whose main goal is to plan, create, and support new businesses”	Kiran & Bose (2020)
“An effective policy instrument for supporting the growth and development of technology-based firms”	Soetanto & Jack (2011)
“Are organisations that aim to encourage the development of technology startups, increasing their chances of survival in the market and promoting entrepreneurship and economic development, offer a wide range of resources for incubated companies such as physical facilities and infrastructure, administrative services, access to a support network, management orientation and easy access to capital, allowing for the development and continuity of these companies”	Freire et al. (2023)
“collaborative service providers, offering consultancy, networking and access to venture capital”	Ratinho & Henriques (2010)
“Property-based organisations with identifiable administrative centres focused on the mission of business acceleration through knowledge agglomeration and resource sharing”	Phan et al. (2005)
“Organisations that supply joint location, services, business support and networks to early-stage ventures”	Bergek and Norrman (2008)
“Property-based initiatives providing tenant [teams or] firms with a portfolio of new venture support infrastructure”	Mian et al. (2016, p. 2)
Business incubator as a process	
“as a process of accelerating knowledge from how to create a business, over how to apply for funding from venture firms, to eventually leave the incubator as a fully fleshed company”	Oberg et al. (2020)
“Incubation is fundamentally an educational process to train organisations in adequate functioning...”	Etzkowitz et al. (2005)
“Tools to accelerate the creation of successful entrepreneurial companies”	Bruneel et al. (2012)
Business incubator as an intermediary	
“a type of intermediary between entrepreneurs and their environment”	Dutt et al. (2015)
“as institutional intermediaries”	Sydow et al. (2022)

Source: Author’s own

Business incubators are thus ambiguous as a concept, particularly concerning their association with HGFs and SMEs. The term “incubator” has recently surfaced in the business and technology literature, drawing its origins from the scientific disciplines. Lindholm (1994) initially established and explained the concept, suggesting that corporations, institutions, and public organisations can serve as incubators. Incubation occurs within the framework of an organisation’s technological capabilities and competencies, creating a conducive atmosphere for new enterprises. Kiran and Bose (2020) describe business incubators in a general manner as being organisations whose main goals are to plan, create, and support new businesses. Business incubators’ primary aim is to enhance the likelihood of a new venture’s survival, upscaling, and flourishing (Mian et al., 2016). Bhatli (2016) states that there are more than 10,000 incubation organisations globally that offer both material resources and intangible capabilities. The primary objective of the incubator is to establish a nurturing atmosphere that facilitates the emergence and growth of startups (Bergek and Norrman, 2008; Mian et al., 2016). This encompasses contextual and organisational variety, including parent organisations, pre-incubators, business incubators, science parks, accelerators, and regional conditions (Da Silva & Forte, 2016; Lecluyse et al., 2019).

According to Clarysse et al. (2014), Autio et al. (2014), and Qi et al. (2023), the term “incubator” now refers to a specific organisational feature that aids a business, and its effectiveness as an incubator is associated with its survival, growth, and innovation. The contemporary usage of the term “incubator” diverges from its original definition, as incubators denote parent organisations of nascent enterprises (Lindholm-Dahlstrand, 1999). Perceived solely as an external support organisation, the modern concept has obscured the true essence of incubation (Mian et al., 2016; Soetanto and Jack, 2016; Narayanan and Shin, 2019;

Gorackowska, 2020), fundamentally neglecting to recognise that incubation is an evolutionary process occurring within specific temporal, spatial, and contextual parameters.

Incubation is a process identifiable within the evolutionary lifecycle phases of emerging and new ventures, namely in the stages of origin, survival, and expansion (Hackett & Dilts, 2004; Lindelöf & Löfsten, 2005; McAdam & McAdam, 2008; Mrkajic, 2017; Lindelof & Hellberg, 2023). However, the domain of behavioural entrepreneurship, where specific characteristics of individuals or a firm's configuration can essentially forecast success or failure, has supplanted much of the prior discourse (Unger et al., 2011). Research on incubators primarily emphasises formal procedures; nonetheless, interactions within genuine incubator ecosystems also depend on informal routes and networks that facilitate community-initiated exchanges (Lindelof, 2002; Aaboen et al., 2016), a system predominantly driven by actors. Startups requiring assistance in their development or “hatching” typically necessitates various sorts of help throughout their growth (Lindelof & Hellberg, 2023). This in turn necessitates access to various resources and competencies from the incubator (Barbero et al., 2012). Because of this, the people who fund the incubator have different goals and interests, which could cause it to grow in different ways (van der Spuy, 2019; Vaz et al., 2022). Throughout the incubation phase, nascent ideas and startups require not only assistance but also protection from disruptive forces and the potential appropriation of their concepts by others (Albahari et al., 2022; Jutterstrom & Samuelsson, 2022).

The function of the business incubator and the surrounding ecosystem shape its evolution (Hackett & Dilts, 2004; McAdam et al., 2016; Lecluyse et al., 2019; Lindelof & Hellberg, 2023). The evolutionary dimension of the business incubator and the necessity for diverse forms of support and developmental environments during different stages of development have not received any real attention from researchers. Researchers have also

examined various facets of incubation as a phenomenon (e.g., Hackett and Dilts, 2004; Barbero et al., 2012; da Silva & Forte, 2016; Lecluyse et al., 2019; Narayanan & Shin, 2019; Jutterstrom & Samuelsson, 2022), but there is still a need to investigate the literature regarding the definitional aspect of business incubators. One could argue that, over time, both the concept and definition of an incubator have become distorted, calling for a clearer understanding of its role as a system within the evolutionary lifecycle phases of emergent and new ventures. The absence of a theoretical framework that elucidates the evolution of incubation over time is evident in the ecosystem literature (e.g., Wurth et al., 2021; Cantner et al., 2021; Cho et al., 2022). The prevailing comprehension of ecosystems fails to account for the intrinsic actor-driven dynamics of entrepreneurial ecosystems from a venture standpoint.

Moreover, the existing literature on incubation and ecosystems lacks a cohesive integration of the evolutionary dynamics of the venture process (Albort-Morant & Ribeiro-Soriano, 2016; Arantes et al., 2019). Numerous studies have neglected to consider incubation to be an evolutionary process, rendering it a compelling subject for investigation. Similarly, there is a lack of a theoretical framework that views business incubators as evolutionary phenomena and recognises the role of the surrounding environment as a supportive ecosystem (Lindelof & Hellberg, 2023). The current literature states that by conceptualising business incubators as an evolutionary phenomenon within a specific environment, we can enhance our understanding of ecosystems, therefore aiding in the development of a taxonomy and theory that integrate the individual's contextual connections (Lecluyse et al., 2019).

Most studies define business incubators as an entrepreneurship tool to support entrepreneurial innovation, which adequately fosters social and economic development by strengthening social cohesion, entrepreneurial culture, and job creation. In contrast, Aernoudt (2004) offers a divergent perspective, viewing incubators as an interactive developmental

process that motivates individuals to initiate their own enterprises and supports startup companies in the creation of new goods. They may also encompass services such as direct management, financial access (via seed capital funds or angel investors), legal counsel, operational expertise, entry into new markets, and accommodation. Hackett and Diltz (2004a) assert that choosing a shared space facility enables a business incubator to offer a strategic and value-enhancing intervention mechanism, known as business incubation, to its startups through monitoring and business support. This has enabled them to optimise resources and leverage economies of scale. It is clear that the varying perspectives on business incubators highlight their dual role as facilitators of entrepreneurial innovation and providers of strategic, resource-optimised support systems. This divergence underscores the need for a more nuanced understanding of incubators as multifaceted entities, balancing their function as drivers of innovation with their capacity to address the practical challenges faced by HGFs.

However, funding and sponsorship for business incubation play a crucial role in determining which ultimate goals, like venture success, contribute to other objectives such as employment, technology commercialisation, product development, or social impact (Dutt et al., 2015; Bruneel et al., 2012; Phan et al., 2005). Oberg et al. (2020) note that the incubation process is essential to achieving positive results such as new business creation. Although the immediate aim of business incubators is consistent, the literature has not proposed a coherent definition of business incubation (Dutt et al., 2014; Mian et al., 2016; Ratinho & Henriques, 2012). Besides, Bergek and Norrman (2008) note that scholars have not, to date, reached a consensus on how to define business incubation, and thus it is generally defined according to the study in question.

In the literature, scholars have tried to conceptualise business incubator definitions in different ways. For instance, scholars typically define incubation as a process that nurtures new

ventures, scales them up in a stable environment, and mentors them to provide learning opportunities and skills, thereby reducing the likelihood of their failure (Bruneel, 2012; Oberg et al., 2020). Some argue that incubators, as institutions, differ from business incubation as a process. Consequently, Etzkowitz et al. (2005) define incubation as “an educational process to train organisations in adequate functioning,” defining it separately from any particular institution. According to Capatina et al. (2023), business incubators traditionally assist startups (also known as “tenants,” “residents,” or “incubatees”) in overcoming these challenges by offering a variety of tangible and intangible resources. One could assume that existing definitions of business incubators are either too generic or narrow, focusing solely on the outcomes of incubation, or otherwise failing to encompass all the factors that illustrate the process, thereby targeting only internal actors.

According to the definitions of business incubators, some scholars (Dutt et al., 2015; Sydow et al., 2022; Mrkajic, 2017) describe a business incubator as an institutional intermediary in a “brokering” process. From this perspective, the business incubator plays two roles (Mrkajic, 2017). First, they represent a buffering mechanism by offering resources internally, which in turn secures incubators from risks arising in an external environment (Dutt et al., 2015). Second, they deliver a bridging mechanism by connecting new ventures to the environment when required, and by facilitating relational networks. While the bridging mechanism of an incubator aids incubatees in their efforts to gather resources, its high costs prevent it from controlling the process (Mrkajic, 2017). What is vital to consider is that both mechanisms have an active link to the external environment, which makes the definition of a business incubator different to those examining internal settings.

Alternatively, the majority of studies ($n = 8$) define a business incubator as an organisation with a physical facility. Phan et al. (2005) define a business incubator as

“property-based organisations with identifiable administrative centres focused on the mission of business acceleration through knowledge agglomeration and resource sharing.” Even if we consider an “incubator with walls,” it is important to consider that the term “incubator” can also refer to other organisations such as an “academic training centre” (Etxkowitz et al., 2005), “a collaborative service provider” (Ratinho & Henriques, 2010), or a “property-based initiative” (Bruneel et al., 2012). It is challenging to generalise the concept of business incubation research due to the heterogeneity of definitional incongruencies.

Korreck and Hausberg (2018) note that the most reconcilable approach to defining business incubators is the minimal standard ground business model, which distinguishes them from other stakeholders in the entrepreneurial ecosystem. Thus, they determine business incubators in terms of both broader and narrower definitions (Table 2). Although both definitions provide an understanding of business incubators from two perspectives, there are drawbacks to exploiting them. For example, if a definition is broad, there is a risk of confusion because it includes substantial aspects of what determines organisational entrepreneurship. Likewise, a narrower definition eliminates classical business incubators’ characteristics, making it difficult to cover a broad range of incubator types. Furthermore, this issue not only complicates the estimation of the size of the business incubation sector in a specific country of analysis but also impedes the generalisation of findings and research into this field.

Critics argue that the adoption of diverse approaches to the concept of incubator/incubation ultimately reduces it to a broad term. One of the consistent features might be that the business incubator supports early-stage firms. However, this is not always evident, as it may be part of the entrepreneurial process and lifecycle (Mrkajic, 2017) of recently founded firms (Bergek & Norman, 2008). One similarity is that business incubators assist new ventures during the venture funding period. Experts believe that business incubators aim to

mitigate the significant impact of market imperfections, failures, or slacks on new ventures and small businesses (Phan et al., 2005; Dutt et al., 2015; Mrkajic, 2017).

Overall, there are three main notions to consider: the adaptation of terminology, the multiplicity of business incubators/incubation, and the unclear determination of the business incubation process and its participants. Note that different understandings of the concept of business incubation allow researchers to argue for its determination. Moreover, as the pace of business incubator research has increased, definitional efforts have shifted from emphasising distinctions to highlighting differences between different types of incubator. This shift has primarily occurred by defining different types of business incubators based on the organisational context in which they operate, such as privately owned versus university incubators. Studies published in the past 20 years have observed a proliferation of terminology to refer to different types of business incubator, ranging from “real-virtual incubator” (Carayannis & Zedtwitz, 2005) and “social business incubator” (Adham et al., 2018) to “technology business incubators” (Xiao & North, 2018), and “university business incubator” (McAdam et al., 2016). The analysis reveals that the most commonly used term for business incubators is “incubator” ($n = 70$), followed by a variety of specific terms such as “incubator programme,” “incubation programme,” “technology business incubator,” “regional business incubator,” “publicly funded incubator,” “academic incubator,” “international incubator,” “high-tech business incubation,” “startup incubator,” “innovation-based incubator,” and “hybrid incubator.”

This study conceptualises business incubator as a multidimensional organisational construct comprising three interrelated dimensions: supply, support, and delivery. First, incubators supply early-stage ventures with co-located infrastructure and shared services, including workspace, equipment, and administrative support (Bergek & Norrman, 2008).

Second, they support the formation and development of new enterprises by facilitating access to both tangible and intangible resources, such as technical assistance, mentorship, and network connectivity, typically over a flexible timeframe and often funded by public or private sponsors (Korreck & Hausberg, 2018). Third, incubators deliver their value proposition through an educational process, thereby enhancing entrepreneurial learning and capability-building (Etzkowitz et al., 2005). This tripartite definition provides a comprehensive analytical lens through which the incubator phenomenon may be examined in emerging economy contexts.

This section aims to delineate the parameters of business incubators by examining their definition within the existing body of research. The review of the business incubator literature reveals significant ambiguity surrounding the associated definitions of such. This “blurring” arises from the multiplicity of incubation models and the overlap of business incubator types with other entrepreneurial support programmes. The literature demonstrates how the principal concepts within this cohesive definition interrelate, enhancing clarity for both practitioners and researchers. This alleviates the ambiguity associated with the concept of business incubators. Resolving this ambiguity will improve both the use of the notion in practice and its theoretical underpinnings. Moreover, it will further facilitate stakeholder interventions aimed at improving new practices, addressing concerns, and advancing related development projects. A precise definition of business incubators is essential to fostering a common understanding among practitioners and thereby enhancing their effectiveness and application in practice. This will assist practitioners in establishing performance metrics, assessing performances, and recognising best practices. A precise definition of the business incubator will facilitate the advancement of the research domain and enhance researchers’ capacity to perform comparative analyses of incubators.

The literature review highlights three distinct yet interconnected streams of research, each contributing to a comprehensive understanding of business incubators and their role within entrepreneurial ecosystems. These streams are as follows: (1) dimensional typologies and models of business incubators, which delve into the structural and operational frameworks that define the functioning and categorisation of incubators; (2) performance and impact studies, which concentrate on the outcomes and effectiveness of business incubators in supporting incubatees, fostering innovation, and contributing to economic development; and (3) business incubators as institutional intermediaries, which scrutinise their role in bridging gaps between institutional voids and entrepreneurial activities, particularly in diverse socio-economic contexts. These streams collectively provide a general profile of the field, identifying thematic commonalities and offering insights into the multifaceted nature of business incubation; they also highlight gaps in the existing literature and areas for further exploration. By addressing these themes, the literature establishes a foundation for understanding how incubators function, their contributions to the entrepreneurial ecosystem, and their adaptability to different institutional and cultural environments.

The following section will provide an in-depth discussion of each research stream, delving into their theoretical underpinnings, methodological approaches, and empirical findings. This detailed analysis will illuminate the evolving landscape of business incubation research by emphasising its significance and potential for further academic research.

1.5 Dimensional Typologies and Models of Business Incubators

Scholars widely regard the term “business incubator” to be a multifaceted concept, leading to diverse interpretations and definitions across scholarly work. They have approached the concept from various perspectives, reflecting the complexity and versatility of business

incubators as mechanisms for fostering entrepreneurship and innovation. This diversity has contributed to a fragmented body of knowledge, with little consensus on a unified definition in the extant literature. Based upon appropriate and easy-to-examine characteristics such as institutional mission and facility objectives (Carayannis & Zedtwitz, 2005; Grimaldi & Grandi, 2005; Harima et al., 2019; Tang et al., 2019; Fernandez et al., 2015; Chan et al., 2022; Gao & Hu, 2017; Barbero et al., 2014), sponsorship/funding focus (Barbero et al., 2014; Chan et al., 2022; Grandi and Grimaldi, 2005; von Zedtwitz and Grimaldi, 2006), value propositions (Bruneel et al., 2012; Klosthen et al., 2020), industry/sector variety (Rothschild & Darr, 2005; Patton et al., 2009), and incubatee focus/stage (Mrkajic, 2017; Wulung et al., 2018) the literature has made various distinctions between business incubators. Some scholars dispute the utility of certain classifications for conducting relevant assessments of business incubators (Redondo & Camarero, 2017; Barbero, 2014). Interestingly, some scholars have criticised the notion that typologies, such as stated goals or types of funders, are easily observable and, therefore, have little relevance to the evaluation of business incubation outcomes (Dilts & Hackett, 2004b). In response to fragmented definitions and interpretations of business incubators, some scholars have sought to bring coherence to the field by organising incubator dimensions within thematic frameworks. These efforts aim to elucidate the underlying structures and value propositions of business incubators, providing a more unified perspective that captures their evolution and diversity.

For example, Mian et al. (2016) outline the evolution of business incubators through distinct value propositions associated with different generations of incubators. The first generation focused on providing shared resources and physical infrastructure, such as office space and basic support services. As the concept matured, second-generation incubators emphasised value-added services like mentoring, training, and access to funding. In the current

third generation, the focus has shifted toward fostering networks and digital platforms, supporting knowledge-intensive and high-growth enterprises while integrating virtual and global connectivity.

Similarly, Bruneel et al. (2012) propose a thematic approach to business incubation research by identifying the multidimensional nature of incubator services. Their work describes incubator dimensions according to two categories: tangible support (such as workspace and funding), and intangible support (including business coaching, networking opportunities, and reputational benefits). By emphasising these dimensions, they provide a framework for understanding how incubators create value for startups and contribute to entrepreneurial ecosystems.

However, the consolidation of incubator dimensions into coherent themes remains largely absent in the literature, as many scholars have traditionally approached business incubators as a homogenous phenomenon (Mrkajic, 2017). This prevailing view neglects the diversity of regional and industrial contexts in which incubators operate, and further disregards the specific needs of startups at different stages of development. Consequently, we are often unable to adequately address the unique challenges of varied entrepreneurial ecosystems and the tailored support necessary for startups (Grimaldi & Grandi, 2005; Phan et al., 2005).

The absence of a comprehensive framework limits the ability to design and manage incubators that are responsive to distinct socio-economic and institutional environments (Xiao & North, 2018). For example, incubators in resource-constrained regions may need to focus on building institutional infrastructure and providing critical resources, whereas those in technology-intensive industries might emphasise the cultivation of innovation networks, advanced mentoring, and access to specialised technical support (Lalkaka, 2003; Bruneel et al., 2012). The practical and strategic effectiveness of business incubators significantly diminishes

without adequately addressing these contextual nuances (Hackett & Dilts, 2004). A more nuanced approach is required to integrate diverse dimensions, typologies, and contextual factors into the design and operation of business incubators (Ahmed et al., 2020). Such an approach would enable the development of tailored business incubator types that align more closely with the specific needs of startups and the particular challenges of their operating environments. By addressing these gaps, incubators can better fulfil their roles as catalysts for entrepreneurship and economic development, particularly in complex and dynamic global markets (Mian et al., 2016; Khanna & Palepu, 1997).

Specialisation in the type of incubator can provide insights into distinct characteristics that enhance our understanding of incubator dynamics. Allen and McCluskey (1990) were among the first researchers to highlight the variability and significance of different types of incubators. The authors propose a correlation between the type of incubator and public policy. They note that they should consider the characteristics of a specific incubator type to enhance public policy decisions. The preliminary typology of business incubators encompasses a fundamental dimension: profit versus non-profit. The second and third generations further refined the company incubator into two categories: profit and non-profit. A profit business incubator is a privately owned entity that focuses on profit generation. Business incubators have certain objectives and sales targets for incubatees based on the nature of their enterprises. Based on the characteristics of the host company, these profit-orientated business incubators are categorised into industrial, corporate, private, and franchise firms. A profit-orientated business incubator restricts the common parts of the business incubation process, as private incubators differ in their objectives and commercial strategies.

In contrast, a university or government entity typically affiliates with a non-profit company incubator. Within the non-profit category, there are subgroups based on the

organisational character of the incubators, including community, public, and mixed-use. Non-profit business incubators, while predominant, exhibit more commonalities than profit-oriented incubators, regardless of geography, industrial sector, or market. Therefore, we deemed the non-profit company incubator to be the most relevant to this research. Two causes account for this: initially, non-profit business incubators share common elements; and secondly, non-profit company incubators typically nurture firms, unlike for-profit ones in emerging contexts. Indeed, business incubator classifications vary based on geographic location.

The primary factors of a government-funded incubator are social and economic implications (Qi et al., 2023). Governments invest in startups by providing incubator services and support, encompassing infrastructure, mentorship, and training. They anticipate that these startups will offer employment possibilities, yield profits, and possess the technological expertise required to enhance economic growth (Barrow, 2001; Tang et al., 2019). The government-sponsored incubator strives to boost job creation and promote urban science and technology by establishing infrastructure and incubation programmes (Hausberg & Korreck, 2020). For instance, Korea lacked business incubators in the 1990s. The Korea Small and Medium Business Administration (KOISRA, 2024) noted that the Korean government made substantial investments in startups in 2000. Consequently, their technological startups contribute to the fastest-growing industry sector globally. Following 2019, the quantity of incubators increased to 142, and Korea attained the top position as the most innovative nation in that same year, as per the Bloomberg Innovation Index (Bloomberg, 2019). Government-sponsored incubators typically offer marketing, legal, and business services to incubatees or startups at discounted rates (Barrow, 2001). They have established a set of criteria for their selection processes to evaluate and oversee the quality of candidates. Certain governments partner with other organisations to implement incubator programmes in alignment with

governmental objectives (Barrow, 2001; Cheng et al., 2023). The specific objectives for establishing incubators differ in each country, influenced by economic policies and the anticipated job outcomes for graduates, as well as their expected contributions to economic growth (Barrow, 2001; Etzkowitz, 2002; Obaji et al., 2014; Dvoulety et al., 2018; Qi et al., 2023).

Eventually, government-operated incubators are non-profit entities, predominantly funded and administered by the government. The primary objective of this business incubator is to stimulate economic development by generating employment and advancing creative technology, particularly within the high-technology sector.

The literature examining business incubator types in the United States (Allen & McCluskey, 1990; Lasrado et al., 2016; Nicholls-Nixon et al., 2022; Woolley & MacGregor, 2022) reveals distinctions to that for Europe (Grimaldi & Grandi, 2005; Harima et al., 2019; Vanderstraeten et al., 2020). Both continents have acknowledged the differences in business incubation (Aernoudt, 2005; Clarysse et al., 2005). There are variations in the types of incubators employed as corporate policy instruments across Europe. Grimaldi and Grandi (2005), along with von Zedtwitz and Grimaldi (2006) and Capatina et al. (2023), present a classification of incubators and cross-regional analysis in Italy. The literature concerning the host country evidences a consensus about the classifications of business incubators, despite their various variations. This is crucial to advancing the evaluation of variations in incubator-type performance (Capatina et al., 2023).

Table 3 - Typologies of business incubators

Nº	Dimensional taxonomy	Types of Business Incubator	Author (s)

1.	Institutional mission/Facility objectives	<ul style="list-style-type: none"> ➤ for-profit property development incubator ➤ non-profit development corporation incubator ➤ for-profit collaborative incubator ➤ academic incubator ➤ for-profit seed capital incubator ➤ Regional business incubator 	<p>Carayannis & Zedtwitz (2005) Simon & Miller (2022)</p> <p><i>The archetypes based on the opening spectrum of competitive focus and strategic objectives</i></p>
		<ul style="list-style-type: none"> ➤ mixed incubator ➤ technology incubator ➤ economic development incubator ➤ social incubator ➤ basic research incubator 	<p>Adham et al. (2018);</p> <p><i>BI classifications are based on their objectives, missions and what specific gaps are covered by BIs.</i></p>
2.	Sponsor focus/partner	<ul style="list-style-type: none"> ➤ independent commercial incubators (IncTANK); ➤ regional business incubators (Silicon Valley, OIT Israel); ➤ university incubators ➤ company-internal incubators (corporate) (Brightstar, British Telecom) ➤ virtual incubators (Venturix) 	<p>von Zedtwitz (2003), von Zedtwitz and Grimaldi (2006);</p> <p><i>The typology signifies two – competitive focus (industry, geography and segment) and strategic objective (for-profit and not-for-profit).</i></p>
		<ul style="list-style-type: none"> ➤ business innovation centre (BIC) ➤ regional public incubator ➤ university business incubator ➤ independent private incubator 	<p>Grimaldi & Grandi (2005)</p> <p><i>The author categorised BIs based upon two funding sources: public funding and private (large firms or individual entrepreneurs) funding;</i></p>
		<ul style="list-style-type: none"> ➤ publicly sponsored incubator ➤ privately sponsored incubator ➤ university-related incubator ➤ non-profit-sponsored incubator 	<p>Mian et al., (2016)</p> <p><i>The four types were identified based on the primary financial sponsorship sources.</i></p>

3.	Industry/sector specific	<ul style="list-style-type: none"> ➤ technology incubator ➤ manufacturing incubator ➤ service incubator 	<p>Tang et al., (2019)</p> <p><i>The authors determined that the best way to categorise business incubators is by their industry focus, including manufacturing, mixed-use, technology, and service.</i></p>
4.	Value propositions/services provided/evolution stages	<ul style="list-style-type: none"> ➤ first-generation business incubators (VP-office space and shared resources); ➤ second-generation business incubators (VP – coaching and training support); ➤ third-generation business incubators (VP – access to professional, technological and financial networks) 	<p>Bruneel et al., 2012</p> <p><i>The author proposed a generational sequence of BIs and illustrated that each generation of BI added one dimension to their VP.</i></p>
5.	Incubatee focus/ Stage of tenants	<ul style="list-style-type: none"> ➤ NIM business incubators ➤ SIM business incubators 	<p>Mrkajic, 2017</p> <p><i>The author determines business incubators based upon the business incubation models (NIM and SIM) exploited there. Both models are appointed for two different incubatees stages (nascent and seed)</i></p>

Source: Author's own

Table 3 presents a detailed taxonomy of business incubators, categorised based on dimensions such as institutional mission, sponsor focus, industry specificity, value propositions, and tenant focus. These classifications provide a useful framework for understanding the diversity and complexity of incubator models, reflecting their adaptability to various objectives, funding structures, and stakeholder needs. However, critical analysis identifies certain gaps and limitations in the existing typologies, necessitating their resolution to enhance both theoretical comprehension and practical implementation.

The classification of business incubators based on institutional mission and objectives, as proposed by Carayannis and Zedtwitz (2005) and Simon and Miller (2022), captures their strategic focus, such as for-profit property development, non-profit development, academic, and regional business incubators. While this dimension provides insight into the operational

priorities of incubators, it often overlooks the dynamic interplay between these objectives and the external environment, such as regional economic conditions or industry trends. The classification also tends to focus on idealised archetypes, which may not fully capture hybrid or evolving models that combine multiple objectives (Adham et al., 2018). For instance, many incubators today blend economic and social missions, particularly in resource-constrained or emerging economies.

The typologies based on sponsorship and partnerships (von Zedtwitz, 2003; Grimaldi and Grandi, 2005; Mian et al., 2016) offer a clear distinction between publicly funded, privately funded, and university-linked incubators. These categories provide valuable insights into how funding sources influence incubator priorities and resource allocation. However, they do not fully address the challenges and opportunities posed by mixed funding models or the increasing reliance on alternative funding mechanisms, such as venture capital and corporate partnerships. Additionally, the typologies do not sufficiently explore how sponsor focus impacts the long-term sustainability and strategic orientation of incubators, particularly in contexts where public funding is diminishing, or private funding is volatile.

Tang et al. (2019) classify incubators by their industry focus, such as technology, manufacturing, and service-based incubators. While this typology highlights the importance of industry alignment in tailoring services to tenant needs, it often lacks granularity in addressing the unique requirements within broad sectors. For example, technology incubators could benefit from further segmentation into subfields such as biotech, fintech, or green technology, as each has distinct needs for expertise, networks, and resources. Moreover, this classification does not account for the growing prevalence of multisector or cross-industry incubators, which challenge traditional sector-specific categorisations.

Bruneel et al. (2012) propose a generational framework of incubators based on value

propositions, identifying first-generation (shared resources), second-generation (coaching and training), and third generation (network-building) models. While this evolutionary perspective captures the increasing complexity of incubator services, it assumes a linear progression that may not reflect the realities of all contexts. For instance, some incubators in resource-constrained regions continue to operate as first-generation models due to infrastructural and institutional limitations. Furthermore, the framework does not address the overlap and integration of value propositions across generations, as many modern incubators offer a combination of services that span multiple categories.

Mrkajic's (2017) typology, which classifies incubators based on the business incubation models (NIM and SIM) aligned with nascent and seed-stage ventures, provides a useful framework for understanding how incubators target startups at different developmental stages. However, it does not adequately address the needs of more mature startups or those transitioning to growth and scale-up phases. This limitation underscores a gap in research on how incubators evolve their services to support startups throughout their lifecycle, rather than focusing exclusively on early-stage development.

Another stream in business incubator typology literature is a university business incubator, represented by 15 studies in the study's literature review sample (Appendix 2). University business incubators enable faculty, staff, and students to engage in knowledge transfers and navigate the processes of startup initiation, intellectual property management, and innovation commercialisation (Audretsch & Belitski, 2019; Audretsch, Belitski, & Caiazza, 2021; Sohail et al., 2023). This body of literature encompasses research on technological transfer offices and knowledge centres, as they have the same objective as university incubators: to assist teachers, students, and staff in initiating and managing their enterprises. The primary objectives of university-based incubators are to commercialise research findings,

facilitate technology transfers (Allen & McCluskey, 1991; Rothaermel & Thursby, 2005; Voisey et al., 2013; Kiran & Bose, 2020; Secundo et al., 2023), and strengthen local and national economies (Grimaldi & Grandi, 2005). A university-based incubator has three particular characteristics: firstly, the university-based incubator distinguishes itself from other forms of business incubators by prioritising the transfer of technological knowledge among its three objectives (Cooper et al., 2012; Tang et al., 2019); secondly, its incubation strategy follows a linear progression from academia to industry or the reverse; and thirdly, universities, governments, or public organisations fund the majority of such incubators (Hallam & DeVora, 2009; Lasrado et al., 2019; Al-edenat & Al Hawamdeh, 2021). University-affiliated incubators integrate academic, industry, and laboratory skills to support startups through entrepreneurship training and information transfer (Etzkowitz, 2002). They assist university students in cultivating their enterprises through pertinent services and resources (Barbero et al., 2014; Cooper et al., 2012; Grimaldi & Grandi, 2005). A university-affiliated incubator typically manifests as a student entrepreneurship centre that provides entrepreneurial training and mentorship to its students (InBIA, 2019). Ultimately, a university-affiliated incubator emphasises knowledge transfer and the commercialisation of new concepts among students and alumni by offering funding opportunities, entrepreneurial training, and industry engagement. University incubators encompass all disciplines but may occasionally impose certain conditions such as social innovation or emerging technology. The government provides some financing, but the university manages the funds and reports to the governmental funding agencies.

Furthermore, von Gao and Hu (2017) observe that certain business incubators showcase the diversity of the incubator phenomenon, proposing the possibility of combining two or more incubator characteristics into a single incubator. The literature refers to this as a

multidimensional taxonomy, meaning that it encompasses more than one dimension such as sponsorship, institutional objectives, and industry. The distinction between private, public, and mixed business incubators lies in whether public entities have full or partial control over the incubator itself (Woolley & MacGregor, 2022). This can occur with some considerable frequency, particularly due to the significance of such business incubators in promoting certain governmental or industry objectives and influencing innovation output, employment, and entrepreneurship.

The variety and range of incubator types and services have heightened the complexity of entrepreneurial support (Messegem et al., 2018). The intricacies in business incubator models and the heightened complexity require a deeper understanding of the various strategic objectives and mechanisms that support the business incubation process, enabling customisation to align with the specific goals of each incubation initiative. Service models and propositions for business incubators have changed over time. Pauwels et al. (2016) suggest a fourth generation of incubators (accelerators). These combine both networking and business assistance, like second and third generation business incubators. *“Accelerators are specialised business incubators characterised by their cyclical, shorter-duration, and cohort-based programmes, in contrast to the continuous, longer-duration support provided by traditional incubators.”* (Galbraith et al., 2019, p. 268) Certain studies classify accelerators as a specific type of incubator (Gliedt et al., 2018; Hausberg & Korreck, 2018), while others identify them as a unique organisational structure defined by a particular array of characteristics based on the services offered to their startup participants (Pauwels et al., 2016). Unlike incubators, accelerators set themselves apart with significantly shorter support programme durations (Cohen 2013b). According to Miller and Bound (2011) and Pauwels et al. (2016), accelerators aim to promote business development by providing intensive, time-constrained support,

without providing physical resources or office space to startups for extended periods. They also have a less focused approach towards venture capitalists as a subsequent financing option.

The accelerator model encompasses intangible services, including mentorship and networking; however, it possesses several distinct characteristics that differentiate it from current incubation methods (Isabelle, 2013). Firstly, as previously mentioned, they do not provide space or office support services over an extended period. Secondly, they generally provide pre-seed funding, typically in return for equity. Third, they exhibit a reduced emphasis on venture capitalists as a subsequent financing avenue, instead fostering closer relationships with company angels and small-scale individual investors. One reason for this disparity is their emphasis on early-stage technological startups, whose experimental costs have considerably decreased over the past decade, as opposed to capital-intensive ventures like university-affiliated technology spin-offs (Pauwels et al., 2016; Crisan et al., 2021). The accelerator model prioritises business development by striving to transform startups into investment-ready enterprises through rigorous mentoring sessions, networking opportunities, a supportive peer-to-peer environment, and an entrepreneurial culture (Christiansen, 2009). It involves time-constrained assistance, often lasting three to six months, emphasising intensive interaction, oversight, and instruction to facilitate swift advancement, but some programmes extend networking help beyond this period (de Klerk et al., 2024). Accelerators are either for-profit or not-for-profit entities integrated within various entrepreneurial ecosystems, functioning as capacity-building “venture development programmes” (Woolley & MacGregor, 2021). Research by Gonzalez-Uribe and Leatherbee (2017) indicates that accelerators frequently fulfil the essential requirements of entrepreneurial ecosystems by offering infrastructure for startup assistance. The accelerator addresses this essential requirement for companies by utilising the entrepreneurial ecosystem’s array of community capital, encompassing entrepreneurial/social,

financial, human, political, physical, and cultural capitals (Bliemel et al., 2019). Entrepreneurs frequently pursue experiences that equip them to establish or cultivate opportunity-driven, innovative, equity-funded, growth-orientated global firms, achieved through acquisition or an initial public offering (Morris et al., 2015). Accelerators provide access to a range of resources, including social networks, finance, genuine training, and management development to assist companies in identifying, evaluating, and capitalising on appealing prospects within a low-risk environment (Bliemel et al., 2019; Miles et al., 2017).

In addition, they may serve as transient entities aimed at cultivating an environment and fostering particular economic activities. An instance of a “purpose-built” accelerator is the Australian Walan Mayinygu programme, which focuses on the Indigenous community and economic development in New South Wales (Saskia de Klerk et al., 2024). This initiative features a three- to four-day “pop-up” programme supported by banks, Indigenous Business Australia, and a regional university. Temporary accelerator programmes fulfil a distinct function by tackling a specific demand or issue in the ecosystem. Upon resolution of the issue or attainment of a specific developmental milestone, these programmes are then frequently disbanded, or altered to meet other requirements or tackle distinct challenges. Similarly, they may collaborate with public or private investment entities, like community development initiatives or private equity firms, to generate investment opportunities (Crişan et al., 2021). Certain accelerator models function in a similar manner to franchises, featuring a unified brand, operational framework, and network, exemplified by TechStars or Founders Institute on a worldwide level, alongside others at the national or regional level.

Although the literature suggests the accelerator model as a novel generation incubation model (Wise & Valliere, 2014), formal analysis of its specific properties and drivers is currently lacking. The limited studies on accelerators are predominantly descriptive and lack a

coherent theoretical framework for analysing the phenomenon (Cohen & Hochberg, 2014; Miller & Bound, 2011). This research does not take into account the accelerator model, as it differs from previous generations of business incubators in many regards, including objectives, sponsorship, process duration, and value propositions.

Mrkajic (2017), in line with previous scholars, proposed a conceptual framework that differentiates business incubation model types based on the stage/level of the incubatees. In line with authors in the entrepreneurial lifecycle (McAdam & Mcadam, 2008; Klerk et al., 2022), he acknowledged two stages of incubatees: the pre-birth stage and the seed stage. Mrkajic (2017) argues that business incubators are better off approaching both groups separately, as each has different needs and capabilities. The study shows that publicly funded and not-for-profit business incubators with a public sponsorship model should support nascent entrepreneurs, as they appear to be in the very early stages of their development. However, those incubators with a profit-seeking mission and private or corporate funding sources are more likely to incubate seed-stage entrepreneurs. He argues that there are several reasons for the need for two separate models that incubate firms in institutionally void contexts. There is a contention that the two models function differently in addressing the externalities of entrepreneurship in emerging countries. Different developmental stages (seed versus nascent) of entrepreneurial firms face these challenges. The author argues that first, early-stage entrepreneurs are far from building their products in the market, and therefore the most important challenge they face is enhancing their business capabilities and skills (Nicholls-Nixon et al., 2021; Harima et al., 2019; Shekar, 2023), which in fact indicates competitive advantage at all stages of a firm's lifecycle (Dutt et al., 2015; Nicholls-Nixon et al., 2021; Wulung et al., 2018). Interestingly, the seed stage of the entrepreneurial lifecycle is also impacted by gaps in institutions, particularly in commercial institutions. At this stage, high-

growth firms should deal with the rough market conditions where they need to launch their services and products (Carayannis & Zedtwitz, 2005). Although these firms are mature, they still face the classic barriers to new venture creation (Baraldi & Havenvid, 2016; Fernandez et al., 2015). In the case of emerging countries, unfavourable regulatory conditions typically impose burdensome bureaucratic procedures, increase the liabilities of entrepreneurs, and diminish their competitiveness by preventing them from acquiring resources and increasing risks (Dutt et al., 2015; Mr. Kajic, 2017; Xiao & North, 2018; Miranda & Borges, 2019). Therefore, an entrepreneur's social capital and cooperative networks can be vital in coping with these voids and difficulties. Mrkajic (2017) posits that seed stage entrepreneurs ought to adopt a business incubation model akin to, or even more advanced than, that of the developed world.

Beyond these taxonomies, several authors have determined certain further categories. For instance, Aernoudt (2004) classifies business incubators according to five categories: mixed, economic development, social, research, and technology business incubators. Proposals for more elaborate classifications include refugees (Harima et al., 2019), academic intrapreneurship incubators (Shekhar, 2023), and virtual and digital business incubators (technology and innovation providers).

Concepts such as digital markets, digital enterprises, digital commerce, digital education, digital organisations, and digital societies increasingly dominate scientific, social, and policy discourse, garnering the attention of prominent research institutions and, indeed, the public. Nowak and Grantham, drawing from a case study of the software industry in California, wrote the initial paper examining a virtual business incubator concept in the United States in 2000. Nowak and Grantham designed this model to enhance the development of sustainable competitive advantages, provide the small company community with industry and management expertise, and provide resources for international marketing, sales, and distribution. The

authors predicted that privately owned and profit-oriented virtual business incubators would generate revenue by acquiring shares in their tenants' enterprises or by providing services to them. Within this framework, the private sector assumes a predominant role, whilst universities and the public sector fulfil auxiliary functions. The emphasis is mostly on domestic and global commerce and markets (Vaz R et al., 2022). Following this, the EQUAL European project established the virtual business incubator DYEKO to promote Greek women's entrepreneurship in the social economy (Tzafestas, 2008). This incubator functions within a four-dimensional framework that includes the provision of initial funding, expertise and training, mentoring, and a range of support services. Due to the European Consortium comprising Greece, Italy, France, and the Czech Republic, entrepreneurs can participate in several collaborative initiatives from these nations, specifically workshops, educational excursions, collaborative group activities, and knowledge exchange. Conversely, Joita, Carutasu, and Botezatu (2010) advocate for a virtual business incubator concept to assist nascent economic entities in Romania. They designed this concept as a knowledge management system (KMS) with a three-tier client-server architecture, where individuals share their experiences, and a committee of professionals periodically validates the techniques offered. The model's data infrastructure functions on three tiers: data, information, and knowledge. Austria developed the European CBVI (cross-border virtual incubator) project in 2012, employing an iterative methodology and analysing questionnaire data (Joita et al., 2010; Pirker & Guetl, 2012). The researchers executed the proposed model within a virtual 3D environment to facilitate three distinct dimensions: knowledge, social connections, and resources. The knowledge dimension enables tenants to acquire expertise in specialised fields either alone or collaboratively through lectures, training sessions, or interactions with professionals. Collaborative e-learning technologies, virtual seminars and workshops, resource sharing, and

skills training via role-playing games facilitate this module. Luik et al. (2019) conducted research in the United Kingdom with the aim of understanding the structural configuration of creative virtual hubs, their diverse incubation processes, and classifying the range of support services they offer to their tenants. The authors employed a two-stage research methodology: first identifying and categorising 25 virtual creative hubs using information from their websites, followed by semi-structured interviews with seven hub organisers and three participants to examine their experiences in depth. The researchers found that the virtual hubs they considered could be used on a global scale, using their virtual nature to increase the number and variety of participants, regardless of location, because they can accommodate both individual and group participants with different business goals and at different stages of business development (Vaz et al., 2022). Concerning the participation fee, virtual business incubators present either complimentary or reduced costs, contingent upon their business models: certain hubs utilise a business-to-customer (B2C) model to directly market their programmes and services to entrepreneurs, while others employ a B2B model to furnish a digital platform that allows various institutions (corporations, government entities, foundations, physical incubator hubs, or universities) to implement their own incubation or acceleration programmes. Additionally, some virtual incubators offer platforms capable of accommodating both models concurrently. Regarding participant incubator interaction, some offer their programmes and services exclusively online, whilst others employ a hybrid model, combining online and in-person engagements. The predominant qualities that characterise their activities include knowledge exchange for participants, which was present in 96% of the analysed hubs. This was followed by the incubation process at 76%, and the enhancement of users' social capital at 46% through access to specialised information and expertise.

Eventually, there is no cohesive model that makes it easy for virtual business incubators to run while their tenants are in digital incubation. However, the examples given above show that they tend to work regardless of physical infrastructures or locations (Harima et al., 2021; Vaz et al., 2022). The operational dimensions frequently exhibit significant variability. Depending on the industries, businesses, or societal sectors in which entrepreneurs operate, Vaz et al. (2022) identified certain aspects that they seem to have in common. The lack of comprehensive research and the fragmentation of existing knowledge in business incubator typology and the model literature hinders the identification of a cohesive model that could assist managers, academics, organisations, and other interested professionals to successfully establish and operate a virtual business incubator (Luik et al., 2019).

There is a need to thoroughly consider incubator types on a macro-level and to reveal the differences between unique features, performance, and the impact of classifications. Barbero et al. (2014) also highlight crucial policy questions, including the optimal number and placement of incubators in a country or region. What is the optimum mix of incubators? And lastly, what proportion of each type would lead to efficient public/policy decisions?

Finally, a small degree of attention has been given to the incubatee level/stage while categorising business incubator types. Mrkajic (2017) explicitly elaborates upon two distinct incubatee stages within the specific context of a developing country with institutional gaps, so we are therefore unable to generalise the results of his research to any other countries or groups of incubators. In fact, the literature on institutional voids explains failures as sub- or non-performance due to barriers that impede individuals and organisations from fulfilling their functions (Doh & Boddewyn, 2011). These slacks are present in all countries, but the extent of institutional voids differs according to both country and region. Therefore, there is a need for

more complex business incubator models and typologies. The following section will delve into the research stream centred on performance studies of business incubators and incubatees.

1.6 Business Incubators and Incubatee Performance Studies

The research stream that focuses on the performance studies of business incubators and incubatees aims to assess the effectiveness of business incubation and its impact on both the incubators and the firms they assist. Mian et al. (2016) describe performance studies as planned investigations aimed at understanding the effectiveness of incubators and the strategies used by the businesses they assist in growing, ensuring their survival and competitiveness in the market. These studies use a variety of methods and metrics to rate the effectiveness of business incubation models. They consider things like the number of new businesses started, their ability to innovate, their ability to make money, and their overall impact on society and the economy (Hackett & Dilts, 2004; Mian et al., 2016).

A review of the relevant literature reveals a range of qualitative and quantitative approaches that have been used to capture critical performance indicators. These include tenant survival rates, funding acquisition, job creation, and innovation outputs, as well as softer measures such as knowledge transfer, network building, and stakeholder satisfaction (Grimaldi & Grandi, 2005; Bruneel et al., 2012). Such studies provide insights into the key determinants of success and failure in business incubation, which has valuable implications for the design and management of more effective incubators. The review identified 72 studies, with 24 deemed particularly relevant to this research stream (Appendix 2). These studies highlighted factors with a significant influence on the advancement and enhancement of business incubators, bridging the gap between theoretical frameworks and empirical evidence.

Since the early 1970s, researchers have conducted research on business incubators, with Money (1970) recognising a quantitative assessment of American science parks as one of the first significant contributions to the field (Scwartz & Hornych, 2010; Patton, 2013; Shekhar, 2023). This study established the premise that firms within business incubators outperformed those outside in terms of increased turnover and enhanced survival rates (Autio & Klofsten, 1998; Yusubova et al., 2019). Numerous assessment studies (e.g., Philips, 2002; Pena, 2004; Ayatse et al., 2017; Kiani et al., 2019; Vilares et al., 2020) have addressed the critical topic of survival rates in the field. The reality that 90% of business incubators receive some level of public funding (Abetti, 2004; Qi et al., 2023) may influence the use of survival rates to assess the efficacy of these incubators, requiring their management to prove to the policymakers providing this funding that they are achieving a return on investment. Entrepreneurial and startup survival rates are regarded as one of these markers. This could suggest that the majority of business incubation research has focused on evaluating public business incubator programmes, which has resulted in a lack of foundational contributions to the broader research domain. Organisations like the National Business Incubation Network in the United States and the European Business Incubation Network in Europe typically conduct non-scientific or non-academic evaluation studies. Studies conducted by these practitioners frequently assert that the incubatee survival rates exceed 80% (Bearse, 1998; M'Chirgui et al., 2018). Alternative investigations have reported 55% less favourable survival rates (Dilts & Hackett, 2004a). Bager, Hancock, and Madsen (2004) indicate that the survival rates of nascent startup enterprises typically range from 25% to 40%, contingent upon several macroeconomic circumstances.

Comparing entrepreneurs who work in and out of business incubators is an intriguing approach because it illustrates the differences between the two groups and the direct impact of

the business incubator (Hong et al., 2019). This strategy has faced criticism due to the challenges in establishing a representative control group of companies and entrepreneurs outside the business incubators, and the implementation of screening practices introduces a significant selection bias (Sherman & Chappell, 1998; Fukugawa, 2018; Wu et al., 2023).

Selection bias, which employs a thorough screening and selection procedure to identify the most promising startup companies and entrepreneurs for the incubation programmes, has similarly questioned the evaluation of business incubators based on survival rates (Braun & Suoranta, 2024). Therefore, one could argue that only the most promising companies and entrepreneurs gain admission to business incubators, thereby influencing survival rates. Therefore, the enterprises and entrepreneurs within business incubators are neither representative nor comparable to the entities and entrepreneurs they contrast with (Udell, 1990; Binsawad et al., 2019). Bearse (1998) likens this issue to the admission process at Harvard University, questioning whether Harvard's success stems from its educational offerings or from its practice of selecting only the most promising students likely to excel. Evaluative studies frequently overlook this discourse, yet some have advanced it further.

Philips (2002) asserts that one method to mitigate screening bias is to use a control group of rejected companies and entrepreneurs for comparison with those accepted into the business incubator. Rotation (Aernoudt, 2004; Capatina et al., 2023) and graduation rates (Peters et al., 2004; Tritoasmoro et al., 2022) are two other ways that studies have found to measure the effects of business incubators. These studies demonstrate how business incubators supplant established businesses, as older ones cease operations due to graduation or growth. The use of graduation rates as an evaluative criterion is questionable due to its dependence on factors like the deadline for a company's exit from the business incubator, which varies according to incubation phase. Evaluating business incubation success solely according to the

number of graduating businesses may be misleading, as all incubatees have undergone a screening procedure and so do not represent a random sample (Zhang & Sonobe, 2011).

Moreover, studies indicate that business incubation managers assert that only high-performing graduate businesses are considered in graduation rate-related analyses (Peters et al., 2004; Redondo & Camarero, 2017). Furthermore, it is crucial to examine whether graduation rates correlate with venture growth, which ought to be a primary target for business incubators. Nonetheless, Bergek and Norrman (2008) argue that evaluations frequently overlook variations in the methods of business incubators, which may be evident in the screening processes for prospective entrepreneurs. Lindelöf and Löfsten (2003) employed an on-and-off (science-park) methodology, which they recognised as having limitations due to the aforementioned methodological issues. Nonetheless, their findings indicated that the incubatees appeared more driven to evolve and progress compared to the control group of entrepreneurs external to the science park. Consequently, various assessment studies have highlighted distinct success and failure criteria for entrepreneurs and firms within business incubators.

The existence of business incubators is considered conducive to the growth and performance of high-growth firms through the advantages of network building, absorptive capacity, knowledge accumulation, funding support and access, buffering external resources (Patton, 2013; Kiran & Bose, 2020; Schwartz & Hornyk, 2010; Lin et al., 2014; Xiao & North, 2017; Fukugawa, 2018; Chan & lao, 2005; Wu et al, 2023), fostering innovation activities in the region (Soetanto & Jack, 2016; Ratinho & Henriques, 2010; Dvoulety et al., 2018) and nurturing entrepreneurial ventures through building an entrepreneurial mindset and environment (Tritoasmoro et al., 2022; Ikebuaki & Dinbabo, 2018; Redondo & Camamero, 2017), and access to foreign market entries/internationalisation (van Weele et al., 2018;

Gretzinger et al., 2021).

The literature argues that performance of business incubators is influenced by several contributing factors such as: a) the number of incubatees and their socio demographics/background (Bacalan et al., 2019); b) specific aspects of the context (social-economic development level of country/regional/city) (Xiao & North, 2017); c) business incubators' value propositions and delivery capabilities (incubator capacity, business education support, funding options, university linkages) (Kiran & Bose, 2020; Schwartz & Hornyh, 2010; David-West et al., 2018; Lasrado et al., 2016); and d) networking and support from various stakeholders, including both public and private organisations (Wu et al., 2023; We et al., 2022; Soetanto & Jack, 2011; Oberg et al., 2020). Interestingly, available studies are homogeneous as they use diverse methodological approaches and focus on different performance measures. Despite the growth of research on business incubation performance and impact studies, there is no agreement on the definition of success in terms of efficient measures and quality, nor on which variables have a better impact on tenants/incubatees. In addition, there is no universal consensus on whether specific value propositions provided by business incubators to incubatees result in a higher level of innovation performance or growth (Hu et al., 2023). One could argue that the availability of services provided by business incubators closely correlates with the level of innovation activity and observed growth in high-growth firms (Xiao & North, 2017). However, it is important to note that correlations do not imply causation. This leads to the perspective that there may be lower levels of efficacy within the regional incubation system (Loganathan & Subrahmanya, 2022; Fernandez et al., 2015; Qi et al., 2023). Research indicates that business incubators significantly provide high-growth firms with tangible support in the form of property-based resources (Qi et al., 2023). However, Qi et al. (2023) argue that beyond these tangible resources, business incubators' "quality" of

business assistance serves as a more meaningful measure of incubation performance. Measures like funding access (Xiao & North, 2018) and network building (Wei et al., 2022; Wu et al., 2023) could be used to assess such quality. Merely offering binary support is inadequate for business incubators to attain effective outcomes. It is crucial to furnish new ventures with tangible support alongside comprehensive business guidance. This approach jump-starts high-growth firms by assisting them in securing capital, building networks, exploring resources, and refining their commercial strategies and business objectives (Dutt et al., 2015; Main et al., 2016; Lasrado et al., 2016; Hausberg & Koreck, 2020).

Ahmad and Ingle (2013) note that there are two factions in business incubation assessment studies: one asserts that business incubators significantly mitigate the risks associated with launching entrepreneurial ventures, while the other argues that business incubators are ineffective and represent a misallocation of public funds. Garibay et al. (2013) assert that research on business incubators is significant, especially in the post-recession economy. However, they also highlight the lack of understanding regarding the true economic value of these incubators, particularly in terms of the economic performance of incubatees and their impact on the surrounding region. In their 2013 review, Al-Mubarak and Busler suggest that business incubators positively influence economic development by facilitating regional growth through job creation, aiding the expansion of new enterprises, and fostering technological innovation and industrial advancements.

By contrast, several authors (Ratinho & Henriques, 2010; Mrkajic, 2017; Dvoulety et al., 2018; Gorackowska, 2020; Qi et al., 2023) propose that business incubators only contribute to economic growth in emerging economies to a limited extent. Conversely, Al-Mubarak and Busler (2013) contend that the widespread establishment of business incubators in China during the 1990s played a crucial role in the nation's transition from a socialist society

to a contemporary market economy, as these incubators facilitated the promotion of a culture of innovation and the commercialisation of technology and research. Scholars such as Hansen et al. (2000) and Hong et al. (2019) have emphasised that simply placing entrepreneurs in business incubators does not guarantee their success, and they have questioned the validity of the business incubator concept beyond their adaptable office environments and administrative amenities. Previous research indicated that a majority of entrepreneurs, in some instances by up to 87%, would have initiated their ventures independently of a business incubator (Allen & Rahman, 1985).

Ana Rosado-Cubero et al. (2023) argue that there is insufficient evidence to support the assertion that business incubators significantly reduce unemployment. They also argue that other firms and entrepreneurs would have established the jobs created by business incubators regardless of their existence. However, Xiao & North (2018) assert that the screening process, services, and networks provided by business incubators directly influence entrepreneurs and startup enterprises. However, the number of graduates from these incubators serves merely as a rudimentary indicator of their capacity to expedite the entrepreneurial progression of the incubatees.

David-West et al. (2018) note that increased learning by entrepreneurs, particularly insights gained from business incubators, correlates with prolonged firm tenure. In support of this, Pena's (2004) research into 114 startup companies indicates that the sole major factors influencing the companies' growth were the management training and support services provided by business incubators. While these studies highlight the value of business incubators in fostering entrepreneurial growth, they may overlook other critical factors such as market dynamics, access to funding, and the entrepreneurs' own resilience, which can also significantly impact firm longevity and success.

Hansson (2007) argue that researchers have assessed research parks, including business incubators, using two methodologies. One method is to quantify economic impacts by examining the growth in profits and employment of incubatees, as well as the number of newly established companies, among other factors. The alternative approach relies on various forms of comparative case studies that examine the internal processes of the incubatees and their interactions with the business incubators. Scholars also state that to answer research questions about the effects of business incubators and to look into the phenomenon in the real world, researchers should use a mix of quantitative and qualitative methods along with data from archives and databases (Lin et al., 2014; Xiao & North, 2018; Tritoasmoro et al., 2022). Li et al. (2024) assert that, despite extensive literature on the significance and influence of business incubators, definitive studies confirming their efficacy as economic development instruments for fostering entrepreneurial enterprises are lacking.

Van der Kwast (2022) indicates that the literature on business incubation has yet to provide studies elucidating the relationship between the resources utilised in business incubators and their resultant outputs. Additionally, Jiang et al. (2022) have called for more research on the use of experimental methods to explain the effects of business incubators because the current evaluation and assessment literature does not consider appropriate methods. Yu and Nijkamp (2009, p. 6) highlight this by stating: *“Despite the global endorsement of business incubators by policymakers as the ultimate solution for entrepreneurship and business development, substantial evidence of their benefits in enhancing the competitiveness of client firms remains elusive.”* The ongoing discourse in the realm of business incubators focuses on their capacity to create conducive environments and networks for entrepreneurial ventures, and fostering enhanced economic growth at the community, regional, or national level.

Similarly, sponsors play a crucial role because different funding bodies have different objectives and, consequently, different performance measures. Additionally, the type of data collected may vary from one funding body to another (Fukugawa, 2018). For example, in a university-based incubator, the manager might prioritise a high survival rate as the primary criterion for success. However, the university's perspective suggests that unless a significant number of graduates secure employment, this singular metric may not accurately reflect the university's effectiveness (Redondo & Camarero, 2017). Additionally, the challenges of matching samples (groups of incubatees against control groups) in evaluative work are compounded by the lack of standardisation in success measures and measurements, which complicates effective evaluation (M'Chirgul et al., 2018).

Furthermore, Ikebuaku and Dinbabo (2018) have argued that assessing the success of business incubation should go beyond statistical outputs and encompass additional aspects of effectiveness, such as the “soft” aspects of business incubation output. In the realm of university business incubation, incubators are instrumental in nurturing entrepreneurial skills and supporting projects for both students and graduates (Ikebuaku & Dinbabo, 2018; Tritoasmoro et al. 2022). While these perspectives emphasise the broader, qualitative contributions of business incubators, they may underestimate the challenges of measuring “soft” outcomes such as the entrepreneurial mindset and skill development, which are often subjective and context-dependent, making their impact harder to quantify and compare across different settings.

Kiran and Bose (2020) highlight that the majority of new ventures utilise student interns, who constitute a workforce comprised of students, and indirectly gain expertise through teaching staff and administrators. This approach apparently aims to minimise employment costs by leveraging student labour. Lasrado et al. (2016) note empirically

significant evidence indicating that incubators strongly affiliated with universities tend to outperform others. Conversely, Cooper et al. (2012) state that there is no discernible difference between government and university incubators regarding their contribution to incubatees' success. They further assert that the quality of services offered by an incubator primarily determines the number of graduates, not its proximity to a university or institutional affiliation.

The previous section highlights the diversity of business incubator typologies, each with its own sponsorship, institutional missions, value propositions, and incubatee levels, indicating a wide range of business incubators. Therefore, identifying a common tool to assess business incubator performance is challenging for incubation policymakers as well as incubator managers and incubated firms. For instance, Gao and Hu (2017) contend that the government primarily funds Chinese business incubators, indicating a lack of profit orientation. Scholars recommend changing this model to a hybrid approach as this will enhance the level of professionalisation. This automatically enables the business incubator to maintain its connections with the government, access resources, promote new ventures, and achieve financial self-sustainability.

The impact of specific elements of business incubators on incubatees remains an unanswered question. Scholars claim that business incubators can contribute to the growth of new ventures based on the support mechanisms they provide (Lin et al., 2014; Kiran & Bose, 2020; Oberg et al., 2020). However, they also argue that internal and external variables make it challenging to measure how and what elements of business incubators benefit the development of high-growth firms. The difficulty in assessing the value of economic indicators, though, does not mean that business incubators do not produce value for the incubatees. The major evaluators of business incubators should be the incubatees that participate in the business incubation programme (Bacalan et al., 2019). Instead of focusing on

the business incubator itself, scholars should link its services to the survival rates of incubated firms. The performance research on business incubators is departing from the traditional approach of conducting performance- and impact-based research solely based on financial measures, as scholars have recognised the limitations of this approach within the context of business incubators (Bacalan et al., 2019). Few researchers have conducted studies on how incubatees progress in business incubators, providing a clearer understanding of how they experience the incubation process. For instance, Freire et al. (2022) conducted a study of incubatees in Brazil, investigating the perceptions of incubatees in relation to business incubators' value propositions to them. However, the research does not reveal the perception of each element of business incubator services; rather, scholars concentrated on the quality and significance of specific services offered by business incubators. Findings indicate that incubatees agreed that the majority of the business incubators' services were important, but the incubators did not meet their expectations. Chan and Lau (2005) propose an evaluation framework for technology business incubators in Chinese science parks, arguing that the general performance assessment metrics employed by these incubators are subject to debate. They emphasise that incubatees should align their stage of development with their current needs during the incubation programme, and the business incubator should prioritise its services based on the firms' development processes. Despite the relatively young age of the business incubation field, it has come to recognise the importance of business incubator performance studies, particularly those that emphasise the incubatee's perspective. One of the business incubator's founding research streams clearly focuses on the effects and performance of these incubators, specifically examining their effectiveness in relation to both hard and soft measures.

Another foundational study domain within the business incubation sector has focused on the benefits and impacts of business incubators, specifically assessing their efficacy concerning various economic metrics. Wang et al. (2020) argue that existing business incubators are essential for innovation activities; however, the existing literature has not elucidated its impact on the relationship between business incubator capacity and regional/national innovation. Although scholars acknowledge the crucial significance of business incubators in fostering regional innovation, the majority of studies to date have not adequately examined the internal capacity of these incubators (Wang et al., 2020). Consequently, there is an absence of clarity regarding the mechanisms through which business incubator capacities influence regional/national economies (Lamine et al., 2016; Wang et al., 2020; Tritoasmoro et al., 2022). Despite several assessments and performance studies, no research has definitively established whether business incubators exert an economic influence on the incubatees or the surrounding geographical area. Therefore, one could argue that future research on business incubation should shift its focus. Despite numerous assessment and performance-related studies, there remains no consensus on the impact of business incubators.

Eventually, business incubators utilise various criteria to evaluate their effectiveness in aiding startup enterprises, or entrepreneurs, in achieving successful business initiatives. Table 4 provides a detailed overview of key dimensions for evaluating business incubators, which are organised into three categories: processes and operations, functions and management, and impact assessment. These categories outline essential metrics and benchmarks that highlight the diverse roles and effectiveness of business incubators. However, critical review reveals significant gaps in the existing frameworks, particularly regarding their adaptability to region-, culture-, and industry-specific contexts.

Table 4 - Performance standards of business incubators

Business incubator process and operations	
1	Type and number of stakeholders (Ayatse et al., 2017; Azadnia et al., 2022).
2	Type and quantity of incubator units (Arlotto et al., 2011; Longo et al., 2023).
3	The type and number of incubatees/client companies (Bacalan et al., 2019; Freire et al., 2022).
4	Funding/sponsorship sources (Xiao & North, 2018; Hausberg & Korrek, 2021).
Business incubator functions, advancement, and management	
5	Incubator occupancy turnover/rates (Galieva & Fuschi, 2018; Fukugawa, 2018; Yusubova et al., 2019)
6	The pricing and scope of business support services (Fernandes et al., 2017).
7	Admission criteria/selection (Tritoasmoro et al., 2022; Capatina et al., 2023)
8	Type and number of incubator staff (Schwartz, 2013; Dvoulety et al., 2018).
9	Business incubator performance/impact monitoring and screening indicators (Kiran & Bose, 2020).
Assessment of the incubator's impacts and services	
10	Job creation and incubatee performance (Hong et al., 2018)
11	The number of graduates in the local area (Capatina et al., 2023)
12	The value contributed by the operations of incubators (Al Mubarak & Busler, 2013).

Source: Author's own

The emphasis on public-private partnerships as a critical factor for incubator success highlights the importance of stakeholder engagement in aligning operational strategies with regional development goals (Ayatse et al., 2017; Azadnia et al., 2022). However, there has been insufficient exploration of the conflicts that may arise from divergent stakeholder priorities, which can impede resource allocation and decision-making processes. For example, public sector goals often emphasise inclusivity, while private sponsors may prioritise profitability, creating tension in incubator objectives. The role of facility type, number, and location in determining cost efficiency and scalability is well documented (Arlotto et al., 2011; Longo et al., 2023). Nevertheless, the analysis often neglects the interplay between facility

location and regional entrepreneurial ecosystems. For instance, the literature fails to adequately address the unique challenges that incubators in rural or underserved areas face, such as attracting high-potential startups. The focus on the type and number of tenant companies as a measure of incubator classification and performance is valuable (Bacalan et al., 2019; Freire et al., 2022). However, these metrics do not sufficiently account for the dynamic nature of startups, particularly as their needs evolve during the incubation process. Furthermore, the impact of tenant diversity on peer-to-peer learning and collaboration within incubators remains underexplored. The evaluation of financial sustainability through metrics like breakeven levels and public subsidies is critical (Xiao & North, 2018; Hausberg & Korrek, 2021). However, the growing reliance on mixed funding models and venture capital raises questions about long-term viability. The literature also lacks insights into how shifts in funding structures influence incubator strategies and tenant outcomes (Ahmad & Thornberry, 2018).

Metrics such as occupancy and tenant turnover rates serve as indicators of incubator attractiveness and operational efficiency (Galieva & Fuschi, 2018; Fukugawa, 2018). Despite their importance, these metrics fail to capture the quality of services provided or the outcomes achieved by tenants. Additionally, high turnover rates might indicate either operational inefficiencies or the successful graduation of startups, creating ambiguity in interpretation. The classification of support services into corporate financing, technological assistance, consultancy, and education (Fernandes et al., 2017) provides a foundational framework. However, it does not address variations in service quality or accessibility, particularly in underserved regions. Metrics like time spent by managers advising tenants are useful but do not adequately reflect the depth or effectiveness of these interactions. Clear benchmarks for tenant entry and exit are essential to maintaining operational efficiency (Tritoasmoro et al., 2022; Capatina et al., 2023). However, stringent criteria may exclude high-potential but under-

resourced startups, limiting the inclusivity of incubators. Conversely, lenient criteria may lead to inefficiencies and resource strain. The ratio of staff to clients and the quality of management teams are significant performance indicators (Schwartz, 2013; Dvoulety et al., 2018). Nevertheless, the literature seldom examines the specific skills and expertise required for effective management in different types of incubators, such as those focused on technology or social entrepreneurship. Soliciting client feedback and adhering to quality standards are fundamental to continuous improvement (Kiran & Bose, 2020). Despite this, the mechanisms for systematically incorporating feedback into decision making and service design remain underdeveloped, limiting the ability of incubators to adapt dynamically to client needs.

Indicators such as tenant survival rates, employment growth, and wealth generation are widely used to evaluate the short- and long-term impacts of incubators (Robinson & Stubberud, 2014; Hong et al., 2018). However, these metrics often fail to account for the broader social and economic contributions of startups, such as fostering innovation ecosystems or addressing societal challenges. Tracking the outcomes of graduate startups in local economies provides insights into the sustainability and regional benefits of incubators (Capatina et al., 2023). Nevertheless, there is limited exploration of the factors influencing graduate retention in the region, which is critical to understanding the broader developmental impact. The evaluation of incubator efficiency based on client outcomes is an essential metric (Al Mubarak & Busler, 2013). However, the analysis often lacks a multidimensional perspective that considers intangible contributions such as fostering entrepreneurial culture and enhancing social capital (Redondo & Camarero, 2019).

Table 4 offers a robust approach to assessing the performance of incubatees and business incubators by providing a comprehensive set of metrics that capture key operational, functional, and impact-related dimensions. However, while these metrics collectively provide

valuable insights, relying on individual metrics in isolation is insufficient for a holistic evaluation. The complexities and multifaceted nature of business incubators require an integrated approach that considers the interplay between different indicators. This ensures a more nuanced understanding of how incubators contribute to entrepreneurial success and economic development within their specific contexts.

The following section will explore the role of business incubators as institutional intermediaries, review relevant literature, and connect these insights to institutional theories so as to provide a deeper understanding of their functions and impacts.

1.7 Business Incubators as Institutional Intermediaries

Previous sections demonstrate that research on business incubators has consistently focused on various types of incubators and their key success factors, particularly in relation to the experiences and perceptions of the incubated businesses (Patton, 2013; Kiran & Bose, 2020; Schwartz & Hornyh, 2010; Lin et al., 2014; Xiao & North, 2017; Fukugawa, 2018; Chan & Lao, 2005; Wu et al., 2023). This study specifically examines business incubators as institutional intermediaries, who play a crucial role in helping firms navigate institutional voids across various contexts. The review identified 13 of the 72 included studies as relevant to this third research stream (Appendix 2). Scholars have investigated various types of institutional intermediaries, including business groups, family firms, social entrepreneurs, and business incubators, all of which contribute to strengthening market infrastructure and supporting business development initiatives (Dutt et al., 2016; Mrkajic, 2017; Dvoulety et al., 2018; Ahmed et al., 2020; Loganathan & Subrahmanya, 2022; Sydow et al., 2022). An expanding body of research emphasises the role of business incubators in connecting firms with essential resources and expertise that are often challenging or costly to acquire through open market

mechanisms. This function is particularly critical in emerging markets, where market-supporting institutions are often underdeveloped or absent, making business incubators indispensable in fostering entrepreneurial growth and bridging resource gaps (Gao et al., 2021).

Business incubators offer essential intermediary services that promote the development of incubatee clients. According to researchers (Mair et al., 2012; Dutt et al., 2016), business incubators act as institutional intermediaries, connecting startup clients with a variety of market participants such as investors and customers. They also provide internal physical and intellectual resources (Phan et al., 2005; Rothaermel and Thursby, 2005). Acquiring these connections and resources in the open market is frequently challenging and expensive for startup clients, particularly when contending with weak market institutions and insufficient help from local intermediaries (Mair et al., 2012). Business incubators, as institutional mediators, leverage their expertise and network resources to compensate for the inadequacies of market institutions commonly found in emerging markets (Aernoudt, 2004; Khanna & Palepu, 2010).

From an institutional perspective, current research on business incubators mostly emphasises their proficiency in navigating location-specific institutional contexts, usually within a singular emerging economy (e.g., Mair et al., 2012; Dutt et al., 2016; Bhatt et al., 2022). Location-specific institutional expertise is inadequate for business incubators in terms of supporting the growth of incubatees with global scaling potential. Given that numerous startups exhibit novel innovations with significant worldwide success potential (Zahra et al., 2000; Cannone & Ughetto, 2014), it is essential to comprehend how business incubators enhance their intermediate functions both locally and beyond the local context.

However, researchers have only begun to explore how, and in what contexts, business incubators as intermediaries carry the potential to accelerate the development of institutions

(Gstraunthaler, 2009; Dutt et al., 2016; Mrkajic, 2017; Sydow et al., 2020; Ahmed et al., 2020; Qi et al., 2023). In their 2016 paper (Academy of Management), Dutt et al. discuss two levels of factors that affect how intermediaries build institutions: (a) the features of the current business environment, and (b) the names of the sponsors of the intermediaries. These factors determine the nature and relative emphasis of business incubator activities aimed at addressing both market and business development gaps. Specifically, they distinguish between “open-system intermediaries,” which aim to generate benefits for parties beyond a well-identified set of participating actors, and “closed-system intermediaries,” which aim to create advantages primarily for the focal participating actors. The authors draw their major arguments from three related streams: institutional theory, which clarifies how institutions function (North, 1990); studies of institutional voids in emerging market economies, which explore the relationship between the commercial institutional environment and institutional voids (Maguire et al., 2004); and the sponsorship literature, including studies of business incubators in emerging markets, which point out the mechanisms by which different organisations’ motivations shape their activities (Amezcuca et al., 2013; Etzkowitz et al., 2005). Dutt et al. (2016) define institutional intermediaries as agents whose actions have the potential to establish commercial institutions enabling actors to engage in business activities. They tried to answer how business incubators as institutional intermediaries create benefits that extend beyond participating actors (entrepreneurs). Likewise, authors expand the empirical scope of the extant literature by examining how a particular type of business incubator addresses gaps in commercial institutions across countries with diverse institutional contexts. It is vital to consider both the incubatee’s development stage and the independent roles of managers that operate business incubators in emerging markets (Dutt et al., 2016; Mrkajic, 2017; Sydow et al., 2022). Following these studies, Mrkajic (2017) aimed to improve these efforts by developing a

conceptual framework for business incubation models specifically designed for institutionally laggard environments. Furthermore, he advocates for the distinctiveness of this framework compared to the conventional mainstream perspective. He adopted the approach of Amerzcua et al. (2013), utilising the resource dependence theory to propose that business incubators serve as intermediaries between incubated entrepreneurial ventures and their business environments. Incubators can influence entrepreneurial ventures in two primary ways. Firstly, they can serve as a buffering intermediary by internally providing the required resources. This may shield the incubated ventures from potential challenges and risks originating from the external environment (Mrkajic, 2017). Research suggests that countries with institutional gaps require more complex business incubation models. Specifically, public goods such as fundamental knowledge (non-rivalrous and non-excludable) or collective goods like know-how and applied knowledge (non-rivalrous and excludable) are crucial during the initial stages of the entrepreneurial lifecycle. While many countries assume the availability of such resources, institutional voids (Dutt et al., 2016; Dvoulety et al., 2018; Ahmed et al., 2020; Loganathan & Subrahmanya, 2022; Sydow et al., 2022) significantly impact their presence in others. These failures result in a range of negative externalities for entrepreneurship, which are particularly detrimental in developing countries (Sydow et al., 2022). This implies the necessity of business incubation at a very early stage of the entrepreneurial lifecycle, much earlier than in a more institutionally advanced context. Mrkajic (2017) adds to the existing literature on the evolution of incubation models. Firstly, the author highlights a distinct trajectory of incubation models in developing countries, where the overarching institutions supporting entrepreneurs are still in their infancy. He illuminated the voids created by institutional gaps and formulated conceptual arguments that clarified the causes of these disparities. Furthermore, his findings contribute to the literature on sponsorship within the context of intermediaries. In addition, he

suggests that the allocation of resources and other decisions made by incubators are contingent upon the type of sponsorship they receive. However, contrary to their perspective, he argues that more pronounced institutional voids not only alter the distribution of services provided but also necessitate the development of two distinct incubation models. The institutional environment's various externalities influence the increasingly diverse needs of entrepreneurs, making this essential.

Theories about the development of inclusive markets started to emerge (George et al., 2012). A fundamental insight from this research is that inclusive marketplaces frequently do not develop autonomously. The inclination to sustain market exclusion arises from the opposition of prevailing market actors who gain from exclusionary practices (Robinson, 2012). Business incubators, as intermediaries, facilitate interactions among actors who would otherwise be unable to engage in transactions (Dutt et al., 2016), serving a pivotal role in surmounting this resistance and fostering more inclusive markets (Mair et al., 2012; Sutter et al., 2017).

Eventually, intermediaries will perform two fundamental functions in establishing favourable markets: capability enhancement and the transformation of the entrepreneurial environment (McDermott et al., 2009; Dutt et al., 2016). Capability building is crucial as entrepreneurs may lack the requisite competencies to engage effectively in markets (Bhatt et al., 2019; Hota et al., 2019; Sutter et al., 2017). Capability development frequently encompasses training, knowledge enhancement, and the provision of additional resources, including financial assistance or certification (Armanios et al., 2017; McDermott et al., 2009).

Nonetheless, the enhancement of capabilities within small inexperienced entrepreneurial groups may provoke opposition from dominant market players (Qureshi et al., 2018). Consequently, business incubators as intermediaries may need to confront prevailing

groupings while fostering capabilities among the underprivileged. On the other hand, Sydow et al. (2022) investigate how commercial entrepreneurs navigate the challenges posed by significant institutional voids in developing economies, using business incubators as institutional intermediaries. They found that entrepreneurs devised “workaround” strategies to overcome these voids rather than allowing them to hinder them. Through a field study involving 47 commercially oriented entrepreneurs in Kenya, they aimed to expand their scholarly understanding of these strategies and highlight the crucial role of entrepreneurs as micro-institutional agents. By leveraging such practices, entrepreneurs can not only pursue their business goals but also contribute to the development of their country’s institutional infrastructure in the process. They proposed a grounded model that theoretically elaborates on the notion that entrepreneurs with commercial objectives can serve as micro-institutional agents in developing economies. Rather than passively waiting for institutional fixes, their research demonstrates that institutional intermediaries and institutional agents can actively contribute to establishing the framework of their country’s institutional infrastructure. This may involve advocating for new laws and regulations, forming formal associations and community groups, and indeed other proactive measures. Many developing economies, particularly in sub-Saharan Africa, face limited intermediary support and unreliability in both formal and informal institutions. This, as suggested by Webb et al. (2019), creates significant pressures for entrepreneurs to resort to subsistence activities or, worse, engage in the informal economy or criminal behaviour. Interestingly, the authors pointed out that severe institutional voids actually stimulated institutional intermediaries and agents to hybridise their goals in order to capitalise on emerging opportunities to create blended value.

Cheng et al. (2021) conducted research on the role of business incubators as legitimacy-building institutions that enable better business environments for incubatees. They claimed that

looking at the activities and results of incubation across the incubators they studied shows that business incubators with different levels of connections to other players in the entrepreneurial ecosystem play different roles in proving the legitimacy of the companies they support. Specifically, while both government-associated and non-government-related incubators contribute to enhancing the socio-political legitimacy of their incubatees, non-government-associated incubators are more effective in shaping the cognitive legitimacy of their incubatees. Cheng et al. (2021) assert that governments act as close and reliable collaborators with incubators, providing affordable or even free workspace rent, financial assistance, and subsidies. Occasionally, the government assigns specialists to oversee the management of the incubators. Business incubators primarily serve as a conduit for new ventures to access external entrepreneurial resources, thereby playing a crucial role in building legitimacy. Likewise, stakeholders within the external incubation network can endorse incubatees institutionally, further solidifying their legitimacy. Cheng et al. (2021) validate the “accepting–legitimising” mechanism documented in the extant literature and underscore the significance of business incubators as a major institutional intermediary in this legitimacy-building process. Authors highlight the significance of incubators’ connections to various external incubation network stakeholders, noting that these stakeholders, along with their relationships with incubators, play distinct roles in shaping the cognitive and socio-political legitimacy of incubatees.

The entrepreneurship ecosystem literature acknowledges that business incubators, via their network services, can serve as system builders (Stam, 2015; van Weele et al., 2018a, b). By facilitating a network that would have remained underdeveloped or nonviable without their intervention (Dagnino et al., 2016; Paquin & Howard-Grenville, 2013), business incubators partially assume the role of an intermediary within innovation systems (Howells, 2006). Business incubators possess various support mechanisms to achieve this. Bruneel et al. (2012)

categorise these mechanisms as generations of incubators that emphasise business learning, the establishment of economies of scale, and networking. Researchers have analysed the practices within business incubators and classified the support mechanisms as direct support (Amezcu et al., 2013), networking (Bergek & Norrman, 2008; Patton, 2013), community-building (Bøllingtoft & Ulhøi, 2005; Hughes et al., 2007), and occasionally field-building (Amezcu et al., 2013).

To conclude, business incubators can compensate for absent market institutions by linking startup clients with sources of finance, facilities, and market services that facilitate firm expansion. They may serve as intermediaries for their clients in navigating external institutional contexts, engaging with institutional stakeholders, such as advocating for reduced business taxes and elucidating investment protocols, while also participating in institutionally relevant activities. Furthermore, they can circumvent the external market and directly provide physical and intellectual resources internally to startup clients, including office space and management training.

Research on business incubators does not typically explore the possibility of adapting these intermediate activities to an emerging context, which could help startup clients connect with potential global knowledge and learning resources. The institutional conditions encountered by startup clients in their respective locales closely link to the institutional intermediary function of business incubators. In an environment where institutional voids are prevalent, these pose challenges for entrepreneurs seeking to grow, extending beyond local institutional restrictions. The next section will highlight best practices from countries that have successfully implemented business incubation policies, as well as examine cases where such policies have fallen short.

1.8 Lessons to be Learned from International Experience

Upon analysing the state of business incubation across various nations, the United States emerges as a pioneer, possessing the largest and one of the oldest incubation systems globally, which also influences international methodologies pertaining to business incubation (Chandra & Fealey, 2009; Woolley & MacGregor, 2022). In Europe, Germany hosts the largest network of business incubators, characterised by a concentration on high-tech tenant enterprises and strong connections with research and development organisations and universities (Aerts et al., 2007; Harima et al., 2019). Furthermore, the United States recorded the origin of business incubation in 1959 in New York. Following this, the country saw a rapid increase in the number of incubators. The primary purpose of these business incubators was to provide their occupants with financial support and services, such as preparing documentation for grants from various governmental agencies and developing suitable business plans to demonstrate credible financial projections for securing bank loans (Chandra & Fealey, 2009; Woolley & MacGregor, 2022). The United States government, at the local, state, and federal levels, plays a vital role in the policy implementation processes affecting the business incubation sector, which impacts startup companies and entrepreneurs. State governments in the country, through legislative modifications aimed at fostering economic growth and development, play a crucial role in supporting incubators, while federal and local governments assume a secondary role under the auspices of these incubators (Tsaplin & Pozdeeva 2017).

Conversely, in Germany, the primary institution now influencing the nation's economic environment is the German Economic Incubation Centres, referred to as ADT (Gross, 1997). Currently, there are approximately 400 business incubators and innovation centres in the country, whose policy implementation primarily focuses on supporting nascent companies or startups concentrated in “spheres of the future” (i.e., modern services and high technologies).

Research indicates that the latest generation of business incubators emphasises not only technology-based enterprises but also the establishment of business networks, including connections with venture capitalists and other investors (Bruneel et al., 2012; Klofsten et al., 2020). Furthermore, the government's regional development policies, implemented within Germany's incubation industry, have aided numerous incubators in assisting unemployed individuals to establish their own enterprises, facilitating technology transfer through the promotion of spin-offs and supporting regional economic development. This has also facilitated the growth and development of overlooked regions in the country (Middermann & Rashid, 2019). Therefore, the government's involvement is necessary for effective policy implementation in the business incubation sector, as it can facilitate legislative modifications that foster the growth and advancement of entrepreneurs and their enterprises (Tsaplin & Pozdeeva, 2017).

The research by Al-Mubarak & Busler (2013) posits that an incubator serves as a mechanism for the community to support entrepreneurs who possess promising ideas but lack the requisite skills and resources to initiate their business endeavours autonomously and successfully. Numerous nations, including the United States, have employed incubators to assist impoverished communities, promote scientific innovation by facilitating partnerships between businesses and universities, and aid entrepreneurs in enhancing their specialised skills and knowledge through engagement with both large and small business owners (Brivio et al., 2020).

Consequently, it is accurate to assert that governments in numerous nations utilise incubators to stimulate economic expansion and cultivate an entrepreneurial spirit among persons with the assistance of these business incubators. Furthermore, by examining the essential role that incubators play in fostering entrepreneurship and nurturing small enterprises,

we can comprehend the significant connections between entrepreneurship, business incubators, and economic growth (Massey et al., 2014). Ayandibu and Houghton (2017) note that small enterprises frequently contribute to job generation for local populations and facilitate the development of regional and local economic capital, including brands and specialised knowledge. Nonetheless, the deficiency of skills, knowledge, and experience among entrepreneurs frequently exposes small enterprises to the risk of failure within their initial four years of operation (Ismoilov et al., 2020). However, incubators can mitigate the risk of failure by providing startup organisations and small businesses with tangible and intangible benefits, thereby enhancing their survival and success within their specific markets.

The concrete advantages previously delineated that these incubators offer to promote entrepreneurship and assist small enterprises generally encompass shared equipment, meeting rooms, conference facilities, legal counsel, marketing, accounting, secretarial support, technical assistance, and further aid in securing necessary funding and resources (McAdam & McAdam, 2008; Lalkaka & Bishop, 1996). The intangible advantages of these incubators mostly pertain to the spillover effects that facilitate the exchange of knowledge, ideas, and technology; hence, they stimulate entrepreneurship and encourage the establishment of new company ventures. This results in the development of superior products and services for individuals, which subsequently enhances their quality of life (Ferreira et al., 2017).

Given these advantages, we can deduce that the establishment of business incubators is crucial, especially for underdeveloped or emerging economies. This is because it gives entrepreneurs the chance to transform their innovative ideas into new business ventures, which in turn leads to the development of new products and services, enhanced customer experiences, improved living standards, and job creation. This, in turn, enables governments to boost their countries' GDP rates and effectively foster economic growth and development.

Despite the widespread benefits of business incubators, their implementation has not been universally successful. For instance, in certain African nations, such as Nigeria, incubators have faced significant challenges due to weak institutional frameworks, corruption, and insufficient infrastructure, which have limited their impact on entrepreneurial growth and innovation (Akinwale et al., 2018). Although South Africa established incubators to address unemployment and support small businesses, many have failed to achieve their objectives due to financial sustainability, limited access to skilled mentors, and an inability to adapt to the specific needs of local entrepreneurs (Adegbite, 2001; Fatoki, 2014). Similarly, in certain regions of Eastern Europe, poorly designed policies and a lack of alignment with local entrepreneurial needs have rendered incubators ineffective in addressing systemic challenges, such as access to funding and market integration (Hannon, 2005). For example, in Poland, business incubators have often struggled due to inadequate public-private collaboration, insufficient integration with universities, and limited venture capital availability, leading to suboptimal outcomes for startups (Mian et al., 2016).

In Latin America, many incubators have failed to deliver meaningful results due to bureaucratic inefficiencies and a lack of long-term vision in government-supported initiatives. In countries such as Brazil and Argentina, incubators often face challenges in sustaining operations and adapting to rapidly changing economic environments, which undermines their capacity to support entrepreneurs effectively (Etzkowitz et al., 2005). These examples underscore the critical need for context-specific strategies, robust institutional support, and alignment with the unique needs of entrepreneurial ecosystems. Without addressing structural challenges and tailoring incubator models to local conditions, the potential of incubators to drive economic growth and foster entrepreneurship remains limited. A deeper understanding of institutional voids and systemic barriers is essential to improving the design,

implementation, and sustainability of business incubation programmes worldwide (Bruneel et al., 2012; North, 1990).

1.9 Future Business Incubator Research

Research on business incubators over the past two decades has significantly advanced our understanding of the services they provide, the value they add, and the role of support organisations in facilitating startup development and growth (Barbero et al., 2014; Chan et al., 2022; Grandi & Grimaldi, 2005; von Zedtwitz & Grimaldi, 2006). This study considers business incubators according to three main areas of the literature: performance studies, typology and model studies, and business incubators as institutional intermediaries. The study examines their classification, evaluation, and interactions with institutions. We conducted a review of the literature to identify these three central streams, focusing on outlining a future research agenda to advance understanding in the field. Following a structured review protocol (Appendix 1), the analysis focused on the most impactful studies, revealing a diversity of approaches and findings across different fields. This methodological rigour ensured a comprehensive examination of the topic, contributing to the development of a coherent framework for further academic inquiry and practical applications in business incubator studies.

The existing literature still contains several significant gaps. Initially, there is a dearth of research on the role of business incubators as institutional intermediaries, which is crucial for systematically investigating business incubator dynamics. Recent studies (Mair et al., 2012; Dutt et al., 2016; Bhatt et al., 2022) have looked at certain parts separately, but they do not offer a full picture of the role of the intermediary. This complicates the study of resource distribution, interpersonal interactions, and the regulation of entrepreneurial ecosystems in

novel contexts. Also, it would be beneficial to compare business incubators with other forms of institutional intermediaries, such as social entrepreneurs or family firms. In addition, there is a need to conduct additional research on how different forms of institutional intermediaries, such as business incubators, interact to shape the development of market infrastructure and business capabilities (Duut et al., 2016). Further investigation is necessary to understand how established institutions, especially in resource-limited settings, might hinder incubatees' operation after initial progress. There is a need to conduct research on the role of business incubators as institutional intermediaries in overcoming institutional barriers to effective market operations. These barriers may include political ties, organised crime, religious norms, entrenched family ties, corruption, and other factors that restrict business flexibility. The review reveals that we cannot statistically generalise most empirical results about business incubators as institutional intermediaries to any other group of incubators or countries.

Similarly, there is a dearth of research on business incubators that outlines the unique characteristics of emerging countries compared to advanced economies. Previous research indicates that business incubators are a crucial component of national and regional innovation systems, contributing significantly to innovation-driven societies (Gawer & Cusumano, 2014). However, the aforementioned research takes a comprehensive approach to the business incubator, consistently highlighting the significance of its supportive role in bridging institutional gaps and its impact on high-growth firms. However, it fails to explain the mechanisms by which this influence manifests through the capacities of business incubators (MrKajic, 2017; Sydow et al., 2022).

Furthermore, when categorising business incubator types, the incubatee level or stage has received little attention. Mrkajic (2017) specifically explained two distinct incubatee stages within the context of a developing country characterised by institutional voids. Therefore, we

cannot generalise the findings of his research to other countries or groups of incubators. In reality, the literature on institutional voids reveals failures attributed to sub- or non-performance, stemming from barriers that hinder individuals and organisations from fulfilling their functions (Doh & Boddewyn, 2011). These shortcomings are present in all countries, albeit to varying extents across regions and nations. Therefore, there is a need to conduct a rigorous analysis and foster a comprehensive understanding of business incubator types and models in emerging countries, an area that has been relatively understudied in the literature. The majority of the papers reviewed employ a single-country analysis to refine the theoretical framework. Scholars could undertake cross-country qualitative analysis, contrasting developed (institutionally developed) and developing (institutionally underdeveloped) countries to allow for a more distinct comparison.

The literature review also showed that most studies focus on industry-specific business incubators or technology-based incubators, over-representing the IT industry, and primarily on incubators located in advanced economies. There is a notable scarcity of research examining this phenomenon in emerging or low-income countries (Gao et al., 2021). Therefore, there are opportunities for research to focus on areas that have not received as much attention, such as environmentally friendly industries (Gliedt et al., 2018), or specific use cases, such as cheap innovation or the use of technology for good. It could also investigate business incubators in various national settings beyond the Western world, such as the SPECA or MENA subregions. The predominant emphasis of business incubator research on developed economies (MrKajic, 2017; Abeuva, 2022) could justify the selection of an emerging economy context, despite the under-representation of developing countries. The predominant focus on the Western world has led to a limited understanding of how national culture and the broader national institutional environment influence business incubator operations. It might be helpful for future research to

consider incubators in a bigger sectorial, regional, and national context. This is especially true now that two new studies claim the role of business incubators in larger entrepreneurial ecosystems has not been given sufficient attention (Wu et al., 2019; Yang et al., 2018). Furthermore, a deeper understanding of incubatees is necessary, both empirically and theoretically. Instead of relying solely on numerical performance and economic impact indicators that provide limited insight into incubatee development, we can achieve this by exploring how the various components of business incubator value propositions enhance the incubatee experience, entrepreneurial process, and development.

The institutional framework clearly influences the intentions and capabilities of entrepreneurs and business incubators (George & Prabhu, 2000; North, 1990), suggesting that institutional slack may be the source of delayed advancement (Hoskisson et al., 2000). The literature suggests that a deficient institutional environment exacerbates challenges, such as market and government failures, that ultimately hinder and obstruct the establishment of new enterprises. This, in turn, intensifies their constraints and liabilities (Acs & Virgill, 2010). Consequently, these gaps produce adverse externalities (i.e., knowledge, networks, failure, and demonstration) for entrepreneurship, as identified by Audretsch et al. (2006). An issue arises over the adequacy of the established business incubator model to meet the demands of entrepreneurs in institutionally deficient environments. Given the increased negative externalities, it seems that the acceleration model's limited emphasis on market expansion and venture progression may be unable to comprehensively meet the requirements of entrepreneurs. Understanding how to more effectively customise business incubators for institutionally deficient environments holds significant potential for improving entrepreneurship ecosystems (Qi et al., 2023).

The evaluation of business incubators and their performance has been a significant

focus in the literature, with studies emphasising metrics such as tenant survival rates, job creation, and economic contributions (Hackett & Dilts, 2004; Bruneel et al., 2012). However, despite these contributions, several critical gaps remain, particularly regarding the depth and scope of performance assessments. Performance studies frequently overlook the contextual factors that influence incubator and incubation outcomes. Variations in institutional environments, industry focus, and cultural norms significantly shape the performance of incubators and their tenants. For instance, incubators operating in resource-constrained settings may prioritise survival-oriented strategies over growth-oriented ones, which traditional metrics may fail to capture (Bhatt et al., 2022). Furthermore, most studies adopt a static approach, evaluating performance at a single point in time rather than examining the long-term trajectories of incubatees. To understand the sustained impacts of incubation on entrepreneurial success and ecosystem development, longitudinal studies are necessary (Fukugawa, 2018).

A significant gap in the literature is the under-representation of incubator performance studies in emerging and developing economies. The majority of research focuses on advanced economies with well-established institutional frameworks (Mrkajic, 2017; Wu et al., 2023). Emerging economies, characterised by institutional voids and unique market challenges, offer a different context for incubator performance. Research in these regions could explore how incubators adapt their strategies to address local constraints and enhance incubated outcomes. For instance, studies could investigate the role of business incubators in fostering frugal innovation or addressing societal challenges in developing contexts (Gliedt et al., 2018).

The literature has primarily concentrated on the incubation process, its selection, and its support via business assistance. Research on the synergies between the entrepreneurship ecosystem and the business incubator is scarce, despite Hackett and Dilts (2004b) indicating that the process extends beyond the business incubator. We cannot comprehend the incubator's

performance in isolation from its environment. However, a few studies (Grandi & Grimaldi, 2005; Surana et al., 2020) have examined the synergies between incubators and ecosystem components such as venture capital, universities, and government agencies. Exploring these interactions could offer insights into how incubators can enhance ecosystem dynamics and foster sustainable entrepreneurship (Theodoraki & Messeghem, 2017).

As anticipated in the context of an early-stage phenomenon, the literature review revealed that the majority of research typically utilises mixed or quantitative methods, with a significantly lower number of studies utilising qualitative methods. Typically, there is a need to focus on qualitative studies that will provide a comprehensive view of business incubator research (Altayar, 2011; Al-edenat & Al Hawamdeh, 2021).

We have formulated a comprehensive definition of the business incubator, incorporating both broader and narrower interpretations, based on the literature review. This study's definition of a business incubator characterises them as "organisations that provide joint location, services, business support, and networks to early-stage ventures" (Bergek & Norrman, 2008, p.22). It goes on to clarify that these entities facilitate the establishment and growth of new businesses by providing tangible resources such as space, shared equipment, and administrative services, as well as intangible resources such as knowledge and network access, over a flexible period. They receive funding from a sponsor, such as a government or corporation, and deliver their value proposition through "an educational process" (Etzkowitz et al., 2005, p.42).

We identify key distinguishing taxonomies and features of business incubators, particularly in comparison to other entities within the entrepreneurial ecosystem, by building upon this definition. Likewise, there is a summary of critical insights from the extant literature, specifically focusing on three central research topics: business incubator typologies and

models, performance studies, and the role of incubators as institutional intermediaries. The review also highlights recent trends and emerging themes in both theory and practice, identifying persistent gaps within the literature. These gaps form the basis for a proposed research agenda, which includes several questions aimed at advancing understanding and fostering innovation in the study and application of business incubators in emerging countries.

Chapter II: Institutional Context of Business Incubators in Kazakhstan

This chapter examines the entrepreneurial ecosystem in Kazakhstan, providing a detailed analysis of the institutional environment and its impact on business incubators. By exploring the challenges and opportunities unique to this context, the chapter sets the stage for understanding how incubators function as institutional intermediaries in emerging economies. Kazakhstan has undergone significant economic reform since its transition from a centrally planned to a market-oriented economy. Despite substantial growth driven by resource extraction industries, the country faces vulnerabilities due to global commodity price fluctuations. To address these challenges, Kazakhstan has prioritised economic diversification and the development of knowledge-based industries, positioning business incubators as central to its entrepreneurial strategy. Emerging economies often grapple with institutional voids—gaps in regulatory frameworks, financial systems, and market infrastructures that hinder entrepreneurial activity. In Kazakhstan, these voids manifest as: 1) limited access to funding: entrepreneurs face challenges in securing capital due to underdeveloped venture capital markets and stringent lending requirements; 2) weak institutional linkages: collaboration between government agencies, universities, and private sector organisations remains

fragmented; and 3) cultural attitudes: risk aversion and scepticism toward entrepreneurship hinder innovation and venture creation. Business incubators in Kazakhstan serve as critical intermediaries, addressing these institutional gaps by providing access to resources and networks, offering tailored mentorship and support to navigate regulatory challenges and bridging the gap between academia, industry, and government to foster collaboration. A SWOT analysis of SMEs in Kazakhstan reveals key dynamics: *strengths* include government support for entrepreneurship and a skilled labour force, while *weaknesses* highlight limited financial resources and inadequate infrastructure. *Opportunities* lie in global market integration and technological innovation, but *threats* such as economic reliance on natural resources and regulatory uncertainty pose significant challenges.

The findings underscore the need for business incubators to focus on developing context-specific strategies to address local institutional challenges, acting as agents of change to build trust and collaboration among stakeholders. They must also strengthen their ability to overcome cultural barriers and promote entrepreneurship as a credible career option. This chapter provides a comprehensive overview of the institutional context in Kazakhstan, emphasising the challenges and opportunities for business incubators. By addressing institutional voids and fostering a supportive entrepreneurial ecosystem, incubators could play a pivotal role in driving economic diversification and innovation. The following chapter will delve into the methodology used to explore these dynamics in greater depth.

2.1 Kazakhstan's Entrepreneurship Ecosystem

Entrepreneurship ecosystems encompass a complex network of interconnected elements that collectively foster entrepreneurial activities (Audretsch & Belitski, 2017; Spiegel & Stam, 2018; Stam & van de Ven, 2019). These ecosystems include not only the entrepreneurs

but also institutions, policies, and cultural attitudes that influence the creation and growth of new ventures (Isenberg, 2010; Mason & Brown, 2014). For example, venture capital provides critical funding that enables incubated firms to scale their operations (Audretsch & Belitski, 2017). While universities contribute through research and innovation, serving as sources of knowledge, talent, and collaborative opportunities, government agencies play a pivotal role in shaping policies, offering financial incentives, and creating a supportive regulatory framework for entrepreneurship (Audretsch & Theodoraki, 2024). Without these elements working in tandem, business incubators are less effective at achieving their objectives of nurturing HGFs and promoting regional development (Spiegel & Stam, 2018).

The lack of resources, structural flaws, and institutional gaps in developing nations may prevent the use of entrepreneurial ecosystem frameworks and dynamic models designed for developed economies, making it challenging for entrepreneurs to conduct business there (Cao & Shi, 2020). Exploring the entrepreneurship ecosystem is vital to understanding the role of business incubators because these institutions do not function in isolation (Dhiman & Arora, 2024). Rather, the broader economic, cultural, and institutional contexts that shape entrepreneurial activity deeply embed them (Liu, 2020; Audretsch & Theodoraki, 2024). Business incubators rely on their ecosystem for access to resources, talent, and networks, which are essential to supporting HGFs and SMEs. We can better understand the systemic enablers and barriers that influence the effectiveness of business incubators by examining the entrepreneurship ecosystem (Dhiman & Arora, 2024), especially in emerging markets like Kazakhstan. It is an upper-middle-income nation in Central Asia, presenting specific hurdles for economic ventures (Aman et al., 2021). In Kazakhstan, the entrepreneurship ecosystem faces unique challenges that highlight the importance of contextual analysis. For example, the underdevelopment of venture capital markets, bureaucratic inefficiencies, and cultural barriers

to risk-taking constrain entrepreneurial activity and, by extension, the potential of business incubators. Research by Smagulova and Goncalves (2024) underscores the nascent state of venture capital in Kazakhstan, with limited late-stage funding options. This restricts the ability of business incubators to support HGFs as they grow beyond their initial stages. Similarly, the lack of a robust entrepreneurial culture, as noted by Zhaksybaeva (2023), hinders the effectiveness of incubators in fostering innovation landscape and resilience among entrepreneurs. Analysing the entrepreneurial ecosystem provides insights into how incubators can address these challenges. For instance, by fostering stronger collaborations with universities, incubators can bridge gaps in technical expertise and innovation capacity. Partnerships with government agencies can help incubators influence policy reforms that reduce regulatory burdens and improve access to funding (Kalyuzhnova et al., 2019).

Moreover, understanding the interplay between ecosystem components enables incubators to adopt tailored strategies that align with local needs and conditions, enhancing their impact (UNECE, 2021). Studies (Spiegel & Stam, 2018; Stam & van de Ven, 2019; Stam, 2023) emphasise the dynamic role of entrepreneurial ecosystems in shaping the success of business incubators. Cao and Shi (2020) highlight that ecosystems in emerging markets are often characterised by resource constraints and institutional gaps that require adaptive strategies from incubators. Moreover, Stam (2023) argues that the strength of an entrepreneurial ecosystem can significantly influence the outcomes of incubated firms, underscoring the importance of a multidimensional approach to ecosystem development. By focusing on Kazakhstan, this section sheds light on how emerging economies can build ecosystems that not only support incubators but also drive broader economic transformation. Understanding the entrepreneurial ecosystem in Kazakhstan thus becomes a crucial step in enhancing the role and functioning of business incubators, ultimately contributing to the

country's innovation and economic growth.

Kazakhstan's historical context has deeply influenced the evolution of its entrepreneurship ecosystem. Following the collapse of the Soviet Union in 1991, Kazakhstan transitioned from a centrally planned economy to a market-oriented one and is now attempting to become a knowledge-based economy. This shift marked the beginning of significant reforms aimed at fostering private enterprise and entrepreneurship (Zhaksybayeva, 2023). Rapid privatisation and the establishment of a legal framework to support business activities marked the early years of independence. However, the nascent entrepreneurial environment faced numerous challenges, including bureaucratic inefficiencies and a lack of market-orientated skills among the population (Sultanov, 2015).

The National Agency on Statistics indicates that most SMEs in Kazakhstan are unlikely to become drivers of innovation and growth (National Agency, 2024). Many of these enterprises focus on subsistence, rather than transformative, entrepreneurship (OECD, 2019). Over the last ten years, there has been a consistent rise in innovation rates among SMEs, yet the proportion of income from new or significantly enhanced products is still low. Kazakhstan prioritises the promotion of high-technology entrepreneurship and strives to become the region's most IT-advanced leader. However, local SME support policies, which should complement national policy programmes, support the country's entrepreneurial ecosystem (MOST, 2021). For example, the government swiftly implemented a series of urgent, targeted steps to stabilise the macroeconomic environment and alleviate the effects of COVID-19 on SMEs (Yu et al., 2021); indeed, it emphasised the development of SMEs even prior to the COVID crisis. Nonetheless, during the COVID-19 period, whole new jobs and obstacles emerged for the state administration (Bokayev & Issenova, 2022). The pre-pandemic policy programmes proved to be inadequate for the operational needs of SMEs during the challenging

circumstances of COVID-19 (Atameken, 2023). Consequently, the government implemented and introduced three packages of anti-crisis measures: (1) immediate actions to assist the populace and enterprises; (2) initiatives to maintain socio-economic stability; and (3) a holistic strategy to rejuvenate economic growth (MED, 2021). The government declared urgent measures of assistance, which included tax and customs concessions, the streamlining of administrative processes, financial assistance, advantages in public procurement, and further initiatives and financing for SMEs. At the same time, it is essential to note the lack of industrial limits for participation in the state programme for business support and development (“Business Roadmap 2025”). This broadens entrepreneurs’ accessibility to support initiatives (Issenova, 2021) and exemplifies a cohesive strategy that utilised both administrative and financial mechanisms throughout the outbreak. The primary objectives of the state policy on SMEs during the pandemic were to alleviate the tax burden on enterprises and to enhance access to credit facilities. By the end of 2020, the state initiatives “Business Roadmap 2025” and “Economy of Simple Things” had provided funding to 20,900 firms, totalling 1.44 trillion tenge (Finprom, 2021). Entrepreneurs received this assistance through instruments that subsidised loan interest rates and offered partial loan guarantees.

Entrepreneurial Finance

Alongside governmental support, Kazakhstan has experienced significant expansion in its technical industries, drawing a venture capital market (Smagulova & Goncalves, 2024). Investments are moderately robust in burgeoning sectors such as EdTech, MedTech, AgriTech, and Artificial Intelligence (AI). The aim of these sectors is to broaden the economy and generate fresh prospects for venture capital. The heightened emphasis on these domains highlights the country’s dedication to transcending its conventional industries and interacting

more profoundly with global technological progress. Notwithstanding these encouraging advancements, Kazakhstan's venture capital landscape still encounters considerable obstacles (Smagulova & Goncalves, 2024). The market remains in a maturation phase, as indicated by the prevalence of early-stage investments and the scarcity of late-stage capital. The immaturity of this market can constrain the growth potential of HGFs as they attempt to expand operations beyond the initial phases (Kim & Geum, 2023).

Like any other country, Kazakhstan's entrepreneurial ecosystem cannot develop without the appropriate capital available to entrepreneurs. However, financing opportunities for the real and innovative sectors of the economy are different; for instance, HGFs that create intangible products often do not have sufficient collateral to obtain a loan. Identifying HGFs is challenging due to their quick, irregular, occasionally intermittent, and frequently transient and short-lived growth pattern, which also explains why different growth metrics yield different results (Sarmiento & Figueira, 2015). Kolar (2014) refers to them as "moving targets," while Coad, Daunfeldt, Hözl, Johansson, and Nightingale (2014) question their utility "*as vehicles for public policy*" due to the difficulty with addressing them with targeted policy interventions. This characterisation highlights the inherent unpredictability of high-growth firms, making it challenging for policymakers to effectively design and implement strategies aimed at supporting these businesses in Kazakhstan. Consequently, the fluctuating nature of HGFs complicates their classification and diminishes their reliability as focal points for economic development initiatives.

Generally, Kazakhstan has not faced significant issues with entrepreneurial financing, but further investigation is necessary to determine the availability of appropriate financing. Government-selected bureaucrats, some with private sector experience, quickly adopted the public service work ethic after a series of governmental interventions established numerous

institutions and agencies (OECD, 2020). Kazakhstan's national programmes offer comprehensive business support across four key areas: subsidised loan interest rates, guaranteed loans, providing grants, and implementing training and competency improvement services for entrepreneurs. Several agencies, including Damu, Banks, Astana Hub, and Qaztech Ventures, manage these initiatives. The availability of entrepreneurial financing in 2020/2021 was more favourable compared to previous years (GEM, 2022). Although in 2020, Kazakhstan was ranked close to China and India, that is, countries with significantly stronger entrepreneurial ecosystems regarding high-level entrepreneurial finance, the results seem overly optimistic. This is because venture capital funding is still developing, and certain areas like equity funding and IPO funding remain problematic (Zhuparova, 2022). A second major player, Qaz Techventures, issued grants amounting to 4.67 billion tenge in 2018. Interestingly, a specific group of business angels has begun to form informal associations in order to seek out HGFs.

While these initiatives have a positive impact, for institutions such as business incubators and business angels, venture capitalists typically invest in highly private and non-public settings (Manconi et al., 2022). The nascent development of entrepreneurial culture, a lack of awareness, and the absence of official recognition of business angels in legislation likely contribute to this behaviour, ultimately making such investments less attractive and rendering the market underdeveloped (Sembieva et al., 2020). Despite some small progress in entrepreneurial financing, equity funding and IPO funding remain weak, and debt funding continues to be difficult for new and growing firms to obtain in Kazakhstan.

Likewise, regulatory and bureaucratic obstacles continue to exist, presenting constraints that may dissuade both domestic and foreign investment (Smagulova & Goncalves, 2023). The intricate legal framework and onerous bureaucratic processes could hinder

Kazakhstan's efficiency and attractiveness as an investment locale (Lee et al., 2021). The market's significant dependence on foreign investment renders it vulnerable to global financial instabilities and geopolitical tensions, which can affect investment flows and decisions (Khasanova et al., 2020). Research indicates that firms perceive their investment opportunities and applications for financing from local venture organisations and angel investors as "neutral" or "somewhat weak" (Khasanova et al., 2020; Kulanov et al., 2020; Nurgaliyeva et al., 2022; Beisengaliyev et al., 2023). To improve access to finance for entrepreneurs, there is a need to diversify financing instruments, including venture capital, angel investment networks, and crowdfunding platforms (UNECE, 2021). The government should also consider policies that reduce collateral requirements and provide more flexible lending terms (OECD, 2018).

Entrepreneurial Culture

There is a substantial connection between culture and entrepreneurship (Golec & Maksudunov, 2019). Lee et al. (2011) highlight the significance of national culture in fostering entrepreneurial attitude. Lalonde (2013) examined the influence of culture on the initiation of new ventures and observed substantial effects. The culture of entrepreneurship is associated with the ideals embraced by entrepreneurs, including risk-taking, innovation, and proactivity. A regulated economic system, wherein the state comprehensively governs social and economic activities, constrains individuals' capacity for risk-taking and, consequently, their creative spirit (Lee et al., 2011). Assessing entrepreneurial culture is essential for effective entrepreneurship and the ongoing advancement of the private sector (Figueira et al., 2016). Entrepreneurial culture encompasses attitudes, values, and skills that encourage individuals and groups within an organisation to engage in innovative and risk-taking activities (Bhat, 2022). A study by Danish et al. (2019) emphasises that fostering an entrepreneurial culture among

countries is crucial for promoting innovation and achieving economic success. Similarly, Bhatt (2022) highlights that the creation of an entrepreneurial culture is a key objective for nations and regions aiming to stimulate economic growth, as it fosters a mindset conducive to entrepreneurship and innovation. Therefore, evaluating and nurturing entrepreneurial culture is vital for the effective functioning of entrepreneurial activities and the sustained development of the private sector.

The entrepreneurial culture in Kazakhstan has demonstrated little growth after the COVID-19 crisis, propelled by numerous critical characteristics that promote innovation and support for entrepreneurs within the country (Zhaksybaeva, 2023). New governmental initiatives, educational assistance, and a cultural shift prioritising entrepreneurship and innovation all influence this (Startup Central Asia, 2022). The average Kazakh, whether employed, underemployed, or unemployed, shows a growing inclination towards engaging in entrepreneurial activities, indicating a moderate entrepreneurial culture within Kazakhstan's context (Lee et al., 2011). This trend reflects a shifting cultural mindset that prioritises innovation, self-reliance, and economic participation. In some instances, owning a firm in Kazakhstan may provide financial gains, social recognition, accomplishment, autonomy, and various opportunities, while the primary motivations for managing larger state-owned enterprises in Kazakhstan are likely to include job security, achievement, authority, substantial income, and additional advantages (GEM, 2019). Likewise, motivations cited for entrepreneurship inspire individuals to become entrepreneurs and operate small businesses in Kazakhstan (Lee, 2011). Entrepreneurial decisions typically centre around initiating a firm, whether through a trade-orientated or non-franchise venture or by participating in a family enterprise (Teal et al., 2011; Lee, 2021; Ilmaliyev et al., 2022).

The administrative burden imposed on new firms and the general legal environment, particularly bankruptcy laws, may impede high-growth opportunities (Sarmiento & Figueira, 2015). Despite some positive changes in entrepreneurial culture, the legal registration process for a new firm remains bureaucratic and protracted, often requiring several months. Therefore, the institutional framework for initiating a firm requires further development and a more conducive atmosphere (Smagulova & Golcaves, 2023). Moreover, taxation poses a significant challenge for entrepreneurs due to the possibility of numerous and prolonged audits, which can lead to extortion and can disrupt the company. Although people see many business opportunities and believe they have the capabilities to pursue them, an extreme fear of failure remains a significant barrier to starting a venture. The general attitude toward entrepreneurship as a career choice is positive in the country, despite a challenging business environment. However, the government makes attempts to build a supportive business environment for HGFs (KASE, 2018). For example, NGOs and government officials are introducing business-related curricula and youth clubs and making efforts to highlight successful business stories, all of which help change perceptions about entrepreneurial opportunities. However, these initiatives primarily focus on capital cities and other metropolitan areas, while traditional ways of thinking persist in small towns and rural areas (UNECE, 2021). In this scenario, Kazakhstan's ecosystem might receive a medium rating if widespread adoption of this supportive approach occurs, despite the potential negative perception of initial failure. However, the determination to try persists.

Nevertheless, personal efficacy frequently significantly impacts the promotion of entrepreneurship within the country (Satpayeva et al., 2020; Aman et al., 2021). For example, an emerging trend in Kazakhstan's entrepreneurial landscape is the rising participation of women in business. Zhaksybayeva's (2023) study on institutional assistance for women

entrepreneurs highlights that Kazakhstan's dedication to gender inclusion has resulted in a slight increase in women-owned enterprises, especially after the COVID-19 crisis. Initiatives such as Bastau Business, which offers entrepreneurship training to rural inhabitants, have enabled women in both urban and rural environments to establish enterprises (Smagulova & Goncalves, 2023). This inclusivity expands the entrepreneurial foundation, strengthening the sector's resilience and promoting a variety of ideas and solutions. Moreover, Kazakhstan's educational institutions have been cultivating entrepreneurial skills by collaborating with international organisations and integrating entrepreneurship into their academic courses. Business programmes at institutions such as Nazarbayev University and Almaty Management University provide courses that integrate practical business competencies, fostering an entrepreneurial mindset. Smagulova and Goncalves (2023) assert that these educational programmes impart technical knowledge while fostering an entrepreneurial spirit in pupils, therefore enhancing a sustainable and innovative economy.

The younger generation is involved in entrepreneurial activities (GEM, 2022). A multitude of young entrepreneurs are concentrating on social entrepreneurship to tackle urgent local challenges, including access to education, healthcare, and environmental sustainability. The Global Entrepreneurship Monitor (2020) reports an increasing prevalence of youth-led companies prioritising social impact, signifying a transformation in corporate culture toward purpose-driven enterprises. This trend fosters resilience and promotes sustainable business practices that are consistent with Kazakhstan's long-term development objectives. Compared to the 2000s, Kazakhstan has successfully enhanced its entrepreneurial culture through a combination of technological advancements and the emergence of diverse entrepreneurial demographics. The country is cultivating a moderate entrepreneurial ecosystem through attempts to integrate both conventional and creative business strategies.

Human Capital

One of the main weaknesses of the entrepreneurial ecosystem in Kazakhstan is a low-skilled labour force (OECD, 2018). It has a significant impact on the productivity and innovation of SMEs, as well as the growth potential of HGFs. The World Bank Enterprise Survey identifies the “inadequately educated workforce” as the primary obstacle in the country’s business environment, second only to corruption and unfair competition from the informal sector. Firms in Kazakhstan primarily face this obstacle, while HGFs tend to concentrate on lower-value sectors due to a lack of competitiveness stemming from insufficient skills (OECD, 2020). Additionally, the World Economic Forum’s Executive Opinion Survey highlights this issue, with 6.8% of respondents identifying a low level of human capital as one of the top five challenges. This poor performance in skill levels is largely attributed to relatively low public spending on education, particularly in entrepreneurship education in rural areas. For instance, the World Bank (2022) reports that Kazakhstan’s public spending on education accounted for 2.817% of GDP in 2022, compared to 6.1% in the Kyrgyz Republic and 3.7% in Russia. A shortage of scientific and technical workers, a lack of harmonisation between professional and educational standards, and inadequate language skills explain the notable weaknesses in providing businesses with appropriately skilled workers (Burnston et al., 2011; Alvarez-Galvan, 2014; OECD, 2014). However, the government has attempted to make changes by reforming the education system over the past five years, and entrepreneurial education and training have gained some considerable attention. Since 2016, the government has introduced a mandatory course on the fundamentals of entrepreneurship into all vocational education disciplines, although it is still less common at the primary and secondary school levels (OECD, 2018). Government strategies only identified the integration of entrepreneurship into the education system as a priority in 2019, and it is still in its early stages of development.

Experts in Kazakhstan, as reported by GEM (2021), reflect this low assessment of entrepreneurial education. In 2017, Kazakhstan ranked 34th among the GEM countries, which is lower than the BRIC countries. Overall, the level of entrepreneurship education in higher education institutions (HEIs) and schools is relatively low, with insufficient support for experimentation and innovation in entrepreneurship teaching and business support. The role of HEIs and the quality of education they offer are crucial, as HGFs predominantly rely on young graduates and professionals for human capital formation. Large companies' strong positioning, which provides stable employment and high salaries to skilled professionals, heightens this reliance.

Support Organisations

The slight increase in expenditures by SMEs on innovative activities during the last decade, the proportion of innovative products among all products produced by them, and the percentage of SMEs implementing technological innovations during the reporting year all represent positive trends amongst SMEs in Kazakhstan. These trends suggest an average level of innovation within this sector. However, it is important to note that Kazakhstan still significantly lags behind Western countries in terms of the proportion of firms engaged in technological innovations (UNECE, 2021). Along with supporting community organisations, business incubators in Kazakhstan provide a broad spectrum of support, resources, networking opportunities, and assistance to innovative companies (MOST, 2021). These services encompass specialised business media offering centralised local information, listings, and news; beginner startup events such as idea fairs and meetups; tailored knowledge-sharing events, bootcamps, and training programmes; and events and resources that facilitate early-stage recruitment and co-founder matching, including hackathons and other builder-focused

initiatives (AUBIAK, 2024). The government also endeavours to provide extensive coworking spaces, flexible workspaces, incubators, mentorship schemes, pitch and demonstration events, growth accelerators, and consulting services. However, questions remain regarding the quality of these programmes and the credibility of the managers who organise them (MOST, 2021). A significant challenge is the lack of available and relevant data on the exact number of business incubators, accelerators, and technology parks, partly due to the diffusion of definitions. Legislation has adopted a definition of a business incubator, yet policymakers and business incubator managers still lack a clear understanding of the concept (AUBIAK, 2024). According to QazTechVentures (2019), there are 28 entities in Kazakhstan that position themselves as business incubators. However, this number may not be accurate, given the lack of a clear understanding of the concept of business incubation among managers. Moreover, neither the government nor the global research community has conducted a comprehensive assessment of the demand for incubation, acceleration, or other support organisations (Kalyuzhnova et al., 2019). This gap underscores the need for more rigorous data collection and analysis to understand and address the entrepreneurial ecosystem in Kazakhstan in an effective manner (UNECE, 2021).

In conclusion, the country's shift from a centrally planned to a market-orientated economy has shaped Kazakhstan's entrepreneurial ecosystem, creating an evolving landscape. Despite significant reforms and government initiatives to promote entrepreneurship, the ecosystem continues to face challenges such as bureaucratic inefficiencies, limited venture capital, and cultural barriers to risk-taking. Addressing these issues is essential to fostering transformative entrepreneurship and achieving sustainable economic growth. Business incubators are pivotal within this ecosystem, serving as catalysts for innovation and drivers of firms' success (Dvoulety et al., 2018). They provide critical resources, mentorship, and

networking opportunities, enabling firms to navigate systemic barriers and scale their operations (Bergek & Norrman, 2008; Brunel et al., 2012; Mrkajic, 2017). By enhancing the interplay between ecosystem components, business incubators could play a transformative role in achieving the nation's economic diversification and innovation goals (Spiegel & Stam, 2018). However, gaps in funding, institutional support, and a lack of standardised frameworks constrain the effectiveness of business incubators in Kazakhstan. Strengthening collaborations with universities, government agencies, and venture capital networks is crucial for incubators to maximise their impact. The following section will provide a comprehensive review of Kazakhstan's incubation policy, examining its evolution, implementation, and the current state of business incubators within the country's entrepreneurial ecosystem. This analysis will highlight key challenges and opportunities, offering insights into the role of incubation in supporting entrepreneurial growth in Kazakhstan.

2.2 Kazakhstan's Incubation Policy

Scholars acknowledge business incubators as viable instruments for promoting economic growth within nations, specifically as crucial support systems that provide the necessary environment, resources, and learning opportunities for numerous emerging and expanding HGFs to flourish and succeed (Xiao & North, 2018; Kalyuzhnova et al., 2019; Ahmed et al., 2020; Sydow et al., 2022). As Kazakhstan strives to diversify its economy and reduce its dependence on natural resources, business incubators serve as essential tools to nurture HGFs and facilitate the commercialisation of new ideas. The significance of business incubators lies in their ability to provide support, resources, and networks that are vital to the early stages of business development (Hacket & Dilts, 2004; Ahmed et al., 2020). The UNECE (2021) deems innovation crucial to sustained economic growth and enhanced competitiveness

among the SPECA countries, including Kazakhstan. Both the government and private sector have made significant efforts to mark Kazakhstan's journey towards establishing an innovation ecosystem (Sadyrova et al., 2021; Smagulova & Goncalves, 2024). Only since 2019 have policymakers begun to pay any significant attention to the development of national innovation systems, focusing on reforming policies, institutions, and processes in research, education, and entrepreneurship (Zhaksybayeva, 2023).

Kazakh Invest (2023, p. 6) defines business incubators “*as a legal entity that supports small businesses during their formation stage by providing industrial premises, equipment, organisational, legal, financial, consulting, and information services,*” whilst the Association of Business Incubators of Kazakhstan (2024, p 10) defines them as “*established to aid in the formation and growth of small businesses.*” The strategic design of these incubators supports the initial stages of the innovation lifecycle, encompassing the pre-seed, seed, startup, and scale-up phases. By providing essential services such as mentorship, funding, and networking opportunities, business incubators help reduce the risks associated with early-stage ventures and increase their chances of success (Pettersen et al., 2015).

The previous section mentioned that Kazakhstan's entrepreneurship ecosystem is characterised by a dynamic interplay of opportunities and constraints that shape its investment landscape. The country has attracted attention due to its strategic plans and potential growth in the high-tech sector (Smagulova & Goncalves, 2024); however, significant institutional gaps remain, posing challenges to realising its full potential. Through multiple supportive institutional measures, the government has made several attempts to cultivate a favourable investment environment. For example, the establishment of the Astana International Financial Centre (AIFC) and the initiation of the Digital Kazakhstan programme have both sought to foster a more favourable environment for SMEs through legal reforms, tax incentives, and the

development of special economic zones (Smagulova & Goncalves, 2023; Mukanov, 2023). AIFC serves as an instrument for fostering the growth of the startup ecosystem in Kazakhstan and the surrounding region (Startup Report, 2022). It is a designated institution employing a legal framework within the financial sector, established by the Constitutional Law of the Republic of Kazakhstan entitled “On the Astana International Financial Centre” (AIFC, 2024). It serves as a vital regional hub for commerce and finance. AIFC is the inaugural authority in the region to have established an international regulatory sandbox for the evaluation of innovative fintech and RegTech products and services within a lenient regulatory framework.

However, despite these advancements, significant obstacles remain. Institutional voids, including bureaucratic inefficiencies, underdeveloped venture capital markets, and limited integration with global financial systems, hinder the AIFC’s ability to fully catalyse investment growth (Mukanov, 2023). While the AIFC provides a foundation for fostering investment and innovation, achieving its potential will require addressing these systemic challenges. Enhancing inter-institutional coordination, improving regulatory transparency, and building a robust support system for entrepreneurs are crucial steps towards overcoming these barriers and unlocking the full benefits of Kazakhstan’s entrepreneurial ecosystem. These gaps highlight the need for continued reform and capacity-building to ensure that institutions like the AIFC can effectively bridge existing voids and foster a thriving investment landscape in Kazakhstan.

Another governmental key initiative is the state project “*Digital Kazakhstan*.” The government programme commenced on December 12, 2017. This programme offers a variety of digital services, including 3D printing, mobile internet banking, and the comprehensive digitisation of healthcare, social, and educational institutions. These industries have introduced a new dimension to established sectors and have already changed the economics of wealthy

nations (Tssilova et al., 2024). The Republic of Kazakhstan initiated the official programme “*Digital Kazakhstan*” to improve the quality of life for its citizens and digitise the national economy (Astana Times, 2018). The objective of the reform was to increase the proportion of internet users in the country to 80% by 2020, and to ensure digital communications for 95% of its population (Mukanov, 2023). Furthermore, it seeks to enhance the digital literacy of the population to 80%. This ambitious effort aims to modernise several aspects of society and the economy through the adoption of digital technologies. The primary objective is to position Kazakhstan as a competitive entity in the global digital landscape while enhancing the quality of life for its population through technological innovations (Shalbolova & Kenzhegalieva, 2018). The “*Digital Kazakhstan*” programme focuses on the industrial pathway of economic digitalisation (Tassilova et al., 2024). Integrating digitalisation into existing business models improves their economic success in the global marketplace. Digitalisation has just started to influence public administration, healthcare, education, and several large- and medium-sized enterprises across industries such as energy, transportation, logistics, agriculture, financial technology, and other entrepreneurial domains (Nichkasova, 2024). The government has been investing in digital infrastructure to modernise the country and diversify its economy.

Alongside several initiatives to boost the entrepreneurial as well as incubation landscape, Kazakhstan has experienced considerable expansion in its technological industries, drawing venture capital. Sectors such as EdTech, MedTech, AgriTech, and AI diversify the economy and create new opportunities for venture capital (Smagulova & Golvaces, 2024). The increased focus on these sectors underscores the nation’s commitment to advancing beyond its traditional industries and engaging more deeply with global technological innovations (Mukanov, 2023). Moreover, international collaborations are proliferating, granting businesses essential access to global markets. The establishment of regional innovation hubs and

involvement in international technology exchanges promotes this trend, providing local entrepreneurs with essential platforms to expand their operations globally (Kuzhabekova, 2024). Notwithstanding these encouraging advancements, Kazakhstan's business incubation landscape still encounters considerable obstacles (Lee, 2021). It remains in a nascent phase, as indicated by the prevalence of early-stage investments and the scarcity of late-stage capital (Smagulova & Golvaces, 2024). The immaturity of this market can constrain the growth potential of HGFs as they attempt to expand operations beyond the initial phases (Kim & Geum, 2023), despite the state's involvement in promoting innovation by creating the necessary infrastructure and implementing digital reforms. These reforms have slightly shaped the business incubation and venture capital markets, offering the following benefits to SMEs: 1) preferential tax regimes based on the AIFC; 2) a regulatory framework based on English Law in the AIFC; 3) attracting foreign investment; 4) funding support and incentives; 5) digitalisation of all industries; 6) assistance in bringing companies to foreign markets; 7) the creation of accelerators/incubators; 8) the formation of R&D infrastructure; and 9) human capital development. These initiatives not only provide financial and infrastructural support but also aim to create a regulatory environment that encourages innovation and entrepreneurship (UNECE, 2021).

Institutional Support Framework Matrix

The existing institutional framework for fostering entrepreneurship in Kazakhstan can be illustrated by a matrix (Appendix 4) comprising the principal institutional organisations that facilitate entrepreneurial development: 1) national development institutions; 2) non-profits, non-governmental organisations, and industry associations; and 3) elements of innovation infrastructure: innovation clusters, technology parks, and business incubators.

The primary organisations that actively foster and promote entrepreneurship in Kazakhstan span various sectors, and include national development institutions, non-profit organisations, and components of innovation infrastructure. Among the national development institutions, key players include the Damu Entrepreneurship Development Fund JSC, QazTech Ventures JSC, and the Kazakhstan Industry and Export Centre JSC. These entities are instrumental in supporting entrepreneurial initiatives through financial aid, strategic guidance, and export facilitation. In the realm of non-profit and non-governmental organisations, notable contributors include the National Chamber of Entrepreneurs of the Republic of Kazakhstan, “Atameken,” the Association of Legal Entities, “Kazakhstan’s Young Entrepreneurs Association,” Enactus Kazakhstan, and the Kazakhstan Association of Business Incubators. These organisations provide vital support to entrepreneurs by offering mentorship, networking opportunities, and advocating for entrepreneurial interests.

Innovative infrastructure and clusters also play a significant role in nurturing entrepreneurship. Prominent examples include the Innovation Cluster of Nazarbayev University Astana Business Campus (ABC) and the Innovation Cluster Tech Garden. These clusters facilitate innovation by fostering collaboration among startups, academia, and industry. Technology parks such as the International IT Startup Technopark Astana Hub and the NURIS Innovation Cluster of Nazarbayev University further enhance the ecosystem by providing cutting-edge facilities and resources tailored to high-tech ventures. Business incubators constitute an essential component of Kazakhstan’s entrepreneurial support infrastructure. Examples include the Nazarbayev University Business Incubator, NURIS, MOST Business Incubator, nFactorial Incubator, and the SODBI Business Incubator. These incubators offer critical services such as mentoring, workspace, and access to funding, playing a pivotal role in the development and scaling of early-stage ventures. Collectively, these

organisations form a comprehensive network that drives entrepreneurship and innovation across Kazakhstan.

The institutional paradigm for fostering entrepreneurship in Kazakhstan, as delineated in Appendix 4, encompasses several functional effects. The primary functional result is the protection of the rights and interests of entrepreneurs and the elimination of administrative obstacles. Non-profit, non-governmental, and commercial associations, among other institutional organisations, execute this function alongside government agencies, supporting the entrepreneurial activities of previously recognised individuals.

The second functional effect is information support, which entails supplying SMEs with information on state support measures for business development, establishing databases and information exchange systems for these entities, including via the mass media, and ensuring access for young entrepreneurs to the essential economic, legal, statistical, and other information necessary for effective development. The matrix that illustrates the functional effects of institutional support for entrepreneurship development in Kazakhstan reveals that two institutional entities, the Damu Entrepreneurship Development Fund JASC and the National Chamber of Entrepreneurs of the Republic of Kazakhstan “Atameken,” are primarily responsible for carrying out this function, a role that is evidently inadequate (Khusainova et al., 2020).

The third functional effect is service support, which encompasses the provision of individualised consultations by experts and specialised services pertaining to accounting and taxation; guidance on customs procedures; the development and implementation of management systems; marketing strategies; involvement in public procurement; public-private partnerships; utilisation of information and communication technologies; as well as legal support and document management.

The fourth functional benefit is educational support, including entrepreneurial training, mentorship from successful entrepreneurs, training sessions, master classes, and monitoring. The Damu Foundation provided mass entrepreneurship training for the population as part of the Unified Programme for Enhancing Entrepreneurial Competence of the Damu Entrepreneurship Development Fund (JSC) during the period 2015–2018. This programme encompassed non-financial support initiatives executed by the fund across five primary domains: assistance for startup enterprises; promotion and advancement of entrepreneurship for individuals with disabilities; oversight of business support services and training for senior management of SMEs; and fostering conditions for the qualitative growth of domestic entrepreneurship (Damu, 2020).

The fifth functional effect of the existing model of institutional support for entrepreneurship growth in Kazakhstan is the provision of material and technical assistance, including complimentary office space, coworking facilities, equipment, workshops, and laboratories. Technoparks, business incubators, accelerators, and hubs involved in the entrepreneurship ecosystem efficiently execute this function. Such institutions facilitate the transfer of innovation and technology, specifically by disseminating scientific and technical knowledge, as well as advanced technological expertise to foster innovative entrepreneurship, implement technological processes, and engage in crowdsourcing. The Innovation Cluster of Nazarbayev University Astana Business Campus (ABC) has the following components: ABC Incubation, ABC Quick Start, DC Lab designer coworking, Fab Lab coworking, Machine Shop, Technopark coworking, and the “Business Angels” club. NURIS Technopark is a component of the Innovation Cluster of Nazarbayev University Astana Business Campus (ABC). Another example is the International ITStartup Technology Park Astana Hub, a pivotal institutional organisation that aims to foster high-tech youth entrepreneurship (Astana Hub,

2024). It was founded by the government on October 16, 2018, with Decree No. 644 KF. The government designated the International Technopark of IT Startups the “Astana Hub” (Astana Hub, 2024). Its primary objective is to establish itself as a regional hub within the global innovation ecosystem while serving as an international centre for high-tech IT startups that generate groundbreaking IT companies in Kazakhstan. According to Astana Hub experts, Kazakhstan’s entrepreneurial ecosystem is nearing the stage where the market begins to self-develop, resulting in a more organic expansion of the ecosystem and businesses (Startup Central Asia, 2022). International professionals facilitated sessions for venture investors and training courses during the early phases of Astana Hub’s development. However, the market landscape has evolved, with venture firms and business incubators now independently conducting training sessions, establishing angel investor clubs, and organising substantial local and regional conferences to solicit investments in startup initiatives.

The Evolution of Business Incubation

In Kazakhstan, business incubators are a central component of the national entrepreneurship programmes, which aim to facilitate and encourage digitisation through initiatives such as startups and stimulate venture capital (VC) financing (MOST, 2019). We expect the measures outlined in these programmes (Appendix 4) to increase the number of technology firms and enhance their ability to scale up and internationalise. They are expected to play a buffering role in the process of achieving the aforementioned objectives. The country has invested nearly two decades in developing its technology entrepreneurship, establishing a viable business incubation policy, and nurturing the venture capital market. The National Innovation Fund, the Domestic Venture Fund of Kazakhstan, the State Programme on Industrial and Innovative Development, and the National Agency for Technological

Development—which rebranded as QazTech Ventures (QTV) joint-stock company (JSC) in 2019—are just a few of the institutions and dedicated programmes that support these efforts (Appendix 5).

The evolution of support institutions (Appendix 5) started with the establishment of the JSC National Innovation Fund in 2003, one of the first institutional efforts to support innovation. The Law on Investment and Venture Capital Funds, which laid the foundation for startup financing in Kazakhstan, followed this initiative in 2004. The establishment of the first technopark in 2006 underscored the government’s unwavering commitment to promoting technological innovation. By 2008, support mechanisms expanded with the introduction of grants to promote innovation. The reorganisation of the National Innovation Fund into the National Agency for Technological Development (NATD) signified a shift toward more structured and comprehensive innovation support policies. These changes were intended to streamline operations and align them with global best practices. The evolution continued with the establishment of QTV, in 2013, which succeeded NATD. The former became a critical player in promoting venture capital markets and supporting business incubators. Launched in 2018, the Astana Hub serves as an international technopark for IT startups, offering a vibrant ecosystem for innovation. Operating under a special legal regime to attract international investment, the Hub provides co-working spaces, mentorship, and access to venture capital (AIFC, 2024). In 2020, QTV took significant steps to globalise Kazakhstan’s entrepreneurial ecosystem by partnering with international entities. It financed two new funds, 500 Startups (USA) and Quest Ventures (Singapore), to bring global expertise and funding to local startups. Similarly, the Ministry of Digital Development, Innovations, and Aerospace Industry collaborated with the World Bank to implement the “Fostering Productive Innovation Project.” White Hill Capital managed the Tumar Venture Fund as part of this initiative to further support

innovative startups. Amendments to the Law on Venture Capital Market Development in 2021 reflected the government's commitment to creating a robust legal framework for venture capital activities. Concurrently, MOST Ventures registered as the first closed-ended fund within the jurisdiction of the AIFC, showcasing the increasing sophistication of Kazakhstan's venture capital ecosystem.

Despite such progress, numerous challenges persist: institutional gaps, including inconsistent policy execution, a shortage of late-stage funding, and administrative inefficiencies, continue to limit the full effectiveness of business incubators. These barriers hinder the ability of incubators to provide adequate support for emerging entrepreneurs, potentially stifling innovation and economic growth. Addressing these issues requires a concerted effort from policymakers, investors, and the entrepreneurial community to create a more conducive environment for startup success. For example, while Astana Hub provides an excellent platform for IT startups, the broader ecosystem still lacks adequate integration with academic institutions and global financial networks (Smagulova & Goncalves, 2024). Additionally, ensuring the financial sustainability of incubators and accelerators remains a persistent issue, with many requiring at least six months of self-sustainability without state financial support (AIFC, 2024).

NATD established its support for business incubators in 2013, but it was only five years later, in 2018, that the government launched its first initiative to facilitate the establishment of business incubators. Government funding began in 2018 with the launch of the first Business Incubation Development Programme, aimed at enhancing the competencies of business incubators and fostering an environment conducive to the growth of high-quality startups with the potential to evolve into large technology companies. QTV, tasked with implementing the incubation programme, focuses on promoting technology entrepreneurship through venture

financing and technology consulting tools. QTV has implemented a framework to support business incubators, aiming to enhance their efficiency and sustainability while fostering an environment conducive to entrepreneurship and innovation (MOST, 2022). Incubators face both institutional and financial challenges, and this support aims to directly benefit startups. One of the central pillars of this support is the provision of non-financial assistance through strategic partnerships with experienced organisations capable of designing and implementing effective acceleration programmes (QazTech Ventures, 2024). These partnerships facilitate consultations to enhance business processes within incubators, build the competencies of incubator personnel, and train them in critical tasks, such as identifying, selecting, and managing startup teams. Additionally, incubators benefit from intensive development programmes offering mentorship, networking opportunities, access to investors, and expert guidance, all of which are crucial for fostering high-quality support systems for emerging enterprises. Operational standardisation is another focus area, with efforts directed toward establishing effective procedures and developing comprehensive service portfolios that encompass expert evaluations and individual consultations for startups.

Financial support is also integral to the government's strategy, aimed at alleviating operational burdens and encouraging sustainability. Incubators are eligible for reimbursement of up to 50% of their operating costs, capped at 35 million tenge annually, for a maximum period of three years (MOST, 2022). The goal of this financial aid is to empower incubators to broaden their reach and maintain their operations efficiently. In addition to supporting incubators directly, the government also provides targeted financial assistance to startups. Grants of up to 50 million tenge are available for developing new or significantly improved products, services, or business processes. These grants, however, require a co-financing commitment of at least 20% from founders or private investors, thus fostering collaborative

investment in entrepreneurial innovation (Qaztech Ventures, 2021).

A competitive selection process determines the allocation of government support, ensuring that only the most capable incubators benefit from these initiatives. This process includes a public call for proposals, submission and evaluation of applications, and decisions made by a commission comprising foreign experts, government representatives, and entrepreneurs. Contracts with the government formalise the participation of selected incubators, and they are subject to ongoing monitoring to evaluate performance against predefined KPIs. While this structured approach underscores the government's commitment to fostering an effective incubation ecosystem, the selective nature of support highlights the importance of ensuring that these programmes are impactful, scalable, and well-aligned with broader entrepreneurial and innovation policies.

While Kazakhstan's framework for supporting business incubators reflects a commendable effort to foster entrepreneurship and innovation, a critical analysis reveals several gaps and limitations that may undermine its effectiveness and long-term impact. The structured combination of non-financial and financial support, coupled with incentives for startups, demonstrates a clear commitment to building an entrepreneurial ecosystem. However, certain aspects of the strategy warrant closer scrutiny. Firstly, the selective nature of the government's support, which is limited to a small number of incubators chosen through a competitive process, raises questions about inclusivity and scalability. Although this approach concentrates resources on capable and well-prepared incubators, it may marginalise potentially impactful incubators that cannot meet stringent selection criteria (MOST, 2022). This exclusivity could inadvertently stifle innovation in regions or sectors where entrepreneurial activity is nascent but promising. Secondly, the heavy reliance on external strategic partners to enhance incubator processes and build capacity introduces a dependency that limits the self-

sufficiency of incubators in the long term. While partnerships can undoubtedly bring expertise and credibility, they may not always align with local needs or realities. Over-reliance on external actors could undermine efforts to build indigenous capabilities within incubators and the broader entrepreneurial ecosystem (Lee et al., 2021). It is essential to strike a balance between leveraging external expertise and fostering local capacity to ensure sustainability and relevance (UNECE, 2021; de la Chaux, 2021).

Another significant issue lies in the financial support mechanism. While the reimbursement of operating costs and startup grants are beneficial, their caps may not be sufficient for incubators or startups operating in capital-intensive sectors like technology or manufacturing. Furthermore, the requirement for startups to co-finance 20% of project costs may exclude promising ventures that lack access to private investors or personal resources, thus perpetuating inequities in access to support. The framework also appears to lack the emphasis to address the systemic challenges that incubators face, such as bureaucratic inefficiencies and fragmented policy implementation (Klyuzhnova et al., 2019). For instance, the broader ecosystem experiences a lack of integration between universities, research institutions, and industry players, despite the encouragement for incubators to partner with academic institutions. Without stronger inter-institutional linkages, incubators may struggle to create meaningful opportunities for startups to access knowledge and innovation resources (Gao et al., 2021).

Moreover, the monitoring and evaluation processes for incubators, which rely on predefined KPIs, might not adequately capture the qualitative and long-term impacts of incubation activities. KPIs, such as the number of startups supported or the financial performance of incubators, may overlook crucial factors like the quality of mentorship, the sustainability of startups, or their contribution to the broader economy and innovation

ecosystem. The framework does not adequately address regional disparities within Kazakhstan. Urban centres like Astana and Almaty host the majority of incubators and innovation-focused initiatives, thereby underserving rural and less developed regions. This urban bias limits the geographic reach of entrepreneurial support and exacerbates inequalities in access to resources and opportunities (Cheng, 2023).

Despite several initiatives in establishing business incubators, the current regulatory environment in Kazakhstan still hinders effective business incubation measures (Mashaev, 2018). According to the Global Competitiveness Index, Kazakhstan ranks 102nd globally in terms of access to VC funding (Schwab, 2018) and 52nd based on the Venture Capital Country Attractiveness Index (Digital Kazakhstan, 2024). Kazakhstan's standing in the VC ranking has progressively enhanced over the years. Nonetheless, in relation to peer economies, it continues to fall short relative to the Philippines, Vietnam, Indonesia, and Pakistan (Groh et al., 2018; Mulvey & Goncalves, 2022; Groh et al., 2023). This relatively low ranking is largely due to a lack of mechanisms to incentivise and provide legal protection for VC investors. In developed countries such as the United States and Singapore, private capital is the primary source of investment for new firms, and both governments support this trend through various tax breaks. In Kazakhstan, despite several improvements, public concessional financing mechanisms are often not well-suited for innovative startups (MOST, 2019). Emerging financing instruments such as loan guarantees, crowdfunding, peer-to-peer lending, and business angel investment are more compatible with the high-risk nature of innovative ventures and should complement traditional financial sources (Smagulova & Goncalves, 2024). It is also crucial for policymakers to introduce appropriate actions to expand the reach of these mechanisms.

The development of a business incubation policy in Kazakhstan, as in any country, requires adequate capital for entrepreneurs and support organisations. However, financing

opportunities for the real and innovative sectors of the economy differ significantly (Tohanova et al., 2017). A series of government interventions have led to the establishment of several institutions and agencies oriented toward entrepreneurship financing (Appendix 4). These agencies aim to provide business support in four areas: subsidised loan interest rates, loan guaranteeing, grant awarding, and training to enhance entrepreneurs' competencies. In 2020-2021, GEM reported that entrepreneurial financing in Kazakhstan improved in 2019 compared to previous years. However, significant room for improvement remains, particularly in equity funding and IPO funding, both of which were at nascent stages at the time of writing (Mukanov, 2023). Enhancing financial access for entrepreneurs from disadvantaged socioeconomic groups, such as youth, who often face discrimination from financial institutions due to certain market characteristics, is a special form of state policy intervention (Kalyuzhnova et al., 2019). Kazakhstan needs to incorporate a range of non-financial measures, including training in economic and financial literacy, management, and entrepreneurship, alongside the provision of business services, technical assistance, and coaching, in addition to a financing component comprising credit guarantees (World Bank, 2023).

UNECE (2021) highlights the importance of business incubators, noting that they often provide a comprehensive package of services, including project selection, training programmes, mentoring, and assistance in attracting funding. Moreover, the existence of effective and lasting business incubators supported by an institutional policy will foster innovation, nourish an entrepreneurial culture, and cultivate venture creation; facilitate technological commercialisation; promote entrepreneurship inside the country; enable access to venture finance through private and public sector organisations; and enhance networking opportunities for entrepreneurs (Kalyuzhnova et al., 2019). An indirect indication of the limited effectiveness of business incubators in Kazakhstan, as components of the entrepreneurial

ecosystem, is evident in their operating environment, which significantly and unfavourably deviates from international standards.

The next section will provide a comprehensive background analysis of Kazakhstan's SME policy framework, examining its evolution, objectives, and implementation strategies. Understanding the policy framework governing SMEs in Kazakhstan is crucial to analysing the role and effectiveness of business incubators in the country (Ahmad et al., 2020). Government policies in Kazakhstan emphasise the strategic importance of SMEs, aiming to foster diversification, reduce dependency on natural resources, and drive sustainable development (Mukanov, 2023). By studying the background of SME policies, the study can better understand how these objectives translate into practical support mechanisms, such as business incubators, which play a pivotal role in nurturing startups and fostering innovation (Phan et al., 2005). We will specifically focus on the role of SMEs in this policy landscape, examining their strategic positioning to promote growth and innovation. We will highlight the alignment between government objectives and the operational realities of business incubators and identify the gaps and challenges that require attention in this discussion. By doing so, the following section will shed light on the broader policy ecosystem and its capacity to nurture entrepreneurial activity and sustain the development of SMEs in Kazakhstan.

2.3 Background to SMEs Policy in Kazakhstan

Entrepreneurship not only drives technological progress and job creation but also fosters economic diversification and societal advancement (Schumpeter, 1947; Ayyagari et al., 2003; GEM, 2022). SMEs, often regarded as the backbone of the economy, play a critical role in these processes. Globally, SMEs constitute around 90% of businesses, contribute significantly to GDP, and employ a large portion of the workforce (World Bank, 2020). In

Kazakhstan, SMEs comprise over 96% of all enterprises and contribute 30.2% to the country's GDP (National Agency, 2024). This underscores the importance of understanding and supporting the SME sector within the broader economic framework.

Kazakhstan's commitment to fostering SMEs has been evident since its independence in 1991, with successive governments introducing a range of policies aimed at bolstering entrepreneurship. These include long-term strategic initiatives such as the "Kazakhstan 2030" and "Kazakhstan 2050" strategies, as well as sector-specific programmes like "Business Roadmap 2025" and "Economy of Simple Things." Heim (2020) identifies the development of SMEs as a critical component of the government's strategy, advocating for supportive policies and infrastructure that enable SMEs to thrive in various sectors, including technology and services. Despite these efforts, challenges such as regional disparities, inadequate entrepreneurial education, and bureaucratic inefficiencies persist, hindering the full realisation of SMEs' potential (Petrenko et al., 2019; Kulanov et al., 2020). Business incubators, as institutional intermediaries, are central to addressing these challenges by bridging gaps between entrepreneurs, resources, and institutional support (Duut et al., 2016; Sydow et al., 2023). Reviewing the SME policy framework in Kazakhstan is essential to understanding the institutional context within which business incubators operate. It allows for an evaluation of how these policies align with the broader goals of economic diversification, knowledge transfer, and innovation-led growth. This section sets the stage for a comprehensive examination of Kazakhstan's SME policy in relation to business incubators. The section explains the institutional mechanisms supporting entrepreneurship and identifies gaps by analysing the evolution of these policies and their current status. Understanding how business incubators can enhance SME performance and contribute to Kazakhstan's strategic objectives of becoming a knowledge-based economy necessitates such an exploration. As SMEs and

incubators are integral to fostering a robust entrepreneurial ecosystem, reviewing their interplay offers valuable insights into the challenges and opportunities that lie ahead for Kazakhstan.

Background

The disintegration of the Soviet Union resulted in the foundation of newly sovereign republics, including Kazakhstan, and signified a phase of substantial institutional reform toward a market economy and democratic governance (Dabrowski, 2023). Institutional upheaval accompanied the shift, resulting in the emergence of an enclave structure with dual characteristics in non-Western modernising states (Batsaikhan & Dabrowski, 2017). Kazakhstan achieved economic stability while suppressing democratic progress in the mid- to late 1990s (Kalyuzhnova & Nyagaard, 2008). Kazakhstan's market economy was born under crisis conditions. As an independent state, Kazakhstan faced extraordinarily difficult circumstances during its immediate post-communist transformation. There were obstacles regarding the reconstruction of government power structures, implementation, nation-building, economic disentanglement, and internationalisation after the dissolution of the Soviet Union (Kalyuzhnova & Nyagaard, 2008).

The Soviet economy from which it emerged was already in decline, with GDP falling by 8 to 17% in real terms in 1991 (OECD, 2018). The newly independent Kazakhstan faced significant challenges, not only in terms of economic reform but also in broader state-building efforts. Chronic shortages of domestic capital, the collapse of existing trade networks, and the difficulty in adapting Soviet enterprises and institutions to market conditions led to a severe recession in Kazakhstan and its neighbouring countries (Sadyrova et al., 2021; Yessenali et al., 2024). This made deep and lasting economic reforms both urgent and challenging; transforming the economic system in such an environment was akin to rebuilding a ship already

underway amidst stormy seas. Moreover, Kazakhstan gained independence during a period of profound global economic changes (Beisov et al., 2013). The economic crisis has underscored the necessity to improve the collaborative processes between the government and the private sector in Kazakhstan (Beisov et al., 2013). Likewise, since 1991, the world has experienced rapidly intensifying globalisation, characterised by financial and economic integration and the unprecedented development of global value chains (Yu et al., 2021). Technological advancements, such as the Internet, changed business practices; the creation of the World Trade Organisation, the emergence of climate change as a global issue, and the rise of China and other emerging economies reshaped the global economic landscape. Kazakhstan and its neighbours had to navigate these changes within a rapidly evolving global context (Saiymova et al., 2018). Many of these developments brought benefits to Kazakhstan. Global economic growth, particularly in emerging economies, lifted hundreds of millions out of poverty and significantly improved human health and life expectancy. For Kazakhstan, this global growth surge, particularly from the late 1990s, led to increased demand for its primary export commodities, supporting more than a decade of strong economic growth (OECD, 2018).

The Present State of SMEs

SMEs play a crucial role in the economy, society, and humanity by: (1) fostering innovation and technological progress; (2) improving products, services, and quality management; (3) generating capital, employment, and social mobility; (4) utilising local natural and human resources; (5) enhancing productivity and government revenue; (6) redistributing wealth, mobilising savings, and alleviating poverty; (7) diversifying economic activities; and (8) accelerating national economic development (Schumpeter, 1947; Hoselitz, 1952; Ayyagari et al., 2003; Duke, 2006; and GEM, 2022). The importance of SME development is likewise

evident in Kazakhstan, as the government has recognised it as a driving force for economic development (Nabieva et al., 2021).

Statistics indicate that SMEs constitute around 90% of businesses and account for over 50% of global employment (World Bank, 2023). Moreover, the impact of SMEs on the gross domestic product (GDP) constitutes up to 40% in emerging economies (World Bank, 2022). As of July 2024, Kazakhstan had 2,219,058 operating small- and medium-sized enterprises. SMEs primarily establish themselves and function in the cities of Almaty, Astana, and Turkestan, with 398,385, 266,499, and 212,989 registered SMEs, respectively. The lowest numbers of active SMEs are in the northern and western areas of Kazakhstan at 38,564 and 62,720, respectively (Statistics Kazakhstan, 2024). Geographical location, population, overall economic conditions, the degree of commercial activity, and many other factors influence the fluctuation in the quantity of small- and medium-sized enterprises in various locations. Kazakhstan has accomplished the primary strategic objective of providing all citizens with equitable access to entrepreneurship. Nonetheless, not all citizens possess equivalent expertise and experience in the economic sector (Petrenko et al., 2019). The disparity in developmental levels among regions results in an unequal business environment expansion (Arystanova et al., 2019).

Furthermore, policies and institutions that encourage the establishment and expansion of new businesses have driven the development of entrepreneurship in Kazakhstan. The state serves as a guarantor, organiser, regulator, and consumer of territorial development initiatives (Borodina et al., 2013; Stepanova et al., 2023), consistent with the established economic relations paradigm. Numerous concerns related to the collaboration between the state and business continue to be a topic of discussion (Kulanov et al., 2020). International experience demonstrates that such collaboration can be exceptionally efficient in attaining socio-economic

objectives (Bekezhanov et al., 2021; Sergeeva et al., 2023). It is important to tailor public-private partnership (PPP) models to specific national contexts and ensure transparent, accountable processes to achieve desired outcomes (Parker & Figueira, 2010). Kazakhstan is prioritising the establishment of an institutional framework for state-business relationships, focusing on the development of effective interaction mechanisms to achieve strategic objectives (Kulanov et al., 2020).

Despite the importance of state-business partnerships, Kazakhstan's government and business sector struggle to collaborate effectively due to issues with the laws defining their rights and responsibilities, the implementation of partnerships, the competitive environment for collaboration, and the underdevelopment of the investment and innovation ecosystem (Bokayev et al., 2023). This statement underscores the necessity of synchronising Kazakhstan's social policy goals with governmental social reform and delineating precise implementation mechanisms. Enhancing the engagement between private entrepreneurship and the state (Khamzin and Moldabayev, 2013), advocating for PPPs, and cultivating social alliances can facilitate mutually advantageous relationships. Parker and Figueira (2010) emphasise that these economic realities, which dictate the availability of resources, capacity for risk-sharing, and levels of public and private sector expertise, heavily influence the success of PPPs. Specifically, the authors emphasise that well-crafted PPPs can yield superior financial returns compared to conventional public procurement methods as long as they uphold accountability and transparency.

Recognising the economic importance of entrepreneurs, the government has established various support mechanisms, including an SME development programme under the Ministry of National Economy and the Ministry of Digital Development, Innovations, and Aerospace Industry. Thriving SMEs have contributed to the country's development over the past decades.

In 2023, SMEs made up 96.9% of all businesses in Kazakhstan. The proportion of people employed by SMEs was 45.8% of the total employed population, with SMEs contributing 30.2% to the country's GDP that same year (Figure 2).

The government has implemented several reforms to invigorate Kazakhstan's economy (Doing Business, 2023), including e-governance, which is considered one of the most effective instances of ICT-driven transformation in public administration within Central and South Asia (UNPAN, 2020).

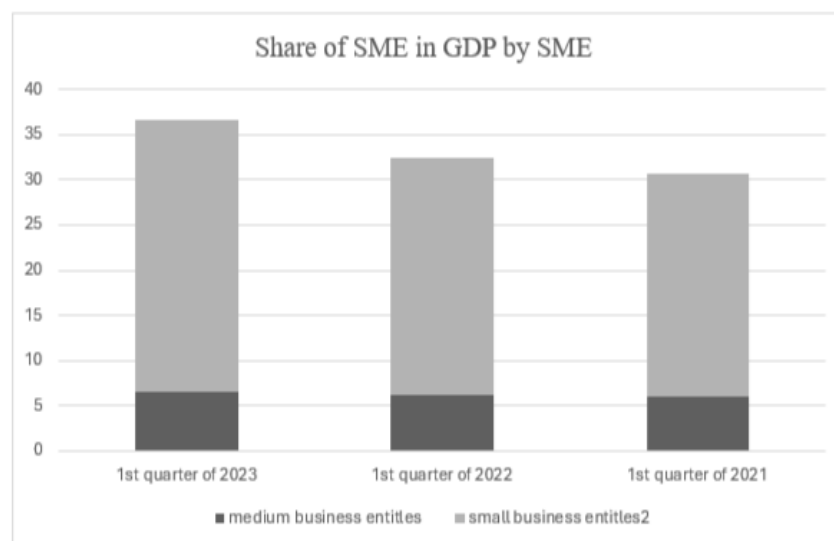


Figure 2- Kazakhstan's SME contribution

Source: (National Agency, 2024)

Impact of COVID-19

Section 2.1 mentioned that the COVID-19 epidemic reaffirmed the significance of governmental assistance in restoring trust, stabilising it, and revitalising the national economy (Cuyper et al., 2020; Lewis, 2020). In 2020, Kazakhstan's economy experienced challenges owing to the COVID-19 pandemic, registering a negative growth rate of 2.7%. The pandemic interrupted worldwide operations and diminished global demand and oil prices. In April 2020,

the average oil price declined to 21 USD per barrel, the lowest in twenty years. Kazakhstan's economy heavily depends on oil prices, as 35% of GDP comes from oil and gas earnings, and hydrocarbon exports account for 75% of total exports, thereby heightening economic vulnerability. Furthermore, the pandemic has significantly affected Kazakhstan's retail, restaurant, wholesale, and transport industries, which account for around 30% of employment and are primarily located in urban areas (Export, 2021). The COVID-19 pandemic has profoundly impacted SMEs in two distinct ways. Many firms encounter operational challenges, including business cancellations or closures, diminished revenue, a significant decrease in demand, and insufficient capital. As a result, it was anticipated that numerous SMEs will cease operations during and following COVID-19 (Syriopoulos, 2021). The COVID-19 pandemic may adversely affect the risks linked to entrepreneurship, ultimately obstructing HGFs (Cuyper et al., 2020). Conversely, COVID-19 may positively transform perceptions of entrepreneurship and stimulate increased or novel entrepreneurial activities (Cuyper et al., 2020). Crisis experiences compel businesses to adopt a more reasonable and deliberate approach to decision making (McCarthy, 2003). Ultimately, entrepreneurs are tenacious, inherently hopeful, and resilient. They will surmount this challenging moment and recover. The government swiftly implemented a series of urgent, targeted measures to stabilise the macroeconomic environment and alleviate the impact of COVID-19 on small- and medium-sized enterprises (UNDP, 2020). These measures were intended to provide immediate support to businesses facing unprecedented challenges, ensuring their survival and fostering a quicker recovery. By stabilising the macroeconomic environment, the government sought to create a more favourable landscape for entrepreneurs to navigate post-crisis.

Foreign Entrepreneurs

In addition to the goal of institutional support for SMEs, the significance of foreign entrepreneurs cannot be understated, as they play a crucial role in accelerating and contributing to the economy of Kazakhstan (Yu et al., 2021). Foreign entrepreneurs bring diverse perspectives, innovations, and investment opportunities that can enhance the competitiveness of local SMEs. Their involvement not only stimulates economic growth but also fosters a more dynamic and resilient business environment in Kazakhstan. According to the press service of Kazakhstan's Ministry of Labour and Social Protection (MLSP), as of February 2024, work permits issued, and the engagement of foreign workers, indicate the employment of 12,882 foreign nationals. A total of 1,657 firms recruited foreign labour, employing 456,000 Kazakhstanis, which constitutes 97.2% of the total workforce (Times, 2024). Evidence indicates that, relative to Kazakhstan's population of around 20.6 million, there is a particular necessity to recruit foreign entrepreneurs and enhance the proportion of foreign entrepreneurship within the nation. Nonetheless, since its 1991 declaration of independence from the Soviet Union, Kazakhstan has implemented a succession of reforms aimed at liberalising its economy and attracting foreign investment. The government has been progressively enhancing the business environment for foreign investors and established a national company, "Qazaq Invest," that facilitates foreign investment activities in Kazakhstan (Doing Business, 2024; Export, 2024). This initiative reflects Kazakhstan's commitment to creating a more favourable investment climate, demonstrating its desire to integrate into the global economy. By streamlining processes and providing support through Qazaq Invest, the government aims to boost economic growth and diversification.

Driving Innovation in SMEs

There is no doubt that Kazakhstan's innovation landscape has evolved over the past few decades. For instance, Sadyrova et al. (2021) emphasise that innovation is essential for the long-term sustainable development of both enterprises and the national economy. They note that Kazakhstan aims to modernise its economy through the introduction of modern technologies and the use of its intellectual potential (Sadyrova et al., 2021; Sitenko et al., 2024). However, Saiymova et al. (2018) discuss the practical problems Kazakhstan faces in implementing its innovation policy, particularly in the context of its dependence on the oil and gas sector. They highlight the “Dutch disease” effect, where reliance on natural resources can stifle other economic sectors, including innovation. Kalyuzhnova (2006) defines this effect as a concern that strengthens the case for reducing the impact of energy prices on the economy. This represents the possible adverse effect on the traded goods sector resulting from significant real appreciation driven by robust export revenues in the natural resource sector. There is a need for a comprehensive National Innovation System (NIS) to foster innovation across various sectors (Saiymova et al., 2018). The government has implemented several strategic documents and programmes to boost innovation, as previously mentioned; key among these are the “Kazakhstan 2030” and “Kazakhstan 2050” strategies, which set long-term goals for economic diversification and innovation-led growth (Saiymova et al., 2018). The State Programme on Accelerated Industrial and Innovation Development (2010-2014) and its successor (2015-2019) focus on enhancing the competitiveness of non-resource sectors through innovation (National Agency, 2016). The National Agency of the Republic of Kazakhstan on Statistics reports a slight increase in R&D expenditure, the number of innovation grants, the expenditure on innovative goods and services, the proportion of innovative organisations, the contribution of innovative goods and services to GDP, as well as the number of R&D personnel and

institutions (National Agency, 2023). However, Saiymova et al. (2018) argue that despite these increases, the overall impact on economic diversification remains limited, as many sectors continue to rely heavily on resource extraction. Furthermore, the sustainability of such innovation efforts is questionable given the challenges related to funding stability and the need for a robust infrastructure to support long-term growth in non-resource sectors.

Lee et al (2021) highlight that universities enhanced their innovation infrastructure by leveraging the experiences of Western countries. Various universities have established technology parks and research commercialisation offices (Alibekova et al., 2019). One notable initiative is the establishment of Nazarbayev University and the Alatau Innovation Technology Park, which serve as hubs for the research, development, and commercialisation of new technologies. These initiatives aim to bridge the gap between academic research and industry needs, fostering a more integrated innovation ecosystem (Saiymova et al., 2018; Alibekova et al., 2019; Nabieva et al., 2021). Despite these efforts, Kazakhstan faces significant challenges in its innovation journey. The level of innovative activity remains relatively low compared to the OECD countries. For example, in 2015, Kazakhstan's R&D expenditure was only 0.14% of GDP, compared to the OECD average of 2.4% (OECD, 2017). Additionally, there is a significant disparity in the distribution of R&D resources, with a heavy concentration in urban centres like Almaty and Astana (KAS, 2018). Human resource constraints also pose a challenge. The number of researchers in Kazakhstan has decreased over the past two decades, and there is an ageing workforce in the R&D sector (Sitenko et al., 2024). This limits the country's capacity to sustain and expand its innovation activities (KAS, 2014). To address these challenges, the government has introduced several support mechanisms. These include financial incentives, such as grants and tax breaks for R&D activities, as well as the establishment of innovation parks and business incubators to support startups and SMEs in the

innovation sector (Abazov & Salimov, 2016; Nabieva et al., 2021). For example, the State Programme on Industrial and Innovation Development emphasises a cluster approach, encouraging the formation of industry clusters that can drive regional innovation and economic growth. This approach aims to create synergies between businesses, research institutions, and government bodies, facilitating knowledge transfer and collaborative innovation (Dorskaliyeva, 2016). In 2020, tax breaks benefitted over 700,000 SMEs, and 80% of borrowers from affected industries received loan deferrals (GEM Kazakhstan Report, 2021). The government also promoted e-commerce, which saw significant growth during the pandemic. The volume of the e-commerce market more than doubled in 2020, reaching 1.1 trillion tenge and comprising 9.7% of total retail trade. Business incubation programmes and support for SMEs to enter international electronic trading platforms were key components of this initiative (GEM Kazakhstan Report, 2021).

Kazakhstan's government has demonstrated a clear commitment to supporting the development of SMEs through various programmes and policies. These initiatives have laid the groundwork for a supportive physical, commercial, and regulatory environment that facilitates the establishment and growth of new enterprises (GEM, 2019). However, critical gaps remain in areas essential for fostering a thriving SME sector. Entrepreneurial education, particularly at the primary and post-secondary levels, requires significant improvement to better equip individuals with the skills and knowledge needed to succeed in entrepreneurial ventures. Similarly, the transfer of R&D from academic institutions to SMEs remains insufficient, limiting the sector's ability to innovate and remain competitive (Yu et al., 2021). Strengthening the collaboration between research institutions and SMEs is crucial to bridging this gap and supporting the diffusion of knowledge into practical applications for emerging and expanding enterprises.

Regulatory frameworks must also address anti-competitive practices by established enterprises, as such behaviour stifles innovation and hinders the growth of smaller firms. Ensuring a level playing field in the business environment requires improved legislation and its rigorous implementation. Furthermore, while science parks and business incubators play a critical role in supporting SMEs, there is a pressing need to expand their reach and improve their operational efficiency. Increased investment and capacity-building in these areas could significantly bolster the support available to SMEs, particularly in high-tech sectors.

While Kazakhstan has made significant progress in fostering an innovation-driven economy and supporting SME growth, these challenges highlight the need for targeted reforms and sustained efforts. Addressing these issues will be crucial to unlocking the full potential of SMEs as drivers of economic diversification, innovation, and employment.

2.4 SWOT Analysis of Kazakhstan's SME Sector

This section employs a SWOT analysis to explore the dynamics of Kazakhstan's SME sector, with particular attention being paid to the role of business incubators. This framework enables a comprehensive understanding of how the internal strengths and weaknesses of SMEs intersect with external opportunities and threats. By aligning this analysis with the functionality of business incubators, it examines the extent to which these intermediaries mitigate challenges and leverage opportunities to foster SME growth. For instance, SMEs in Kazakhstan demonstrate strengths such as product specialisation and adaptability to market fluctuations; business incubators can amplify these advantages by offering tailored support to enhance competitiveness and innovation capabilities.

Business incubators are particularly critical in addressing some of the systemic weaknesses identified in this analysis, such as the lack of qualified personnel, insufficient

financial resources, and limited understanding of technological advancements like Industry 4.0. Moreover, they play a key role in enabling SMEs to seize external opportunities, such as integrating into global value chains and adopting innovative technologies. However, external threats such as corruption, inadequate ICT infrastructure, and fragmented innovation ecosystems also constrain the effectiveness of incubators. SWOT analysis provides insights into how these institutions can strategically address the structural and operational challenges faced by SMEs.

Table 5 - SWOT analysis of SME sector

Internal Factors	
Strengths (+)	Weaknesses (-)
<ol style="list-style-type: none"> 1. Elevated product specialisation 2. Horizontal organisational structure 3. Strong entrepreneurial spirit 4. Anticipated beneficial effect on the company's financial performance 5. Rapid adaptation to market fluctuations 	<ol style="list-style-type: none"> 1. Insufficient expertise of technological development (ex., Industry 4.0 etc) and its advantages 2. Insufficient qualified personnel 3. Lack of an appropriate strategy 4. Deficiency of financial resources
External Factors	
Opportunities (+)	Threats (-)
<ol style="list-style-type: none"> 1. Securing temporary assistance from the government 2. Enhancing competitiveness 3. Integrating into the global value chain 4. Addressing environmental challenges 	<ol style="list-style-type: none"> 1. Insufficient degree of research and development 2. Insufficient ICT infrastructure 3. Concerns regarding data security 4. Corruption

Analysis Summary

Additional specifics regarding the proposal and summary are provided below:

1. Amendments to state support programmes for SMEs.
2. Enhance public knowledge of Industry 4.0 and AI tools.
3. Enhancement of employee digital literacy is necessary.
4. Leverage the advantages of SMEs and prioritise customer satisfaction.

Source: Author's own

Kazakhstan's ambition to foster a knowledge-based and innovation-driven economy makes the role of business incubators increasingly significant. Despite extensive government initiatives, such as "Business Roadmap 2025" and "Digital Kazakhstan," SMEs continue to face hurdles that hinder their ability to scale and compete effectively in global markets (Ashimova & Alzhanova, 2022; Turkylmaz et al., 2023). The SWOT analysis highlights how incubators can serve as catalysts for overcoming these challenges by bridging gaps between policy objectives and SME needs.

Through its focus on the intersection of SME development, this section aims to identify actionable strategies for strengthening the ecosystem of support for Kazakhstan's SMEs. By addressing both internal and external factors, the analysis underscores the potential of business incubators to serve as transformative agents in unlocking the full economic potential of SMEs, thereby contributing to the country's long-term strategic goals of diversification and innovation-led growth.

Kazakhstan has been implementing initiatives to shape and develop entrepreneurship since the early 2000s. Currently, the government actively promotes and develops SMEs, and is establishing individual components of SME support programmes. Nonetheless, the establishment of infrastructural connections in Kazakhstan's SMEs development policies has not resulted in a substantial increase in entrepreneurial activity. They remain fragmented (Satpayeva, 2017; Nurpeisova et al., 2021). The situation is characterised by inadequate growth

of specific sectors, a limited number of established infrastructure facilities, and a predominance of these facilities in Astana and Almaty. The current creative infrastructure in Kazakhstan is inefficient as a system, with its components being segregated and exhibiting insufficient interaction, particularly a lack of synergy between science and industry.

Similar to others, Kazakhstan's SMEs possess unique strengths that might generate development prospects. One such strength is their high product specialisation, which differentiates them from larger competitors. In 2019, the Atameken Chamber of Commerce noted the establishment of a number of successful SMEs in Kazakhstan with high product specialisation. Consequently, leveraging the digitisation and integration of technological, production, and business activities across the firm, encompassing product creation and procurement, manufacturing, supply chain management, and post-sale services, to increase productivity and quality would further bolster the competitiveness of Kazakhstan's SMEs in the local market (Turkilmaz et al., 2023).

The flat organisational structure and brief hierarchical line of SMEs in Kazakhstan strongly facilitate their technological development. A primary benefit of Kazakhstan's SMEs over large businesses is their enhanced creative initiative and autonomy in significant decision making, which promotes the development and execution of innovations within the organisation (Ismagulov, 2015).

A significant advantage of SMEs in adopting innovative technological solutions is the anticipated beneficial effect on the company's economic performance. Press Service (2019) emphasises the potential profit enhancement for Kazakhstan's firms through cost reduction and improved labour productivity with the integration of Industry 4.0. For instance, the Smart Factory in Kachary, Kazakhstan, integrates modular automated systems with Geographic Information System (GIS) and Enterprise Resource Planning (ERP), leading to cost

optimisation, reduced equipment malfunctions, and a 10% boost in equipment productivity (Press Service, 2019). With appropriate modifications, this concept can be extended to SMEs to secure economic incentives through the adoption of technological advancements. Governments are increasingly prioritising technological advancements using AI tools and big data analytics, implementing proactive measures in this domain (Ashimova & Alzhanova, 2022). For example, Nazarbayev University, a premier national educational and research institution, is collaborating with the World Bank to establish a nationwide cluster of AI and data centres. This is a crucial step in establishing a comprehensive decision-making ecosystem, through a data-driven government equipped with the capacity to analyse extensive industry data facilitates management decisions grounded in big data. The recent E-Government Survey by the UN indicates that Kazakhstan possesses the highest E-Government Development Index among landlocked developing nations and has effectively digitalised crucial industrial sectors, including logistics and transport (United Nations, 2022). The application of artificial intelligence will persist in enhancing several sectors of the economy. Prominent instances of effective digitalisation thus far include the implementation of a smart traffic system and a digital technology-based highway asset management programme.

The strong entrepreneurial spirit in Kazakhstan also serves as a supportive indicator for SMEs (GEM, 2022). It signifies the citizens' readiness to engage in business: 60% of the adult population in Kazakhstan perceives entrepreneurship as a viable source of income, whereas 46% of adults transition from discussion to action. This relates to Kazakhstan's cultural perception of entrepreneurship as a symbol of elevated prestige and the recent decrease in fear of failure (Hua et al., 2019). Consequently, it may serve as a catalyst for the advancement of new venture creation and the integration of technological development within SMEs.

The structural characteristics of SMEs equipped with appropriate digital technologies enable them to swiftly respond to market fluctuations (Turkyilmaz et al., 2023). Vertical integration within a business may enhance the interoperability of corporate systems, enabling a swift response to external forces. Abdullaev and Kaliakparova (2015) note that Kazakhstan SMEs offer essential flexibility to the local market by swiftly adapting to fluctuations in market conditions. Furthermore, Nurshaikhov (2020) highlights the significance of SMEs in facilitating economic flexibility through their rapid adaptation to market swings.

The literature on SMEs development often emphasises the scarcity of qualified workers in SMEs, while senior management qualifications hold equal importance. Zhandybaev (2018) highlights that the primary obstacle to SMEs' development and the integration of Industry 4.0 within new ventures is the absence of skilled individuals. Moreover, in Kazakhstan's SMEs, the predominant hierarchy is top-down, resulting in highly centralised decision-making procedures (Turkilmaz et al., 2023). The insufficient awareness of senior management regarding innovative solutions and the absence of understanding about their potential benefits adversely impact the overall qualifications and knowledge levels of personnel at a firm (Smith et al., 2017). Research indicates a persistent deficiency in qualified human resources to satisfy the demands of the labour market in Kazakhstan (Ramashova, 2015). Similarly, there is a significant staff deficiency in the IT sector. KPMG (2019) reports that 90% of respondents (IT managers in Kazakhstan and Central Asia) identified the primary challenge to executing digital projects was that of finding appropriately qualified personnel. Simultaneously, the COVID-19 pandemic's economic downturn impacted 64% of surveyed SMEs, forcing 25% to reduce their IT initiatives. The evolving nature of information technologies continually raises standards for professionals in this sector, thereby intensifying the issues related to personnel shortages and ongoing development (Ashimova & Alzhanova, 2022). The establishment of institutions like

the International Information Technology University in Almaty, in collaboration with Carnegie Mellon University and the Kazakh British Technical University, has been instrumental in addressing this skills gap (Ambalov & Heim, 2020). However, the authors also highlight the incomplete development of Kazakhstan's R&D environment to fully utilise the educational system's potential, underscoring the need for more funded research projects to boost the country's technological capabilities.

A further weakness is the scarcity of financial resources. Insufficient financial resources hinder the internal R&D efforts of SMEs, rendering timely technology development unfeasible. The primary obstacle to the development of SMEs in Kazakhstan is inadequate financial support from the government (Abdulaev, 2015). Zhandybayev (2018) identifies inadequate financial resources as a primary obstacle to the implementation of innovative technological solutions among firms in Kazakhstan. Furthermore, despite the existence of several governmental initiatives to support SMEs, Abdulaev (2015) highlights that the majority of SMEs in Kazakhstan either do not use these programmes or are unaware of them due to insufficient promotion. Likewise, SMEs often struggle to secure necessary funding due to stringent collateral requirements and high interest rates. This financial constraint hampers their ability to invest in growth and innovation (Heim et al., 2019).

Many SMEs in Kazakhstan lack access to advanced technologies and the expertise required to implement them effectively, limiting their competitiveness in both local and global markets (Heim et al., 2019). A primary obstacle is the lack of understanding of technological development and the advantages of its applications. Moeuf et al. (2018) propose that the deficiency in understanding technology and concepts related to innovative solutions (e.g., Industry 4.0, etc.) presents a significant obstacle for SMEs in their ongoing transformation. Press Service (2019) indicates that a lack of comprehension of the economic advantages of

digitalisation within the business sector and its potential applications constitutes a significant obstacle to the digitisation of local organisations. According to Zhandybayev (2018), the majority of firms in Kazakhstan lack comprehension of technological development principles and their potential advantages, thereby hindering the advancement of these organisations in that area.

The National Agency of Statistics reports that domestic R&D expenditures constituted 0.12% of GDP in 2019, and did not surpass 0.13% in 2020 and 2021. Although the Strategic Development Plan of the Republic of Kazakhstan plans to increase the share of R&D expenditure in GDP to 1% by 2025, the current low proportion may adversely impact technological innovation, its composition, and quality. In 2020, the national budget held the primary responsibility for financing domestic R&D expenditures in Kazakhstan, accounting for 48%. This was an increase of 13.7% from the previous year, suggesting a lack of enthusiasm among SMEs to invest in the country's research infrastructure (Ashimova & Alzhanova, 2022). We can explain this by pointing out that SMEs primarily depend on acquiring foreign technology and equipment for technological renewal. Moreover, Ambalov and Heim (2020) note the importance of strengthening Kazakhstan's R&D sector and fostering collaborations between educational institutions and industry to develop a skilled workforce capable of supporting the country's economic diversification and technological advancement.

Government support, including financial and tax incentives, is considered a primary accelerator in the development of SMEs. For instance, the "Digital Kazakhstan" initiative aims to advance digital technology, thereby enhancing SMEs in the country. The initiative seeks to advance the country's digitalisation efforts while securing substantial investment to meet these objectives. The initiative earmarked approximately \$441 million for this objective, with the expectation that quasi-public sector organisations, currently operating with 6,400 companies,

will generate \$528 million (Karmys & Bastaubayeva, 2018). Likewise, the Damu Entrepreneurship Development Fund JSC offers financial support for SMEs.

Another opportunity for SMEs, in addition to profit enhancement through technological development, is to integrate into the global value chain and expand their existing markets. OECD reports indicate that in 2013, the proportion of direct manufactured product exports from Kazakhstan's enterprises was merely 2.4%, but neighbouring nations' ratios were double that figure. The document states that more than 98% of SMEs in Kazakhstan operate solely within the domestic market (World Bank, 2015). Due to this constraint, SMEs are heavily reliant on the advancement of the national economy and the revenue generated by the local community. The integration of local SMEs into the global value chain could enhance information sharing and foster the development of innovative business models aimed at global markets, hence influencing the establishment of a robust competitive landscape. By engaging with international partners, local SMEs can access new markets, adopt best practices, and improve their operational standards, which are crucial for their growth and sustainability (Heim et al., 2019).

The lack of innovation in Kazakhstan and the way the "academia-industry-government" triple helix is not properly connected hurt small- and medium-sized businesses' research and development (Turkylmaz et al., 2023) plans. The current proportion of innovative activity in the gross national product is 1.53%, with just 15.8% of organisations in Kazakhstan participating in innovation. In industrialised nations like Switzerland, the proportion of firms engaged in any form of innovative activity is 72.6%, while in Austria it is 62%, and in Germany it is 63.7% (Eurostat, 2020). The survey revealed that the primary causes for the low level of R&D among Kazakhstan SMEs were excessive economic risks, cited by 4% of the surveyed enterprises, and insufficient demand for innovations, noted by over 34% of respondents. These

factors impede SMEs, yet robust innovation implementation and the introduction of a new product can strengthen their market positions domestically. Heim et al. (2019) advocate for collaborative efforts among government entities, industry stakeholders, and academic institutions to create a supportive environment for SME development in Kazakhstan.

The existing ICT standards and the overall quality of the infrastructure in Kazakhstan represent significant challenges for SMEs. According to Samruk Kazyna (2017), which seeks to assess the elements, policies, and institutions enabling the country to leverage ICT, Kazakhstan ranks 39th out of 139 countries. The country achieved above-average scores across ten assessment areas; however, it should enhance the quality of its products and services (Ashimova & Alzhanova, 2022; Turkyilmaz et al., 2023). Furthermore, significant differences in internet connectivity between urban and rural regions hinder Kazakhstan's preparedness for technological development, as a robust ICT infrastructure is essential for digital transformation. The existing inadequacy of ICT infrastructure may pose a significant obstacle to the development of SMEs in Kazakhstan.

In recent years, there has been a significant rise in risks to information security within the financial and industrial sectors, as well as in government information systems (World Bank, 2023). Despite Kazakhstan's score of 31 out of 182 in the Global Cybersecurity Index, which assesses the cybersecurity levels of 194 nations, the risk of cyberattack remains significant in the sector (Ashimova & Alzhanova, 2022). It does not create its own information systems, instead adopting digital technology and cybersecurity frameworks produced by other countries (Karmys & Bastabayeva, 2018). In this scenario, the state's essential information and communication infrastructure is vulnerable to significant attacks. This, along with Kazakhstan's relatively lenient cybercrime legislation, poses the primary potential threat to the technological development of SMEs in the country.

Another issue in Kazakhstan is corruption. Kazakhstan has established state control and a clan mentality (Kalyuzhnova, 2016; Baldakhov and Heim, 2020), characterised by elevated levels of corruption that culminated in a revolution in 2022 (Khlystova et al., 2022). A reluctance to participate in networks and cultivate relationships with authorities may hinder survival and progress (Kalyuzhnova & Belitski, 2019). Mamyrbayev (2014) notes that over 15% of SMEs in Kazakhstan indicated that corruption is a primary impediment to conducting business. He assumes that corruption adversely influences an organisation's reputation, undermines employee morale, causes financial losses, and impairs the nation's overall economic development.

The SWOT analysis of Kazakhstan's SMEs sector provides a comprehensive understanding of the internal and external factors shaping its development. The findings highlight significant strengths, including SMEs' adaptability to market fluctuations, entrepreneurial spirit, and product specialisation, which position them as dynamic contributors to the national economy. Simultaneously, the analysis underscores substantial weaknesses such as insufficient qualified personnel, limited financial resources, and a lack of understanding and integration of advanced technological solutions like Industry 4.0 (Turkylmaz et al., 2023). External opportunities, such as global value chain integration, and digitisation initiatives, like "Digital Kazakhstan," offer substantial potential for growth for SMEs. However, external threats such as corruption, underdeveloped ICT infrastructure, and fragmented innovation ecosystems temper these opportunities (Ashimova & Alzhanova, 2022).

The results of the SWOT analysis underscore the critical role of business incubators as institutional intermediaries in addressing the challenges faced by SMEs. Business incubators provide a structured environment that enables SMEs to leverage their strengths while mitigating weaknesses. They serve as hubs of innovation and capacity-building, offering

tailored support in areas such as mentorship, financial access, networking, and technological training (UNECE, 2021). For instance, by addressing the skills gap, incubators can enhance the capabilities of SMEs to adopt and integrate advanced technologies, fostering competitiveness and innovation (Zhandybayev, 2018). Furthermore, incubators can act as conduits for financial support, helping SMEs navigate funding mechanisms and facilitating access to grants and equity financing, which are critical for growth and scaling operations (Pompa, 2013).

Moreover, incubators are pivotal to enabling SMEs to capitalise on external opportunities. Through their role in fostering collaboration between academia, industry, and government, often referred to as the “triple helix” model, incubators can bridge the gap between research and commercial application, driving innovation-led growth (Turkylmaz et al., 2023). In the context of low R&D expenditures and concentrated innovation activity in urban centres such as Almaty and Astana, incubators play a crucial role (KAS, 2018). Incubators can decentralise innovation efforts, enabling SMEs in less-developed regions to benefit from similar levels of support and resources.

The threats identified in the analysis, such as corruption and inadequate ICT infrastructure, further highlight the importance of incubators in advocating for systemic improvements. Incubators can play an advocacy role by partnering with policymakers to address structural issues that hinder SME development, such as streamlining regulatory frameworks and promoting anti-corruption initiatives (Petrenko et al., 2019). Additionally, incubators can facilitate the integration of SMEs into global value chains by providing market access and fostering collaborations with international partners, thus reducing SMEs’ reliance on domestic market dynamics (OECD, 2017).

To conclude, the SWOT analysis (Table 5) reveals a dual narrative of potential and

challenge within Kazakhstan's SME sector. The findings reinforce the necessity of business incubators as intermediaries that not only tackle these challenges but also unlock opportunities for growth and innovation. By addressing skill deficits, financial constraints, and systemic inefficiencies, incubators can transform SMEs into resilient and competitive actors within both local and global markets. Their role is instrumental to achieving Kazakhstan's strategic objectives of economic diversification and transitioning to a knowledge-based economy. Future efforts should focus on strengthening the capacity and reach of incubators to ensure that their impact is equitable and widespread, aligning with national goals for sustainable and inclusive economic development.

2.5 Concluding Summary

This chapter has provided a comprehensive analysis of the institutional context within which business incubators operate in Kazakhstan, offering critical insights into the interplay between entrepreneurship, policy frameworks, and economic development. It has examined the country's entrepreneurial ecosystem, emphasising the structural and policy factors shaping the landscape for SMEs and entrepreneurial activities. By exploring institutional frameworks and incubation policies, the chapter highlighted the unique challenges and opportunities that business incubators face in an emerging economy characterised by institutional voids, transitional policy environments, and rapid economic modernisation.

The discussion began with an overview of Kazakhstan's entrepreneurial ecosystem, emphasising its historical evolution, its current state, and the key factors influencing entrepreneurial activities. This included government bodies, private sector participants, universities, and international development agencies. We paid particular attention to the infrastructural and institutional enablers that support entrepreneurial growth, such as funding

mechanisms, regulatory frameworks, and access to technology. The discussion also identified gaps in these enablers, including limited access to venture capital, a lack of entrepreneurial culture, and regional disparities, which created obstacles for business incubators and their clients. This contextual understanding provided a foundation for examining how incubators navigated these challenges and contributed to the ecosystem's development. The chapter then focused on Kazakhstan's incubation policy, analysing its objectives, implementation strategies, and alignment with the national vision for economic diversification, as articulated in policies such as the "Business Roadmap 2025" and the "Kazakhstan 2050 Strategy." These policies aimed to foster innovation, enhance SME competitiveness, and reduce dependency on natural resources by promoting entrepreneurship. The analysis emphasised the positioning of business incubators as crucial tools in these strategies, their roles in filling institutional gaps and offering crucial assistance to emerging enterprises. The chapter also discussed challenges in policy implementation, including resource constraints, bureaucratic inefficiencies, and inconsistencies in aligning national and regional incubation initiatives.

The chapter contextualised the role of SMEs in Kazakhstan's economy by reviewing the country's SME policies, which prioritise innovation, employment generation, and regional development. The chapter traced the evolution of these policies, noting how they shifted from broad industrial support to targeted entrepreneurial development programmes. The chapter delves into the integration of SME policies with incubation initiatives, emphasising the use of business incubators to accomplish policy goals like promoting innovative startups and boosting regional competitiveness. This section underscored the importance of coherence between policy design and implementation when maximising the impact of business incubators.

The SWOT analysis of Kazakhstan's SME sector provided a nuanced understanding of the entrepreneurial landscape, identifying critical factors influencing the success of business

incubators. Strengths included a growing entrepreneurial interest among the youth, strategic government support for innovation, and an expanding ICT infrastructure. However, we also highlighted weaknesses like limited access to financing, inconsistent regulatory environments, and a lack of mentorship programmes. Opportunities included Kazakhstan's geographic position as a hub for regional trade, potential for cross-border collaborations, and growing international interest in its entrepreneurial ecosystem. Threats encompassed economic volatility, dependency on natural resources, and global competition. This analysis not only offered insights into the external environment impacting business incubators but also identified strategic areas for improvement in policy and practice.

By situating business incubators within Kazakhstan's broader institutional and economic context, the chapter illuminated their dual role as facilitators of entrepreneurship and intermediaries addressing institutional voids. The chapter demonstrated the crucial role of business incubators in connecting entrepreneurs with resources like capital, mentorship, and market access. They also served as platforms for fostering innovation and enhancing the entrepreneurial capabilities of their clients, aligning with broader national goals.

The chapter concluded by laying the groundwork for further analysis of the mechanisms through which business incubators fulfilled their intermediary roles, their effectiveness in navigating Kazakhstan's unique institutional challenges, and their contributions to economic development. By integrating theoretical insights with practical observations, this chapter set the stage for a deeper exploration of business incubators' operations and impact within a transitioning economy.

Chapter III: Methodology

This chapter outlines the methodological framework employed to explore the role of business incubators in Kazakhstan. It provides a detailed account of the research design, data collection methods, and analytical strategies, ensuring transparency and rigour in addressing the research questions. The study adopts an interpretivist philosophy, recognising the subjective nature of entrepreneurial experiences and the influence of institutional contexts. By focusing on the meanings and interpretations of stakeholders, the research aims to uncover nuanced insights into the dynamics of business incubation in emerging economies. A qualitative case study approach was selected to facilitate an in-depth examination of two prominent business incubators in Kazakhstan: MOST Inc. and NURIS. This design allows for a comprehensive analysis of their structures, processes, and interactions within the entrepreneurial ecosystem. The selection of MOST Inc. and NURIS was based on their strong reputations within Kazakhstan's entrepreneurial ecosystem, their diverse operational models offering comparative insights, and their accessibility, which enabled comprehensive data collection. A multi-method approach ensured robust and rich data, including 66 semi-structured interviews with managers, incubatees, and policymakers to capture firsthand experiences, direct observations of incubator activities for contextual understanding, and document analysis of policies, archival records, and internal reports. Data analysis involved thematic analysis, beginning with familiarisation through transcript reviews, followed by coding, theme development, and validation to ensure reliability and coherence. Ethical guidelines were strictly followed, with participants fully informed, data anonymised for confidentiality, and secure data storage. While the case study provides valuable insights, its findings are context-specific to Kazakhstan and may not generalise to other emerging economies, and reliance on self-reported data introduces potential biases. This chapter provides a transparent account of the research

methodology, emphasising its alignment with the study's objectives. By adopting a rigorous and context-sensitive approach, the research ensures the credibility and validity of its findings. The next chapter will present the case study findings and thematic insights, offering a detailed analysis of MOST Inc. and NURIS.

3.1 Research Aims and Questions

This study (Thomas & Hodges, 2010) aims to investigate the role of business incubators in Kazakhstan as institutional intermediaries, and to investigate potential adaptations to improve their efficacy in promoting entrepreneurship and innovation. Tailoring business incubators to specific institutional and cultural environments is essential (Duut et al., 2016; Mrkajic, 2017; Wu et al., 2019), and exploring the interplay between business incubators and their surrounding ecosystems is crucial (Yang et al., 2018). To achieve this research aim, the study adopts three specific research objectives (Thomas & Hodges, 2010), using insights from institutional theory introduced in Chapter I. The first objective is to examine the characteristics, operational models, and institutional challenges faced by business incubators in Kazakhstan. The second aim is to develop a context-sensitive framework for enhancing the strategic and institutional effectiveness of business incubators in emerging economies. Lastly, this study seeks to develop a guide for business incubator modelling that caters to the requirements of emerging economies, offering specific recommendations for policymakers and stakeholders. Thus, drawing on institutional theory, this study explores the dual role of business incubators as both recipients and agents of institutional influence. It emphasises the need to examine how incubators mediate between formal institutions, such as government policies, and informal norms and values within the entrepreneurial ecosystem.

The overarching research question is: *How do business incubators function as institutional intermediaries to shape and influence entrepreneurial ecosystems in emerging economies?* The first research sub-question is: *How do business incubators adapt to the institutional environment of emerging economies?* The literature review in Chapter I reveals that conventional business incubator models, especially those from developed economies, often prioritise growth-oriented entrepreneurship and market expansion. These models rely on well-functioning institutional infrastructures, including robust legal systems, access to venture capital, and mature entrepreneurial networks. However, these assumptions rarely hold in emerging economies, where institutional voids, gaps, or inefficiencies in the institutional framework impede market functionality (Duut et al., 2016; Mrkajic, 2017).

The second research sub-question is: *What role do business incubators play, as institutional intermediaries, in overcoming barriers to entrepreneurial success?* Findings from the literature review in Chapter I highlight the dual role of business incubators as both recipients and agents of institutional influence. Business incubators mediate between formal institutions (e.g., government policies) and informal norms, helping to align entrepreneurial activities with broader socio-economic goals, playing a critical role in redistributing resources within ecosystems, and addressing inequalities that hinder entrepreneurial participation in emerging economies.

The third research sub-question is: *How do elements of the entrepreneurial ecosystem interact with business incubators to foster new ventures?* Findings from the literature review highlight the interdependent nature of interactions between various elements of the entrepreneurial ecosystem and the business incubation process, where incubators act as nodes within broader ecosystems, mediating between entrepreneurs and other stakeholders (Cavallo et al., 2019). The literature also suggests that business incubators are instrumental in bridging

gaps between entrepreneurs and external resources, such as funding, knowledge, and networks (Pettersen et al., 2016; Battistella et al., 2018). This bridging function is especially vital in emerging economies, where institutional voids and fragmented ecosystems can create significant barriers to entrepreneurial success (Mrkajic, 2017). The ability of incubators to foster such connections is contingent on their embeddedness within the local ecosystem and their capacity to leverage both formal and informal relationships.

3.2 Research Design

Selecting an appropriate research methodology requires careful consideration of the underlying philosophical assumptions, methods, and their respective strengths and weaknesses (Baroudi & Orlikowski, 1991). An interpretive epistemological orientation and a constructionist ontological perspective support the adoption of an inductive theory-generation approach for the present research. Bell and Bryman (2007) designed these choices to capture the complexity of the phenomenon and align with the study's focus on business incubators as intermediaries within an emerging entrepreneurial environment.

Over the past two decades, business incubation research has widely adopted the interpretative approach (Oates, 2006). It facilitates a nuanced understanding of incubation practices and the development of business incubator models (Mrkajic, 2017), as demonstrated by previous studies (Klein and Myers, 1999; Oates, 2006). Unlike the positivist paradigm, which treats social reality as external and detached from individual experiences, interpretivism acknowledges the significance of human subjectivity and context in shaping social phenomena. We deem the positivist approach unsuitable for this research, as it fails to align with the study's objective of exploring the nuanced dynamics of business incubators, rather than testing predefined hypotheses.

Similarly, while the critical approach shares some philosophical overlap with interpretivism, its focus on emancipating individuals diverges from the primary aim of this research, which is to investigate the role of business incubators in addressing institutional barriers and fostering entrepreneurship. The critical approach's emphasis on changing the status quo is incompatible with the study's capacity and scope within the study's context (McLean and Stahl, 2007). Furthermore, ethnographic or observational methods are impractical due to resource limitations, time constraints, and the geographic disparity between the PhD student's location in the UK and the study's focus on Kazakhstan (Yin, 2009).

Skoldberg and Alvesson (2000) assert that the complexity of the researcher's worldview and the nature of the study area influence the selection of an interpretive paradigm. This approach facilitates a deep engagement with the world of the research subjects—in this case, business incubator organisations—allowing for the emergence of theoretical insights from qualitative data analysis and inductive reasoning (Denzin & Lincoln, 1998; Strauss & Corbin, 1990). Given the limited literature on business incubators in emerging economies (Hausberg & Korreck, 2018; Surana et al., 2020), it offers a framework for developing theory based on the lived experiences of stakeholders.

We deemed qualitative methods to be the most appropriate for this study, which aims to address complex and processual social questions regarding the role of business incubators in Kazakhstan. Morgan and Smirchich's (1980) framework aligns with a qualitative design that allows for the exploration of intricate social processes within the dynamic and evolving context of an emerging entrepreneurial ecosystem. The use of qualitative methods aligns with the aim of understanding how business incubators function as institutional intermediaries and how their activities unfold to yield specific outcomes, a line of inquiry that quantitative methods often fail to adequately capture due to their inherent complexity (Langley, 1999).

Theorising explanatory links in such multifaceted processes necessitates a qualitative approach, particularly in contexts characterised by significant institutional gaps and sociocultural idiosyncrasies, such as Kazakhstan. Denzin and Lincoln (1994) and Huy (2012) argue that qualitative research is a superior choice for this study's focus on processual and relational dynamics, as it excels in uncovering the mechanisms behind phenomena deeply embedded in contextual nuances. These qualities are particularly critical in the study of business incubators, where understanding the interactions between incubators, entrepreneurs, and broader ecosystem stakeholders requires an in-depth exploration of experiences and practices.

Prior studies, such as those by Voisey et al. (2013), Nicholls-Nixon et al. (2021), and Cookey and O'Gorman (2021), have demonstrated the value of qualitative methodologies in business incubator research. Voisey et al. (2013) illustrate how qualitative methods capture the nuanced relationships between incubators and incubatees, including mentorship, resource-sharing, and the development of entrepreneurial capabilities. Quantitative analysis, which often overlooks the human elements critical to the success of business incubators, cannot fully understand such relational dynamics, as their findings underscore. Similarly, Nicholls-Nixon et al. (2021) emphasise the adaptability of business incubators to varying institutional contexts, highlighting how qualitative research can uncover context-specific strategies and stakeholder interactions. Cookey and O'Gorman (2021) also note that qualitative methods are necessary to look into systemic problems that incubators face, like limited resources and ecosystems that are not working together properly. These methods give us important information that we need to make custom solutions for emerging economies.

Heim (2019), whose research on Kazakhstan leverages qualitative methods to examine the socio-cultural and institutional dimensions of organisational transformation, further

reinforces the relevance of qualitative methodologies. This study, which involves engaging deeply with stakeholders to understand their experiences and perspectives, aligns closely with its aims. Heim (2020) demonstrates that qualitative methods are particularly effective in capturing the intricacies of Kazakhstan's institutional environment, where formal and informal structures interact in complex ways.

Additionally, qualitative research facilitates the examination of unfolding processes over time, making it well-suited for addressing the longitudinal aspects of business incubators. Langley (1999) noted that qualitative methods uniquely capture the evolution of events and interactions crucial to understanding the progression of incubated firms from selection to graduation. This temporal perspective is integral to the current study, which seeks to trace the developmental trajectory of business incubators and their incubatees, identifying key variables that influence outcomes at different stages of the incubation process.

Critically, while quantitative methods offer the advantage of statistical generalisability, they are often inadequate to address the depth and complexity inherent in social processes like business incubators. Qualitative methods aim to capture the tacit knowledge, emotional dynamics, and context-specific practices that quantitative approaches may overlook (Voisey et al., 2013; Nicholls-Nixon et al., 2021). For instance, only qualitative research can provide rich, descriptive data necessary to understanding how incubators build trust and foster relationships within Kazakhstan's unique cultural and institutional framework.

Specific ontological and epistemological assumptions about the nature of reality and knowledge form the basis of the chosen methodology. Given the study's emphasis on business incubators within Kazakhstan's entrepreneurial ecosystem, the lived experiences and perspectives of individuals involved in these processes are central to understanding the phenomenon. These insights contribute to an expanded awareness of how business incubators

function and their impact on entrepreneurs and stakeholders. To achieve this, the research traces the evolutionary process of incubation models and the relationships between incubatees and incubator managers, encompassing stages from initial selection and induction through to graduation. This longitudinal approach provides a framework for investigating key variables influencing the nature and success of business incubators in a specific context. This approach facilitates the examination of long-term trends and short-term fluctuations, offering a comprehensive understanding of the factors influencing these changes.

This study's research design, which closely aligns with Creswell's (2009) framework, is based on an inductive reasoning approach that emphasises the systematic exploration of empirical data to build theory. Fieldwork initiates this methodology, gathering data directly from business incubator stakeholders such as incubator managers, entrepreneurs, and policymakers. We then categorise the data into themes through a systematic coding process, which allows us to identify recurring patterns and relationships. We iteratively refine these themes to uncover broader patterns, ultimately contributing to the development of generalisable theory. This process reflects Creswell's approach to inductive research, which integrates qualitative insights with theoretical interpretation to create a nuanced understanding of complex phenomena.

The iterative nature of this research design is particularly suited to the study's focus on business incubators as institutional intermediaries in Kazakhstan's entrepreneurial ecosystem. Creswell (2009) suggests that triangulating data interpretation with existing literature strengthens the validity of findings in an inductive approach. This study not only builds on the data collected but also draws from comparative analyses of previous research on business incubators in emerging economies to validate the emerging conclusions. For instance, Dubois and Gadde's (2002) "systematic combining" approach complements Creswell's methodology

by emphasising the interplay between empirical observations and theoretical frameworks, which is essential to a contextually rich understanding of incubator dynamics in institutionally void environments.

Given the limited theoretical foundation on business incubators in Kazakhstan, the research design leverages findings from related studies to enhance analytical rigour. Previous studies by Hackett and Dilts (2004) and Aaboen (2009) offer valuable insights into the performance and intermediary roles of business incubators, providing comparative benchmarks for analysing Kazakhstan's context. For instance, this study explores Hackett and Dilts' (2004) framework for evaluating incubator effectiveness, which emphasises the importance of ecosystem integration and resource provisioning concepts in understanding how incubators in Kazakhstan navigate institutional barriers and foster entrepreneurial growth.

Additionally, the study draws inspiration from Mian's (1996) work on university-based incubators, which highlights the role of incubators in linking academic institutions with entrepreneurial ventures. This perspective is particularly relevant in Kazakhstan, where universities play a pivotal role in the entrepreneurial ecosystem, and incubators often act as bridges between academic research and market-orientated innovation. The methodological alignment with Creswell's approach guarantees the incorporation of contextual factors into the research process, offering a comprehensive understanding of the business incubator phenomenon.

The reliance on inductive reasoning also allows the study to address its specific research questions comprehensively. For instance, the sub-question of how business incubators adapt to the institutional environment of emerging economies requires the exploration of localised practices and stakeholder experiences. By coding and categorising qualitative data, the study identifies key variables, such as policy frameworks, cultural norms, and resource accessibility

that shape the effectiveness of incubators. Similarly, the iterative analysis of data addresses the question of how incubators act as institutional intermediaries, revealing the buffering and bridging functions they perform within fragmented ecosystems. This process aligns with Creswell's (2009) emphasis on deriving theoretical insights from empirical evidence while still maintaining the flexibility to adapt to emerging patterns.

In integrating Creswell's approach with findings from previous incubator research, this study not only builds a robust methodological foundation but also contributes to the growing body of knowledge on business incubation in emerging economies. The iterative, theory-generating process ensures that the study remains grounded in the realities of Kazakhstan's context while drawing on broader theoretical and empirical insights to enhance the credibility and generalisability of its findings.

3.3 Research Strategy: Case Study and Inductive Reasoning

The research objectives and questions determine the research strategy (Mason, 1996). Yin (2006) adopted a case study as the research strategy. Case study, known for its methodological flexibility, offers a robust approach to investigating complex and context-specific phenomena (Crowe et al., 2015). Its independence from fixed epistemological, ontological, or methodological positions makes it an adaptable "paradigmatic bridge" suitable for diverse research contexts (Yates & Rosenberg, 2007). In alignment with this flexibility, the current study adopts a multiple longitudinal exploratory case study methodology to examine the role of business incubators in Kazakhstan, a context where incubation processes remain underexplored. The case study approach facilitates an in-depth understanding of business incubators' dynamics, including their adaptation to local environments and their intermediary roles in overcoming institutional voids.

Yin (2006) identifies three conditions that are crucial for case study research: the nature of the research question, the level of control over observed behaviours, and the focus on contemporary versus historical events. These align seamlessly with the objectives of this study, which explores the evolving role of business incubators within Kazakhstan's entrepreneurial ecosystem. Since the incubation process in Kazakhstan often unfolds informally, without strict procedural documentation, the case study method provides an ideal framework for capturing these unstructured, real-life phenomena (Yin, 2006). Additionally, the use of multiple case studies enables comparisons across different institutions, enhancing the validity and depth of the findings (Collis & Hussey, 2014).

The decision to adopt a multiple-case approach reflects the study's aims and objectives, which emphasise understanding both the internal dynamics of individual business incubators and their broader interactions within the entrepreneurial ecosystem. Cross-case analysis is easier when one considers more than one case study. This allows one to find patterns, differences, and problems that incubators in different socioeconomic settings face (Merriam, 2016; Saunders, Lewis, & Thornhill, 2016). This method builds on earlier research on business incubation that used case study methods to successfully consider similar situations, like Voisey et al. (2013), Nicholls-Nixon et al. (2021), and Cookey and O'Gorman (2021). Their work shows how useful qualitative methods can be to understanding complicated process and relational dynamics.

The case study method is particularly relevant for research in Kazakhstan, where the socio-economic and institutional environment is characterised by post-Soviet transitions and swift modernisation (Abeuva, 2018). Business incubators in this context operate within a multifaceted ecosystem, shaped by economic, social, cultural, and political factors. The nascent state of Kazakhstan's entrepreneurial infrastructure and incubation policies necessitates an

approach capable of capturing the nuances of this environment. Case studies provide a means to explore the unique challenges and opportunities faced by incubators, including financial constraints, regulatory barriers, and talent shortages, while also shedding light on the cultural perspectives that influence entrepreneurial practices (Stephens, 2022).

Longitudinal data collection over the period 2021–2024 enables the study to trace the evolution of business incubators in Kazakhstan, offering insights into their growth, adaptation, and impact over time. As demonstrated by Gertner (2013), longitudinal case studies allow researchers to observe the development of patterns and processes across different stages of the incubation lifecycle. This approach is particularly valuable to understanding how Kazakhstan's incubators navigate institutional challenges, mediate relationships between stakeholders, and foster entrepreneurial activity within a rapidly changing ecosystem.

The methodological framework also draws on the experiences of other researchers, who have utilised qualitative and case-based methods to investigate business incubation in emerging economies. For instance, Bøllingtoft (2012) employed case studies to explore third-generation incubators, combining participant observation, focus groups, and interviews to generate comprehensive insights. Similarly, Cheng et al. (2023) used multiple case studies to identify optimal incubation practices across Chinese cities, employing cross-case analysis to highlight variations and commonalities. These studies underscore the value of qualitative case study methodologies for generating context-specific insights and theoretical advancements.

In Kazakhstan, the scarcity of comprehensive documentation on business incubators and the covert nature of government strategies further justifies the use of qualitative case studies. The research relies on semi-structured interviews with key stakeholders, including incubator managers, policymakers, and incubatees, to collect rich, unprocessed data. This approach grounds the findings in the lived experiences of participants, in line with the study's

inductive reasoning framework (Seidman, 2006). Likewise, the case study provides a comprehensive and context-sensitive approach to investigating business incubators in Kazakhstan. It aligns with the study's philosophical orientation, research questions, and objectives, offering a means to capture the depth and complexity of the incubation phenomenon. This study aims to make a significant difference in our understanding of business incubation in emerging economies by combining longitudinal data, cross-case comparisons, and qualitative methods. It will do so by filling gaps in the theory and looking at what it means in practice.

The sampling strategy in the case study is crucial to ensuring that the selected cases provide meaningful insights and align with the research objectives (Eisenhardt, 1989). Unlike statistical sampling, which aims for representativeness, case study sampling focuses on the relevance of the cases to the phenomenon under investigation (Yin, 2009). Purposeful sampling is the most commonly employed strategy in case studies as it enables researchers to select cases that are most informative for the research questions (Patton, 2015). This approach prioritises the depth and relevance of the data over its breadth, ensuring that the selected cases align closely with the phenomena under investigation. This study employs purposeful sampling, which involves selecting business incubators that represent a range of operational models or geographic contexts to explore variations in their roles and impact.

We selected two business incubators based on their prominence, government accreditation, longevity, and demonstrated success in delivering programme outcomes. These incubators represent distinct categories, with varied participants, entry criteria, services, and support structures, making them ideal for an analysis of business incubators (Denzin & Lincoln, 2017; Merriam & Tisdell, 2015; Yin, 2014). This sampling approach aligns with the study's objective to explore business incubators that reflect different stages of entrepreneurial

development, as opposed to a statistical sampling method focused on representativeness. The two selected incubators have a sufficient number of incubatees and stakeholders—managers, policymakers, mentors, and investors—who are willing to participate in the study, ensuring robust and diverse data collection. Previous research supports the use of case studies with similar participant pools to explore business incubation phenomena. For example, studies by Voisey et al. (2013) and Nicholls-Nixon et al. (2021) employed case study designs with diverse stakeholder participation to analyse the effectiveness of business incubators. These studies demonstrated that including multiple stakeholder groups not only enhances data quality but also enables triangulation of perspectives, strengthening the validity of the findings.

The ability of these cases to capture the multifaceted nature of business incubators in Kazakhstan justifies their selection. Participants included incubatees at various stages of development, incubator staff and managers, and external stakeholders, providing a comprehensive understanding of the business incubator model. This aligns with previous research, which emphasised the importance of selecting cases with rich data potential to address complex phenomena. For instance, Bruneel et al. (2012) and Nicholls-Nixon et al. (2021) highlight the necessity of examining multiple perspectives within an incubator ecosystem to understand its effectiveness and adaptability. The selection criteria also consider key characteristics of business incubators identified in the literature. The first characteristic, the stage of intervention, determines the target audience for support, reflecting the operational focus of the incubator (Chan & Lau, 2005; McAdam & McAdam, 2008). The second is the portfolio of services, encompassing the types of assistance provided and their delivery mechanisms, which are critical to fostering entrepreneurial growth (Dutt et al., 2015; Bruneel et al., 2012). Third, the mission of the incubator defines its strategic objectives and alignment with broader institutional goals (Bergek & Norrman, 2008). Lastly, the source of funding

highlights the financial sustainability and strategic direction of the incubator (Amezcu et al., 2013; Greenwood & Suddaby, 2006).

These criteria underpin the exploration of the two incubators, which represent distinct approaches to entrepreneurship support within Kazakhstan's nascent entrepreneurial ecosystem. The study examines their generation, typology, funding mechanisms, service portfolios, and stages of incubatee development. Additionally, it investigates their interaction with the broader institutional environment and their intermediary roles between entrepreneurs and formal institutions. We position business incubators as pivotal entities that not only protect incubatees from external risks by providing internal resources but also serve as a bridge between entrepreneurs and external stakeholders, fostering access to scarce resources and alignment with institutional norms. This dual role mirrors insights from McAdam and McAdam (2008) on the critical functions of incubators in entrepreneurial ecosystems.

The study further aligns with InfoDev's (2009) recommendation to tailor business incubator models to the entrepreneurial lifecycle. It identifies two distinct models within Kazakhstan's context: the nascent incubation model, addressing the pre-birth phase, and the seed incubation model, supporting ventures in the startup phase. We analyse each model using constructs such as mission, funding sources, service portfolio, and stage of intervention. This segmentation aligns with entrepreneurial lifecycle theories and enhances our understanding of how business incubator models cater to distinct entrepreneurial needs. The selection of two business incubators, grounded in purposeful sampling, ensures a comprehensive exploration of business incubators in Kazakhstan. By focusing on their mission, services, funding, and intervention stages, this study offers nuanced insights into the interaction of incubators with institutional environments and their intermediary roles. This approach not only enhances our

theoretical understanding but also provides practical implications for improving incubation strategies in emerging economies.

In the spring of 2020, we conducted an exploratory pilot study as part of our research for the United Nations Economic Commission for Europe (UNECE) during the initial development of the literature review and research design for the main study. While the pilot originally focused on business incubators within a broader regional context (SPECA countries), it also aimed to provide preliminary insights specific to Kazakhstan's entrepreneurial ecosystem.

The pilot study involved five interviews with stakeholders who had professional experience with business incubation and entrepreneurial support systems. Logistical constraints necessitated conducting these interviews in a virtual environment. The primary aims of the pilot study were threefold: to refine the research questions and theoretical propositions, to adjust the research design and methodological approach, and to gain an in-depth understanding of the specific context of Kazakhstan's business incubation landscape, including the terminologies and concepts prevalent within this sector (Spradley, 1979). Insights gained from this pilot study significantly informed the subsequent development of the research framework. We integrated the pilot's reflections into the study's aims and scope, refined the research questions, selected target participant groups, and developed case study protocols. These adjustments ensured that the main study, contextually grounded and methodologically robust, effectively explored the unique dynamics of business incubators as institutional intermediaries in Kazakhstan.

3.4 Data Collection and Analysis

This study's careful selection of two business incubators, MOST Inc. and NURIS, aligns with the research objectives and ensures the richness and diversity of data collection. The case study method is well-suited for this research, as it enables an in-depth exploration of complex phenomena within their real-life contexts. Methodologists differ regarding the ideal number of cases. Eisenhardt (1989) suggests a range of four to ten cases, whereas Hamel et al. (1993) contend that the study's objectives should determine this number. Importantly, prior research on business incubators has demonstrated the effectiveness of using two cases to provide meaningful insights (McAdam & McAdam, 2008; Lichtenstein, 2010). As mentioned, the selection process adhered to a purposive sampling approach, as suggested by Neuman (2011), to identify cases that could offer the most relevant insights into the research questions. The selection of MOST Inc., a private business incubator with mixed sponsorship sources, and NURIS, a university-based incubator, captures two distinct operational models. These incubators are located in Almaty and Astana, two principal regions in Kazakhstan that collectively contribute approximately 30% of the country's GDP and represent the most dynamic entrepreneurial ecosystems (World Bank, 2023). The choice of these cities aligns with the need to study incubators situated in urban, resource-rich environments where essential components for venture creation are present, as outlined by Gartner (1990).

The rationale for selecting these two cases extends beyond geographic and economic considerations, however. MOST, Inc., exemplifies market-driven business incubation, emphasising entrepreneurial flexibility and resource diversification. In contrast, NURIS represents a university-linked model that integrates academic research and innovation with entrepreneurial development, aligning with global best practices (Lewis et al., 2003). These differences provide an opportunity to examine the adaptability of incubation strategies in

Kazakhstan's unique institutional environment. The different types of incubators make it possible to compare them, which is in line with Bergek and Norrman's (2008) argument that looking at differences in incubator structures helps us to understand how they affect the success of entrepreneurs.

Securing access to these incubators posed certain challenges given the limited prevalence of business incubators in Kazakhstan and the scarcity of publicly available documentation on their activities. Many incubators lack annual reports or promotional materials that could have facilitated the identification process. To overcome these barriers, the research leveraged professional networks established during prior employment in Kazakhstan's educational sector. These connections enabled access to incubator managers, policymakers, and other stakeholders, ensuring the selection of cases with sufficient participant engagement.

We deemed both incubators suitable because of their robust networks of stakeholders, which included incubatees, managers, mentors, policymakers, and investors. The willingness of these participants to engage in the study underscores the accessibility and relevance of the selected cases. This aligns with Patton's (2015) emphasis on the importance of participant diversity in qualitative research, as it facilitates the triangulation of perspectives and enhances the validity of findings. Additionally, the two cases align with prior research that highlights the value of urban and university-linked incubators in driving entrepreneurial success. Studies by Somsuk and Laosirihongthong (2014) and Secundo et al. (2023) have demonstrated that such incubators provide value-added services that enhance client performance more effectively than their non-urban or non-academic counterparts. Both MOST Inc. and NURIS benefit from proximity to universities, which contribute technical expertise, research capabilities, and

business advisory services—critical factors for fostering innovative startups (Lewis et al., 2003).

The research also incorporates the perspectives of external stakeholders, including representatives from QTV and NATD, as well as private investors and government officials. These stakeholders provide valuable insights into the broader policy and institutional environment influencing business incubation in Kazakhstan. Including these points of view ensures that the study covers both the systemic and relational aspects of business incubation. This is in line with Kazinvest's (2024) focus on getting ecosystem actors to work together to create a long-lasting framework for entrepreneurship.

MOST Inc. and NURIS meet the criteria for theoretical replication, as suggested by Eisenhardt (1989), allowing the study to explore both commonalities and variations in incubation practices. The distinct operational strategies of the two incubators, coupled with their shared alignment with government policies such as the National Business Incubator Support Programme, provide a rich context for examining the role of incubators as institutional intermediaries. The research methodology also included workshops and training sessions with stakeholders, further facilitating access to data and enhancing the study's contextual relevance. For instance, a workshop with the NATD in Astana offered the opportunity to interact with policymakers and professionals, thereby enhancing the dataset with a variety of viewpoints.

Data Collection Process

This study used a two-phased approach to gather comprehensive qualitative data on business incubators in Kazakhstan. Initially, we conducted observation and discussion sessions with incubator staff, incubatees, and government officials, primarily through workshops held in Almaty and Astana. These sessions provided opportunities to engage with stakeholders and

gather contextual information. We also conducted site visits as a non-participant observer to gain firsthand insights into the physical and operational environment of the two selected incubators. The observations focused on physical amenities such as communal areas, reception zones, and incubatee workspaces, as well as available resources and equipment, following protocols outlined by Creswell (2013). The role of the observer was deliberately non-intrusive, aligning with Bernard's (2006) description of the observer as an outsider documenting events and behaviours from a distance.

The observation process adhered to a systematic methodology. We developed an observation checklist (Appendix 6) based on guidelines developed by Merriam and Tisdell (2015) and examples from the incubators MOST (2022) and NURIS (2022). This structured approach ensured a consistent examination of the incubators' physical and operational environments. During these visits, we took notes and photographs, which provided valuable qualitative data in digital formats. We simultaneously gathered documents such as official reports, promotional materials, and website content to enhance the dataset. These documents, despite their promotional nature, offered insights into the perceived role of business incubators in fostering entrepreneurship and innovation within Kazakhstan's economic landscape, corroborating findings from online media sources (Denzin & Lincoln, 2017). We initiated communication with incubator managers and stakeholders in preparation for fieldwork to ensure access to participants and resources. We employed reflexivity to anticipate and navigate potential conflicts or biases, acknowledging the potential challenges to field access, such as political and organisational sensitivities (Cunliffe & Alcadipani, 2016). The discourse surrounding incubators in Kazakhstan reveals both optimism and scepticism, reflecting a diverse set of expectations and criticisms among stakeholders (Friederici, 2014b).

Semi-structured interviews were the primary data collection method, allowing respondents to share their lived experiences and perspectives on significant issues. We selected this method due to its flexibility and capacity to extract detailed, rich narratives (Kvale, 1983; Gubrium & Holstein, 2001). We developed the interview protocol based on prior business incubation research by Ayatse et al. (2017) and Al-Mubarak (2017), emphasising the examination of incubation impacts such as revenue growth, job creation, networking, and innovation. The protocol consisted of nine themes encompassing foundational aspects of the incubators, management structures, objectives, business models, stakeholder relationships, selection processes, services, graduate tracking, and the domestic entrepreneurial ecosystem. We designed open-ended questions that transitioned from broad topics to specific enquiries, allowing participants to elaborate on their experiences and insights. We conducted interviews with three groups of respondents: incubator managers, incubatees, and policymakers. Questions addressed themes such as the original intentions behind establishing the incubators, sponsorship and funding sources, stakeholder relationships, selection policies, the service portfolio, and the ecosystem's impact on incubators. We conducted the 45- to 60-minute interviews in both English and Russian, taking into account the respondents' linguistic preferences and the bilingual nature of business communication in Kazakhstan. We translated the data collected in Russian into English to ensure consistency and accuracy.

We made efforts to minimise potential biases and enhance the quality of the data. We emphasised rapport building, neutrality during interviews, and clarification of ambiguous responses to create a conducive interview environment. We took steps to ensure a balanced and comprehensive data collection process, recognising the potential for biased responses or incomplete information (Nunkoosing, 2005). These steps included cross-checking facts and employing projective techniques for socially sensitive topics. High-quality data depended on

the skill of the interviewer and the structured yet adaptable interview protocol (Gillham, 2000). Likewise, field observations, combined with interviews and document analysis, provided a robust foundation for understanding the role and impact of business incubators in Kazakhstan. The inclusion of multiple qualitative methods ensured triangulation of data sources, enhancing the reliability and depth of the findings. The collaboration with incubator managers and stakeholders facilitated a detailed examination of the business incubation ecosystem, contributing to a nuanced understanding of how incubators operate within Kazakhstan's unique institutional and entrepreneurial context.

Designing Interview Questions

We carefully crafted the interview questions to explore critical aspects of the business incubation process, operational models, and the integration of incubators within the entrepreneurial ecosystem in Kazakhstan. These questions align with the study's overarching aim of investigating the role of business incubators as institutional intermediaries and their contributions to entrepreneurial development. The questions, which draw from established research on business incubation and qualitative interviews, aim to provide comprehensive insights into various aspects of incubation, such as its foundation, management, objectives, business models, external stakeholders, selection processes, services, graduation criteria, and interaction with the domestic entrepreneurship ecosystem (Appendix 7).

The questions related to the foundation of the incubators probe the historical and contextual elements that shaped their establishment. By examining the founding mission, sponsorship, and initial barriers, the study seeks to uncover the strategic considerations that influenced their creation. Understanding these elements provides insight into how the incubators addressed specific entrepreneurial challenges and positioned themselves within the

broader ecosystem. This approach reflects prior research by McAdam and McAdam (2008), which highlights the significance of historical and institutional contexts in shaping business incubator models. Management and objective-related questions examine the organisational structures, affiliations, and strategic goals of the incubators. These inquiries seek to comprehend the structure of incubators and the gradual evolution of their objectives to cater to the evolving needs of entrepreneurs. Such questions align with Bruneel et al. (2012), who emphasise the critical role of management in defining an incubator's strategic direction and service offerings. Exploring these dimensions also sheds light on the adaptability of the incubators to external conditions, a key aspect of their effectiveness.

Questions about the business model examine whether the incubators operate on a for-profit or non-profit basis, their revenue streams, and any sectoral focus, which are pivotal to understanding the financial sustainability of the incubators and their ability to balance economic and entrepreneurial objectives. The inclusion of these themes draws from studies by Patton et al. (2009) and Somsuk and Laosirihongthong (2014), which emphasise the importance of financial and strategic alignment in successful business incubator models. We explore the interaction of incubators with external stakeholders by asking about their partnerships with universities, government bodies, investors, and other entities. These partnerships are vital for leveraging resources, knowledge, and networks, which enhance the value provided to incubatees. This aspect builds on the work of Bergek and Norrman (2008), who identify stakeholder networks as a crucial factor in maximising the impact of incubator services.

Selection processes are another focus, with questions about admission criteria, recruitment channels, and evaluation mechanisms aimed at understanding how incubators identify and support high-potential entrepreneurs. Research such as Nicholls-Nixon et al.

(2021) informs these enquiries by examining how incubators curate their portfolios to maximise entrepreneurial success. By examining these processes, the study seeks to uncover the criteria and strategies that define the incubators' approach to fostering innovation. Questions on services delve into the types of support provided, including funding, mentoring, training, and networking opportunities. Understanding these offerings is critical to evaluating the effectiveness of the business incubator. Grimaldi and Grandi (2005) support this theme by identifying service portfolios as a defining feature of successful incubators. The study also explores the role of these services in enabling incubatees to navigate challenges and achieve sustainable growth. We address graduation criteria and post-graduation support to assess the long-term impact of incubators on entrepreneurial outcomes. By investigating how incubatees transition out of the incubation process and the extent of alumni engagement, the study aims to evaluate the effectiveness of incubation programmes. This focus aligns with research by Mian (1996) and Ratinho and Henriques (2010), which highlight the importance of tracking post-incubation trajectories.

The domestic entrepreneurship ecosystem is another key area, with questions designed to contextualise the incubators within Kazakhstan's unique economic and institutional environments. By examining how local conditions influence incubation models and services, the study seeks to uncover the interplay between incubators and the broader ecosystem. This approach reflects findings from Somsuk and Laosirihongthong (2014), who emphasise the importance of aligning incubation strategies with local contexts. We designed the questions for incubatees to gather insights into their experiences in the business incubation process, their interactions with the ecosystem, and their perspectives on the effectiveness of incubator services and programmes. These questions (detailed in Appendix 8) focus on exploring the developmental trajectory of incubatees from their initial engagement with the incubator to post-

incubation outcomes. The enquiries align with the study's objectives of examining the role of business incubators in fostering entrepreneurial growth and navigating institutional voids in Kazakhstan.

The first set of questions aimed to understand the incubatees' overall involvement in the incubation programme and their experience with the management team. This includes enquiries about the initial onboarding process and the dynamics of their interaction with the incubator staff. Understanding these aspects is critical to evaluating the relational support provided by incubators, which has been highlighted in the literature as a key factor in entrepreneurial development (Bruneel et al., 2012; Grimaldi & Grandi, 2005; Mrkajic, 2017). These questions help reveal the extent to which incubator management facilitates a supportive environment conducive to entrepreneurial growth. The next set of questions addressed the networking opportunities available during the incubation process and the extent of any collaboration with other entrepreneurs. These are crucial to fostering an entrepreneurial community and enhancing the resource-sharing potential of incubators. Previous studies, such as those by Patton et al. (2009), emphasise the importance of peer learning and network building in incubators. By examining how incubatees engage with these networks, the study evaluates the incubator's role as a hub for fostering meaningful entrepreneurial connections. We included questions about the perception of the broader business ecosystem and government policies to assess external factors influencing entrepreneurial development. These inquiries aim to contextualise the incubators' experiences within Kazakhstan's institutional and regulatory environment. Research by Bergek and Norrman (2008) underscores the importance of understanding the interplay between incubators and their external ecosystems, particularly in emerging markets where institutional support may be inconsistent. The interview also explored incubatees' learning experiences, both during and post-incubation, to assess the long-term

impact of the incubators on entrepreneurial competencies and business sustainability. We designed questions about programme effectiveness, resource availability, and facilities offered by the incubators to capture the value-added services provided and their alignment with the needs of incubatees. This focus aligns with findings from Nicholls-Nixon et al. (2021), which highlight the significance of tailored support services in enhancing incubator outcomes.

Finally, the questions addressed project funding arrangements and the role of the incubator management in facilitating financial resources. Entrepreneurial success heavily relies on access to funding, especially in emerging economies where venture capital and other financial instruments may be scarce. By examining this, the study investigates the incubators' effectiveness in addressing one of the most significant barriers to entrepreneurship, as noted by Ratinho and Henriques (2010).

We designed the questions for policymakers and government officials to understand their perspectives on business incubation policies, the role of incubators in the entrepreneurial ecosystem, and the challenges and opportunities for fostering entrepreneurial growth in Kazakhstan. These questions (detailed in Appendix 9) were crafted to align with the study's objectives, particularly the exploration of incubators as institutional intermediaries and their interactions with policy frameworks. Drawing from established research and practical insights, these questions aim to uncover the structural and policy-level dynamics that shape business incubation practices. The inquiry into whether it is necessary for the government to have a business incubation policy addresses the foundational rationale for public-sector involvement in supporting entrepreneurship. Research like that by Bergek and Norrman (2008) underscores the significance of institutional support in fostering an environment conducive to entrepreneurial ventures. By exploring this, the study evaluates policymakers' views on the strategic importance of incubation in national economic development. Questions about the

measurement of success and criteria for effective incubation aim to identify benchmarks and indicators that policymakers consider crucial. This aligns with studies such as those by Hackett and Dilts (2004), which underscore the need for clear performance metrics to assess the impact of incubators. These inquiries also help contextualise the expectations and goals that policymakers set for business incubator programmes in Kazakhstan. Similarly, the inquiry into the key stakeholders of business incubators delves into the dynamics of the ecosystem and the roles played by various actors, such as the government, private sector, and academia. Grimaldi and Grandi's (2005) research informs this, emphasising the multi-stakeholder nature of business incubation and the significance of collaborative partnerships. Policymakers' perspectives on stakeholder roles offer valuable insights into leveraging these relationships to improve incubation outcomes.

Financing and funding are critical themes addressed through questions about potential donors and funding mechanisms. These questions aim to explore sustainable financing models for business incubators, reflecting the findings of studies like that of Ratinho and Henriques (2010) which highlight the challenges of financial sustainability in incubation programmes. Policymakers' insights into funding strategies are essential to understanding the viability of public-private partnerships and other innovative financing models. The criteria for selecting suitable incubator managers are another key area of inquiry. This question seeks to identify the skills and attributes policymakers deem necessary for effective leadership within incubators, aligning with research by Bruneel et al. (2012) on the impact of management quality on incubation success. This exploration also sheds light on the alignment between managerial capabilities and institutional goals. In addition, questions about the benefits of incubators for entrepreneurs and small businesses, as well as the likelihood of long-term success for incubated ventures, address the perceived value of incubation programmes. This aligns with Patton et al.

(2009), who emphasise the importance of assessing both the tangible and intangible benefits of incubation for entrepreneurial outcomes. Policymakers' views on such help evaluate the effectiveness of current incubation models in meeting entrepreneurial needs. Likewise, the inquiry into incubator services and their role in helping entrepreneurs navigate their environment focuses on the adaptability and relevance of support mechanisms. This is consistent with studies such as those by Nicholls-Nixon et al. (2021), which explore how incubators tailor their services to address contextual challenges. These questions also aim to evaluate the perception of incubators as proactive agents in mitigating external barriers. The consideration of incubators as intermediary institutions between government and entrepreneurs addresses their bridging role in connecting policy frameworks with grassroots entrepreneurial efforts. This reflects the findings of Somsuk and Laosirihongthong (2014), who emphasise the intermediary functions of incubators in fostering collaboration and resource alignment. Questions about the domestic entrepreneurship ecosystem, conditions for business incubation, and barriers to incubation in Kazakhstan aim to contextualise the incubators within the broader economic and institutional environment. Research like that of Abeuva (2018), which scrutinises the distinct obstacles entrepreneurial ecosystems encounter in post-Soviet environments, shapes these themes. Policymakers' insights into these aspects help identify systemic strengths and weaknesses that influence incubation outcomes.

The development of these questions was guided by gaps identified in the literature review, Chapter I, and tailored to the unique challenges and opportunities faced by incubators in Kazakhstan. Drawing from a pilot study and consultations with local experts, the questions facilitate open-ended discussions, allowing managers to provide detailed, context-rich responses. This ensures that the data collected is comprehensive and aligned with the study's inductive reasoning framework, enabling the generation of nuanced theoretical insights. The

careful design and categorisation of these questions, grounded in established research, provides a robust foundation for exploring the dynamics of business incubators in Kazakhstan and their role in fostering entrepreneurship.

Participant Characteristics and Data Management

We assigned anonymous identifiers to the respondents for clarity and systematic analysis. Incubatees from the incubators were labelled as “*Incubatee*” and numbered from 1 to 32. Incubator managers and experts were identified as “*IM*” and numbered from 33 to 52, and policymakers and government officials were labelled as “*Policy Maker*” and numbered from 53 to 66. The analysis chapters can trace quotes and insights back to specific respondent categories using these identifiers, ensuring confidentiality. At MOST Inc., 22 entrepreneurs from various industry sectors and stages of development participated in the research, alongside 10 incubator managers from different departments (see Appendix 10 and Appendix 11). Similarly, at NURIS, we conducted interviews with the business founders of all 10 participating firms (refer to Appendices 12 and 13). We supplemented these interviews with follow-up discussions with 10 incubator managers to address specific details from the incubatee interviews. In total, the research involved interviews with 32 incubatees, 20 incubator managers, and 14 representatives from government agencies (Appendix 14). This breadth of participation ensured a comprehensive dataset encompassing multiple perspectives on the incubation ecosystem. Participants shared in-depth and often confidential details about their businesses, employees, and interactions with incubator managers and other incubatees. Incubator managers disclosed sensitive information regarding their boards, incubatees, and management strategies, while policymakers provided candid and wide-ranging responses about

the entrepreneurial and incubation ecosystems. The willingness of respondents to share such information reflects the trust built during the research process.

Quality research requires clarity on the storage, management, and use of participant data (Cassell, 2010). We recorded the interviews on Zoom or Teams accounts during data collection. We took measures to ensure confidentiality and anonymity, as agreed with all participants. We implemented precautions to ensure that neither research participants nor external readers, such as other researchers, practitioners, or policymakers, could identify the specific sites or individuals associated with the findings. This systematic approach to data collection and rigorous confidentiality measures underpins the study's methodological rigour. Professor Yelena Kalyuzhnova, Head of the Department at Henley Business School, provided ethical approval for the study and interview materials, including the consent form and the information sheet, attached in Appendices 15 and 16. This approval adhered to key ethical principles to protect participants, including maintaining confidentiality, obtaining informed consent, and avoiding harm to them (Grey, 2014b; Brinkmann, 2013). The data collection and management sections discuss the application of these ethical principles in detail at relevant points.

Data Analysis

The data analysis for this study followed a systematic and iterative process, reflecting the complexities of qualitative research within a case study framework. Stake (1995) and Yin (2009) emphasise that data analysis in case study research often lacks rigid structures, requiring researchers to integrate their expertise with relevant literature to interpret findings. In this study, the analysis adopted Creswell's (2009) iterative approach (Figure 3), which, while theoretically linear, necessitated interactive and interconnected stages.

This method allowed for the cyclical movement between general observations and specific interpretations (Palys, 1997; Silverman, 2000), beginning informally during interviews and continuing through transcription as recurring patterns and themes emerged. The interviews yielded 91 hours of recordings, necessitating prioritisation due to time constraints. We prioritised the transcripts of interviews with incubatees, as they offered crucial insights into the dynamics of business incubators. Subsequent transcripts included those with incubator managers and policymakers, capturing the perspectives of different stakeholders. We transcribed and reviewed 66 interviews for analysis. The initial phase of the analysis involved formatting and categorising the raw data to facilitate readability and reflection. We printed and reviewed all data three times to gain a deeper understanding of the content and pinpoint specific instances that needed further investigation. Coding, as defined by Auerbach and Silverstein (2003), served as a central analytical tool. This process involved labelling sections of text to systematically identify patterns and themes. The codes created an indexing system that enabled the efficient organisation and retrieval of data, ensuring internal consistency and clear distinctions between categories (Patton, 2002).

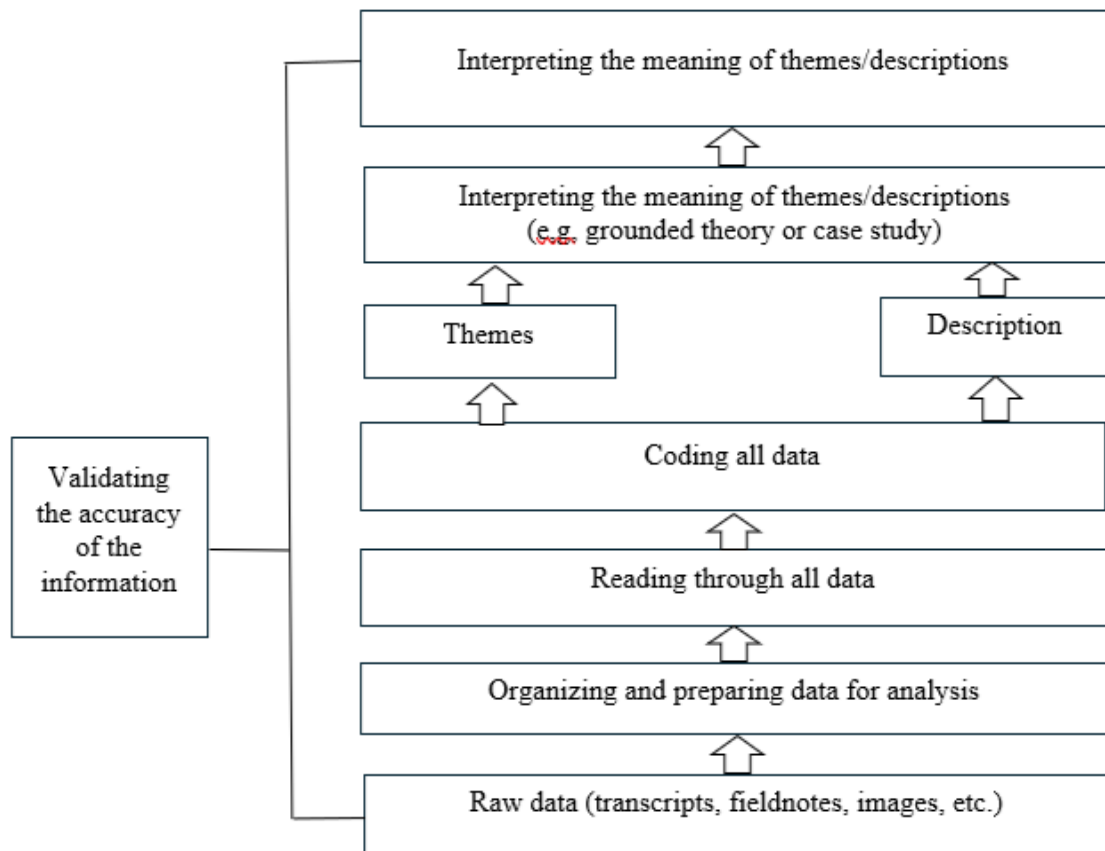


Figure 3 - The data analysis procedure

Source: Creswell (2009)

We employed additional techniques such as memoing and thematic analysis to enhance the robustness of the analysis. Memoing allowed for the documentation of principal concepts associated with codes, consolidating fragmented information into coherent clusters (Miles & Huberman, 1994). The NVivo 10 software was used to support the coding process, facilitating systematic organisation and version tracking of the analysis process. According to Theodorakopoulos and Figueira (2012), the software was instrumental in coding and retrieving data, particularly in effectively managing large datasets and addressing complexity. Additionally, it facilitated the connection of ideas, the identification of patterns, and the creation of an audit trail or case study database, which significantly enhanced the credibility

and reliability of the findings. We aligned the coding procedure with the research questions and the study's theoretical framework to ensure purposeful categorisation. The analysis progressed from descriptive coding, which recorded case-specific details and individual incidents, to topic coding, capturing subjects discussed by participants without subjective interpretation. Organising nodes for subject coding into folders like "Business incubator purposes," "Business incubator roles," and "Business incubator functioning" led to the emergence of primary themes (Strauss & Corbin, 1990). The theoretical framework, grounded in intermediation, institutional voids, and institutional theory, guided the creation of second-order categories. These included themes like "intermediary," "brokerage," "institutions," "resources," "mentoring," "business incubator goals," "domestic ecosystem," and "business incubator implications." The analysis reflected the inductive nature of this part of the research by identifying emerging categories for novel variables and processes not addressed in prior theories.

The iterative process of coding and categorisation revealed significant functions of business incubators, such as resource provision, mentorship, financial sponsorship, and external brokerage. However, participants frequently emphasised alternative themes, such as the dynamics of the domestic entrepreneurial ecosystem, role delineations, and uncertainties in the external environment. These emergent themes highlighted previously underexplored elements of business incubation, contributing to the study's theoretical advancements. Data synthesis involved case study documentation, tables, and visual representations of identified processes and structures (Carroll & Swatman, 2000; Miles & Huberman, 1994). We employed summary matrices and word tables to condense data into binary assertions, which facilitated cross-case comparisons and pattern recognition. This step was crucial to establishing

theoretical replication, as we verified or re-examined patterns identified in one case to achieve consistency or explore logical divergences in the second case.

The final phase of analysis involved interpreting the coded data to uncover patterns, identify insights, and address conflicting findings. This creative and inductive process required the examination of detailed codes to build understanding, apply recommendations, and establish causality (Auerbach & Silverstein, 2003; Creswell, 2009). Field notes and diary entries informed the interpretation, ensuring a grounded analysis in the empirical data. The adopted theoretical framework, which emphasised institutional voids and intermediation, deeply entwined the analysis. The framework provided a deductive basis for categorisation while allowing flexibility for inductive discoveries. The integration of descriptive and analytical codes facilitated a nuanced understanding of business incubator dynamics in Kazakhstan, particularly the interplay between incubators and the broader entrepreneurial ecosystem. Constat (1992) described the narrative logic that organised the data in various formats, including direct quotes from respondents. This storytelling approach enabled smooth transitions and coherent presentation, enhancing the interpretive depth of the study. By systematically analysing and synthesising the data, this study provides a comprehensive exploration of the roles and impacts of business incubators, contributing valuable insights to the fields of entrepreneurship and institutional intermediation.

3.5 Concluding Summary

This chapter has detailed the study's research methodology. The chapter has summarised the need for the study, as established in the preceding chapters, and then presented the research aims and questions. Key research design decisions were discussed, including the philosophical paradigm of interpretivism and the qualitative, inductive strategy chosen to

address the research questions. The chapter has detailed critical research design elements such as the case study strategy, the selected research locations, access to business incubators, and the unit of analysis, with Gartner's (1990) approach serving as a rationale for selecting the two business incubators, MOST Inc. and NURIS. We have described the practical research process, which includes data collection through semi-structured interviews with 66 participants, direct observations, and the review of secondary sources. The case study methodology employed these methods. The processes of data extraction and categorisation have been explained, emphasising the identification and organisation of emerging themes that highlighted the value created throughout the incubation development process. The chapter concluded with an overview of the data analysis methods and the justification for the selection of the case studies, which provides the foundation for the subsequent findings and analysis.

Chapter IV: Case Studies and Thematic Insights: MOST Inc. and NURIS

This chapter presents an in-depth analysis of the two selected business incubators, MOST Inc. and NURIS, highlighting their structures, operational strategies, and contributions to Kazakhstan's entrepreneurial ecosystem. The thematic findings are discussed in relation to the study's research questions, offering insights into the dynamic role of business incubators in emerging economies. MOST Inc., a privately operated incubator, focuses on fostering innovation and supporting early-stage ventures by connecting startups with essential resources and networks to enhance growth potential. It adopts a mentorship-driven model, offering tailored support to entrepreneurs and leveraging its extensive network to link startups with investors and industry experts. Despite its significant contributions to the local entrepreneurial ecosystem, challenges such as limited funding and reliance on external partnerships constrain its scalability. In contrast, NURIS, a university-affiliated incubator, integrates academic resources with entrepreneurial initiatives, emphasising technology transfer and knowledge dissemination. Equipped with state-of-the-art facilities and benefiting from strong ties with Nazarbayev University, NURIS supports technology-driven ventures and interdisciplinary collaboration. However, bureaucratic hurdles and cultural resistance to risk-taking limit its effectiveness. NURIS has been instrumental in bridging academia and industry, fostering innovation and research commercialisation.

The analysis of MOST Inc. and NURIS reveals key themes: *Institutional intermediation*, both incubators act as institutional intermediaries, addressing voids by providing resources, mentorship, and networks. *Cultural dynamics*, including risk aversion and traditional attitudes toward entrepreneurship, influence their operations and outcomes.

Resource constraints, particularly financial and infrastructural, challenge their scalability and sustainability, while collaboration between government, academia, and the private sector enhances their impact. A comparative analysis shows that MOST Inc. excels in flexibility and personalised support, catering to diverse entrepreneurial needs, while NURIS benefits from academic backing but struggles with bureaucratic and cultural barriers. These findings highlight the need for incubators in emerging economies to adopt context-specific strategies, strengthen institutional linkages to address resource gaps, foster a culture of innovation and risk-taking, and develop scalable models that balance flexibility with sustainability. This chapter provides a detailed analysis of MOST Inc. and NURIS, offering thematic insights into their roles as institutional intermediaries. By addressing institutional voids and fostering collaboration, these incubators contribute to Kazakhstan's entrepreneurial ecosystem. The following chapter will integrate these findings with broader theoretical frameworks, discussing their implications for institutional theory and practice.

4.1 Case Study Highlights

NURIS: Key Characteristics, Challenges, and Successes

Background

Housed within the prestigious Nazarbayev University, NURIS serves as a cornerstone for fostering entrepreneurship and innovation in Kazakhstan. Established in 2016 as a part of the Nazarbayev University Research and Innovation System (NURIS), the incubator evolved from the university's broader efforts to integrate academic research with the commercial sector. The university's ecosystem already housed a business incubator, which conducted NURIS's functions prior to its formal establishment. This transition marked a strategic shift toward

institutionalising support for early-stage startups and aligning the university's entrepreneurial and technological initiatives with broader market demands. The foundation of NURIS, Inc., reflects global trends in academia, where universities increasingly prioritise technology transfer, innovation, and the commercialisation of scientific research (Etzkowitz, 2002; Audretsch, 2014). The incubator was envisioned as a university-regional hub for entrepreneurship, leveraging Nazarbayev University's resources and expertise to bridge the gap between academic innovation and industry needs. Fully sponsored by the university, NURIS offers a comprehensive suite of services tailored to the unique challenges faced by early-stage startups in Kazakhstan's entrepreneurial ecosystem.

Although operating as part of Nazarbayev University, the incubator maintains significant strategic and operational autonomy, enabling it to adapt to evolving entrepreneurial needs and pursue its objectives effectively. The core objectives of NURIS include fostering sustainable and competitive innovation projects, analysing and assessing the viability of business ideas, promoting technological entrepreneurship, preparing resident projects for commercialisation, and creating robust support systems for innovative ideas. These objectives position NURIS as a key player in shaping Kazakhstan's entrepreneurial landscape, aligning with the university's broader mission to drive national economic development through innovation (Nazarbayev University Website, 2024).

Physically located within the Nazarbayev University (NU) campus in Astana, NURIS benefits from its proximity to both industrial zones and residential areas, making it a well-integrated component of the city's dynamic ecosystem. The incubator has gained local recognition for its expertise and high-quality incubation programmes, which has supported over 36 early-stage startups since its inception. Through its four incubation programmes, NURIS has facilitated total investments exceeding \$3 million in early-stage companies over

the past five years, underscoring its impact on nurturing entrepreneurial ventures in the region. It extends its influence beyond incubation by organising more than 50 networking, informational, and commercial events annually. These events include training sessions, masterclasses, and competitions that engage both internal and external stakeholders. Furthermore, NURIS offers consulting services to commercial partners, benefiting university researchers, client firms, and external collaborators. This multifaceted approach ensures that the incubator remains a vibrant hub for knowledge exchange, capacity-building, and innovation-driven growth.

The literature increasingly acknowledges the strategic role of university-affiliated incubators like NURIS. Such incubators are pivotal in translating academic research into commercially viable products and services, particularly in emerging economies (Clarysse et al., 2005; Guerrero & Urbano, 2012). NURIS exemplifies this role by integrating academic expertise with entrepreneurial practices; thus, it addresses key institutional and market gaps in Kazakhstan's ecosystem. Its ability to foster an entrepreneurial culture, provide robust support systems, and attract investments highlights the incubator's significance as a model for university-affiliated business incubation in the region. NURIS Incubator's foundation and operations underscore its commitment to advancing technological innovation and entrepreneurship in Kazakhstan. By bridging academic research and market needs, the incubator not only contributes to the growth of its resident startups but also strengthens the broader entrepreneurial ecosystem. This alignment of institutional support and market orientation makes NURIS a vital case study for understanding the role of university-affiliated incubators in emerging economies.

Organisational Structure and Division of Labour

NURIS, Inc., the business incubation arm of Nazarbayev University, operates with a well-defined and compartmentalised organisational structure that emphasises clear reporting lines, efficient resource allocation, and adaptive functionality (Figure 4). Nine professional members staff the incubator, overseeing its leadership, operations, enterprise development, technology transfer, communications, public relations, continuing professional development (CPD), and day-to-day administration. This structure reflects the incubator's commitment to maintaining a balance between specialisation and coordination, ensuring that its diverse activities align with the overarching objectives of fostering entrepreneurship and innovation. Nazarbayev University's governance framework tightly integrates NURIS' hierarchical structure (Figure 4). The director of NURIS reports directly to its general director, and ultimately to the president of the University, ensuring strategic alignment with the institution's goals. This relationship facilitates seamless coordination across various operational domains while granting the incubator the flexibility needed to adapt to external challenges and opportunities. The staff's clear role demarcation enhances operational efficiency by assigning specific responsibilities to each member, thereby minimising overlaps and optimising productivity. Such compartmentalisation is critical to addressing the technical demands of NURIS Inc.'s activities, allowing staff to specialise in areas such as enterprise development and technology transfer while contributing to the broader mission of the incubator.

The role of the director is particularly pivotal, embodying a multifaceted approach to leadership and management. Beyond being the primary point of contact for incubation-related activities, the director is responsible for client screening, monitoring, and assistance, as well as overseeing the graduation process of incubatees. The position also entails leading the MeetUps business orientation sessions, which serve as a critical platform for knowledge exchange and

networking. Additionally, the director is involved in preparing funding proposals, managing community outreach programmes, and handling administrative tasks such as facilities management, staffing concerns, and strategic planning. This breadth of responsibilities underscores the necessity for a flexible approach to leadership that ensures both operational and financial sustainability.

Nazarbayev University fully funds NURIS, yet it operates with the efficiency and governance structures typical of a for-profit organisation. Financial sustainability is a core concern, with the director tasked with generating additional revenue streams to complement funding from incubation clients. NURIS can reinvest in its operations and expand its services without facing significant overhead costs, thanks to its dual focus on financial independence and institutional support. The University's departments centrally handle administrative functions like financial management and human resources, while its contractors outsource maintenance services. This arrangement significantly reduces the administrative burden on the incubator by allowing its staff to concentrate on their specialised tasks.

The compartmentalised yet cohesive organisational structure of NURIS, Inc. reflects best practices in incubator management, as highlighted in the literature. Clarysse et al. (2005) assert that an incubator's effectiveness often hinges on its capacity to synchronise specialised functions with overarching strategic objectives, while simultaneously preserving adaptability to market fluctuations. Similarly, Bergek and Norrman (2008) emphasise the importance of clear role allocation and governance for fostering incubator performance. NURIS achieves this balance through a governance model that integrates university support with autonomous decision making, ensuring the incubator remains responsive to its stakeholders' needs. Interviews conducted with both full-time and part-time staff at NURIS during this research further underscored the importance of the organisation's structure. The staff's ability to focus

on their designated roles without being encumbered by nonessential administrative tasks contributes to the incubator's efficiency and effectiveness. The clear delineation of responsibilities also fosters a culture of accountability and collaboration, enabling NURIS to achieve its strategic objectives while maintaining high levels of operational performance. The organisational structure and division of labour at NURIS, Inc., exemplify a model of efficient incubator management that leverages institutional support while ensuring operational autonomy. The compartmentalised roles, combined with centralised administrative support from Nazarbayev University, allow the incubator to focus on its mission to foster entrepreneurship and innovation. This approach not only enhances the incubator's ability to deliver tailored services to its clients but also positions it as a benchmark for similar initiatives in emerging economies.

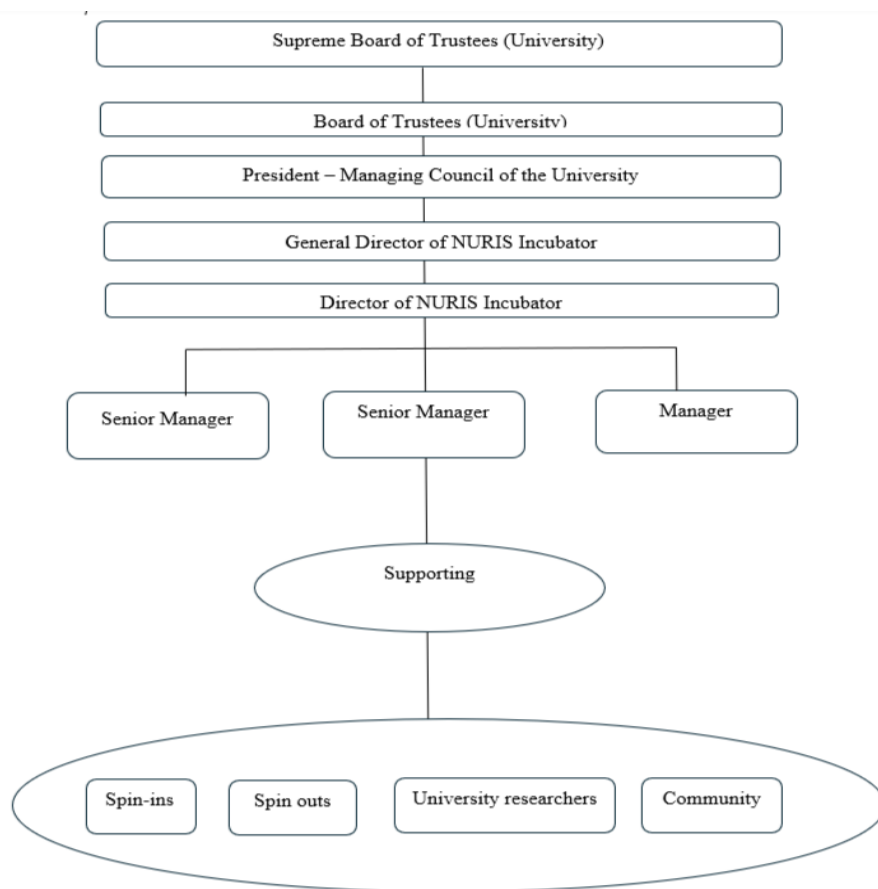


Figure 4 - NURIS Inc. organisational structure

Source: Author's own

Service Portfolio and Value Propositions

NURIS systematically categorises its extensive range of services based on the value propositions they offer, including infrastructural support, developmental assistance, and specialised services for technology transfer and partnership-building. These services are flexible, allowing the incubator to tailor them to meet the specific needs of its incubatees, thereby enhancing its impact on the entrepreneurial ecosystem. At the core of NURIS's value propositions are its infrastructural supports, which include secure facilities, a dedicated server room, complimentary Microsoft software for startups, access to large and well-equipped boardrooms, numerous seminar and meeting rooms, reception services, wireless networks, and

even a café with an external deck. These services are foundational, offering startups a conducive environment for their operations and collaborative opportunities.

NURIS provides multifaceted developmental assistance, with a focus on enterprise development advice and support for startups. This includes conducting feasibility studies, business plan development, assistance with company formation, and guidance on accessing finance and investment opportunities. Startups also benefit from introductions to potential investors, such as venture capitalists and business angels, as well as connections to advisors specialising in the legal, financial, tax, and marketing domains. Additionally, collaborations with MBA and PhD programme projects at Nazarbayev University further enrich the support ecosystem, fostering innovation and academic-industry linkages. NURIS further extends its developmental assistance by offering legal, financial, tax, marketing, and sales expertise, as well as IP services. Regular workshops and training sessions tailored for knowledge-intensive startups complement these services. A dedicated manager oversees CPD activities and traction meetings, which include business planning and development workshops. The incubator also facilitates linkages to university research through matchmaking and introductions, providing startups with direct access to cutting-edge academic research and resources.

Networking opportunities are a vital aspect of NURIS's offerings, with startups gaining access to local and international events, competitions, and workshops. These platforms enable incubatees to build valuable connections within the entrepreneurial ecosystem. Another strategic service is media exposure, where a dedicated communications and PR manager promotes client businesses and achievements through local and international press, thereby enhancing their visibility and market reach. In the domain of technology transfer and partnership-building, NURIS supports university researchers by assisting with IP considerations for funded research projects, identifying intellectual property, and completing

invention disclosure forms. The incubator also plays a critical role in developing and implementing commercialisation strategies, marketing inventions, and draughting and negotiating agreements. For industry stakeholders, NURIS fosters cooperation and collaboration, bridging the gap between academic research and industrial applications. Revenue generation at NURIS primarily comes from rental income from incubatees and fees for training courses. Government agencies often subsidise these courses or receive support from international organisations, tailoring them to meet the needs of local communities. Ad-hoc funding schemes from entities such as the British Council, USAID, or Chevron Corporation occasionally secure additional revenue by financing specific business incubation programmes; however, such ad-hoc schemes are not a consistent source of income.

By critically analysing the range and depth of NURIS's services, it becomes evident that its value propositions strategically align with best practices in business incubation, as suggested by Bergek and Norrman (2008), who emphasise the importance of offering tailored services that address the specific needs of startups. The incubator's integration of academic research, entrepreneurial support, and infrastructural provisions underscores its role as a key institutional intermediary, bridging gaps between academia and industry. Additionally, the emphasis on networking and media exposure aligns with the findings of Clarysse et al. (2005), which highlight the significance of ecosystem connectivity and visibility for startup success. NURIS's comprehensive approach positions it as a leading incubator model for emerging economies. However, its reliance on ad-hoc funding schemes for certain programmes may pose sustainability challenges, necessitating the exploration of more stable and predictable revenue streams.

Incubatee Profile

The NURIS incubator plays a pivotal role in supporting seed-stage business ideas across a wide array of industries, demonstrating its commitment to fostering innovation in Kazakhstan. By attracting projects from diverse sectors such as cybersecurity, digital healthcare, the Internet of Things (IoT), AI, agrotechnology, and big data, NURIS underscores its focus on cutting-edge technological and entrepreneurial advancements. The incubator received over 400 applications in 2023 alone, selecting only 41 projects for incubation, a testament to its rigorous screening process that aims to identify high-potential ventures. The selected incubatees illustrate the diversity and innovation supported by NURIS. For example, the AI-driven AI-Legal Company operates in the legal sector, addressing the integration of artificial intelligence into law practices. The UNIPass Company focuses on educational internet technologies, reflecting the increasing demand for digital learning solutions. The HydroPlat Company, a hydrogen chemistry startup, represents the incubator's commitment to sustainable and renewable energy technologies. Similarly, Infinite Bilim leverages internet technologies in education, while Finbook innovates in the realm of management accounting. The Smart Detector project exemplifies advances in cybersecurity, catering to smart home systems. These incubatees typically remain under NURIS's incubation programme for two years, a period that allows them to refine their business models, gain market traction, and access vital resources. The composition of the incubatees highlights a mix of sole proprietors and partnerships, with only a few incorporated as private limited companies, which aligns with the typical entrepreneurial landscape of emerging economies. Such diversity in business structures points to the incubator's adaptability in supporting startups with varying levels of organisational complexity and scalability.

Critical analysis of this approach reveals several strengths and, indeed, opportunities for improvement. By addressing a broad spectrum of industries, NURIS demonstrates its inclusivity and commitment to fostering cross-sector innovation. This strategy aligns with the findings of Bergek and Norrman (2008), who argue that incubators serving a diverse range of sectors are better positioned to foster a resilient entrepreneurial ecosystem. Furthermore, the focus on technology-intensive sectors, such as AI and IoT, reflects global trends emphasising digital transformation as a cornerstone of economic growth (Clarysse et al., 2005). However, the absence of detailed performance metrics, such as annual revenue growth or market penetration during incubation, limits the ability to evaluate the programme's full impact. Incorporating such metrics could provide deeper insights into the efficacy of NURIS's incubation model and identify areas for further enhancement.

Another notable aspect of NURIS's operations is its selective approach. By admitting only 41 projects from over 400 applications, the incubator ensures a high level of quality and focus in its programmes. However, this exclusivity may also risk overlooking innovative ideas that do not fit traditional evaluation criteria. Expanding evaluation methods to include non-traditional metrics, such as potential societal impact or alignment with sustainable development goals, could broaden the incubator's reach and impact. The anonymisation of specific incubator details, such as inception dates and growth figures, ensures confidentiality but limits the scope for comprehensive longitudinal analysis. While this is a necessary trade-off to protect client data, future research collaborations or aggregated data-sharing agreements could offer a pathway to analyse trends and outcomes more robustly.

NURIS incubator's strategic approach to supporting a wide range of industries and its focus on pre-seed ventures make it a key player in the country's entrepreneurial ecosystem. Its ability to attract innovative projects, coupled with a rigorous selection process, ensures the

delivery of excellent incubation services. However, by integrating detailed performance metrics and expanding evaluation frameworks, NURIS can further enhance its contributions to fostering sustainable and scalable innovation. These measures would align with best practices in business incubation as outlined in the literature, and position NURIS as a leading example for other incubators in emerging economies.

Business Incubation Policy

NURIS employs a structured and multilayered process for attracting, screening, and onboarding potential incubatees, designed to ensure alignment with its strategic goals and community-oriented ethos. The incubator primarily attracts clients through a mix of internal and external channels, with a 30-to-70 ratio favouring external clients. Referrals and word-of-mouth recommendations from graduated firms form the backbone of external recruitment, complemented by website promotion and advertising media. Internally, activities such as events, training sessions, and meetups on the Nazarbayev University campus create a robust pipeline of prospective applicants. The application process at NURIS begins with the submission of a detailed application form and a business idea proposal tailored to the incubation programme (Appendices 17 and 18). The application form varies based on the type of space being requested, either a desk space or an incubation unit, with the latter requiring more extensive business plan-oriented details and banking and trade references. This differentiation ensures that the screening process is appropriately rigorous for applicants seeking a more resource-intensive incubation experience. The application form captures essential information about the applicant, including personal and professional details, relevant qualifications, and experience. It also collects data about the business, such as its legal structure, industry focus, customer base, competitors, and proposed revenue model. Applicants

are required to articulate their problem statement, proposed solution, and competitive advantages, providing assessors with a comprehensive understanding of the business idea's viability and potential market impact. A manager reviews the submitted applications prior to an expert committee evaluating them. This evaluation includes a thorough interview to assess the applicant's qualifications, experience, motivation, and alignment with NURIS's community ethos. Key criteria include the viability and growth potential of the business idea, the applicant's ability to pay rent reliably, and the likelihood of long-term engagement with the incubator. The robust interview process prioritises the applicant's immediate readiness over a detailed exploration of developmental assistance needs, typically addressed informally post-admission. Successful applicants proceed to sign a formal contract and consent form. The contract outlines the terms of engagement, including general conditions, definitions, and the provision of services. During the incubation period, the incubatees manage progress and developmental assistance on an informal basis according to their specific needs, despite the absence of formal monitoring mechanisms. This approach, while flexible, lacks the structured oversight that advanced incubators often employ to maximise client outcomes (Schwartz, 2008).

NURIS's processes reveal both strengths and challenges. The literature highlights best practices (Bergek & Norrman, 2008; Bielicki, 2023) that align with the structured application and screening process that admits only high-potential ventures. However, the reliance on informal mechanisms for monitoring and assistance represents a potential area for improvement. Advanced incubators are increasingly adopting integrated service packages and formal progress-tracking systems to provide comprehensive support to their clients (Hackett & Dilts, 2004). NURIS's current model may limit its ability to address complex challenges that startups face, particularly in areas like funding, intellectual property rights, and strategic

planning. Additionally, NURIS's resource constraints, particularly in terms of funding for expanded teams and services, underscore the challenges faced by incubators in emerging contexts. The lack of financial resources hampers the incubator's ability to offer an integrated service package, which is essential to fostering successful business ventures. Addressing these challenges requires a strategic focus on diversifying funding streams and strengthening partnerships with government agencies, international organisations, and private sector stakeholders.

Despite these challenges, NURIS's approach to graduation is notable. Following Schwartz's (2008) definition, graduation is contingent on the successful completion of pre-set and agreed targets, ensuring that only those incubatees who meet established benchmarks are considered graduates. This focus on outcomes aligns with global standards and reinforces the incubator's commitment to fostering sustainable business ventures. NURIS Incubator demonstrates a robust and thoughtfully designed process for attracting and supporting startups, underpinned by a strong focus on community engagement and entrepreneurial development. However, to enhance its impact, the incubator could benefit from formalising its monitoring mechanisms, expanding its service offerings, and addressing resource constraints.

MOST Inc.: Key Characteristics, Challenges, and Successes

Background

"The Club of Young Entrepreneurs" launched an initiative that led to the establishment of MOST Inc. in 2015 as a privately owned business incubator (MOST Inc., 2024). Supported by the local startup community, this predecessor organisation aimed to tackle issues within Kazakhstan's entrepreneurial culture (MOST, 2024). The establishment of MOST Inc. was not an entirely new concept but rather a natural progression, leveraging a strong resource base and

prior experience within the entrepreneurial ecosystem. Hackett and Dilts (2004) designed MOST Inc. to function as a regional hub, offering essential services like office space, co-working facilities, mentorship, networking opportunities, consultancy, and pre-seed funding.

The foundational mission of MOST Inc. is centred around three strategic goals: community revitalisation, regional economic development (Phan et al., 2005), and fostering an entrepreneurial mindset in Kazakhstan. To assess the initiative's feasibility, a steering committee comprising local business leaders and venture capitalists examined key factors including funding sources, the entrepreneurial environment, and the potential role of government support. This aligns with Bruneel et al. (2012), who highlight the importance of assessing contextual readiness and resource availability in designing effective incubators. This initiative led to the articulation of specific objectives for MOST Inc., such as enabling young and unemployed individuals to start businesses, supporting small enterprises in scaling operations and generating employment, and nurturing a regional entrepreneurial ecosystem in Central Asia. MOST Inc. benefitted from the guidance of an experienced board of directors, which included accomplished business leaders. Strategically located premises were identified within a university building, providing proximity to young talent and fostering a collaborative environment (Grimaldi & Grandi, 2005). In the absence of direct governmental support mechanisms, the incubator secured funding from a blend of sources, including grants, revenue streams, and private investments.

The service portfolio offered by MOST was both practical and innovative. It included affordable incubation workspace rentals, mentorship programmes, consultancy, and various training opportunities. Such tailored service offerings align with Campbell et al.'s (1985) "incubation model," which emphasises the provision of both tangible (e.g., physical space) and intangible (e.g., mentorship) resources to foster business growth. A notable requirement for

tenants was participation in an evening “start-your-own-business” course, aimed at equipping them with foundational entrepreneurial skills. Over time, MOST’s offerings evolved to address specific needs, ensuring relevance in a dynamic business environment. From 2015 to 2024, MOST Inc. demonstrated significant success in achieving its goals, housing over 10,000 entrepreneurs, supporting 12 project graduates, and facilitating funding for 43 startups, collectively raising more than \$6 million. Additionally, it organised 21 programmes and more than 100 events, cementing its role as a catalyst for entrepreneurial growth in the region. These outcomes are consistent with the success metrics proposed by Hackett and Dilts (2008), who identify tenant graduation, job creation, and financial sustainability as key indicators of an incubator’s impact.

MOST Inc.’s model aligns with global best practices in business incubation, reflecting lessons from similar initiatives worldwide. For instance, the Babson College Entrepreneurship Ecosystem Project emphasises the importance of integrating mentorship, funding, and infrastructure to create a supportive environment for startups (Babson College, 2024). Similarly, research on business incubators in emerging markets highlights the critical role of community engagement and private sector collaboration in fostering entrepreneurial ecosystems (Hassan, 2020; UNECE, 2021; Braun & Suoranta, 2024; Rosado-Cubero et al., 2024). Examples such as India’s Startup Village (Suresh & Ramraj, 2012) and Brazil’s Softex (Almeida, 2008) provide valuable parallels. Both initiatives successfully combined public and private funding sources, targeted young entrepreneurs, and emphasising educational components, much like MOST’s mandatory business courses. However, MOST’s focus on addressing Kazakhstan-specific challenges, such as mindset transformation and unemployment, distinguishes it as a regionally tailored initiative. Nonetheless, unlike models that are heavily reliant on government funding, MOST adopted a self-sustaining framework.

This fits with what other research has found: incubators in emerging markets often use a variety of funding sources to lower the risks that come with unstable institutional environments (Carayannis & von Zedtwitz, 2005).

MOST's experience underscores the importance of adapting global incubation models to local contexts. The lack of direct government support pushed the incubator toward a self-sustaining model, highlighting the viability of leveraging private and community-based resources. It also reveals the significance of fostering a culture of entrepreneurship through targeted interventions, such as training programmes and events. Its ability to balance short-term operational goals (e.g., providing affordable workspace) with long-term ecosystem development goals (e.g., fostering regional economic growth) is a key takeaway for similar initiatives globally. Its structured governance, through biannual board meetings, ensured strategic focus on critical areas such as client retention, financial sustainability, and service quality. MOST Inc. has established itself as a cornerstone of Kazakhstan's entrepreneurial ecosystem. Its achievements illustrate the potential of private-sector-led business incubation in addressing economic and cultural barriers to entrepreneurship. By drawing on lessons from global best practices while tailoring its approach to local needs, MOST might serve as a case study for the effective design and management of business incubators in emerging economies.

Organisational Structure and Division of Labour

MOST Inc. carefully designs its organisational structure to balance efficiency with the flexibility required to meet the diverse demands of its incubatees (Figure 5). Despite having only seven staff members, the incubator operates effectively by assigning versatile roles to its team. These staff members handle advisory, administrative, and operational responsibilities, ensuring the smooth functioning of the incubator while maintaining close engagement with

clients. This approach enables MOST to provide customised support to startups, effectively manage its facilities, and create vital revenue streams to maintain operations amidst limited government funding (Pauwels et al., 2016; OECD, 2010). A board of directors, a group of experienced business leaders responsible for strategic oversight and policymaking, oversees governance at MOST. Regular board meetings ensure that the incubator's goals align with its broader mission of fostering entrepreneurship and innovation in Kazakhstan. The board's active involvement allows MOST to adapt its strategies to changing circumstances, focusing on critical aspects such as service quality, client retention, and financial sustainability. This governance model reflects international best practices, highlighting the importance of strong managerial oversight in business incubation (Bruneel et al., 2012; Hansen et al., 2000).

A notable feature of MOST's organisational environment is its culture, which combines a formal hierarchical structure with a collaborative and supportive "family-like" atmosphere. This culture is particularly beneficial for startups, fostering a sense of community that encourages innovation and peer learning. Research in the field of business incubation highlights that such environments significantly enhance the growth and performance of incubatees by providing not only tangible resources but also social and intellectual support (Isabelle, 2013; Hackett & Dilts, 2004). MOST's organisational framework aligns with successful models from global incubators. For example, the Cambridge Innovation Centre (CIC) operates with a similarly lean staff while prioritising client-specific solutions, and Techstar accelerators, although more hierarchical, emphasise mentorship and community-driven support.

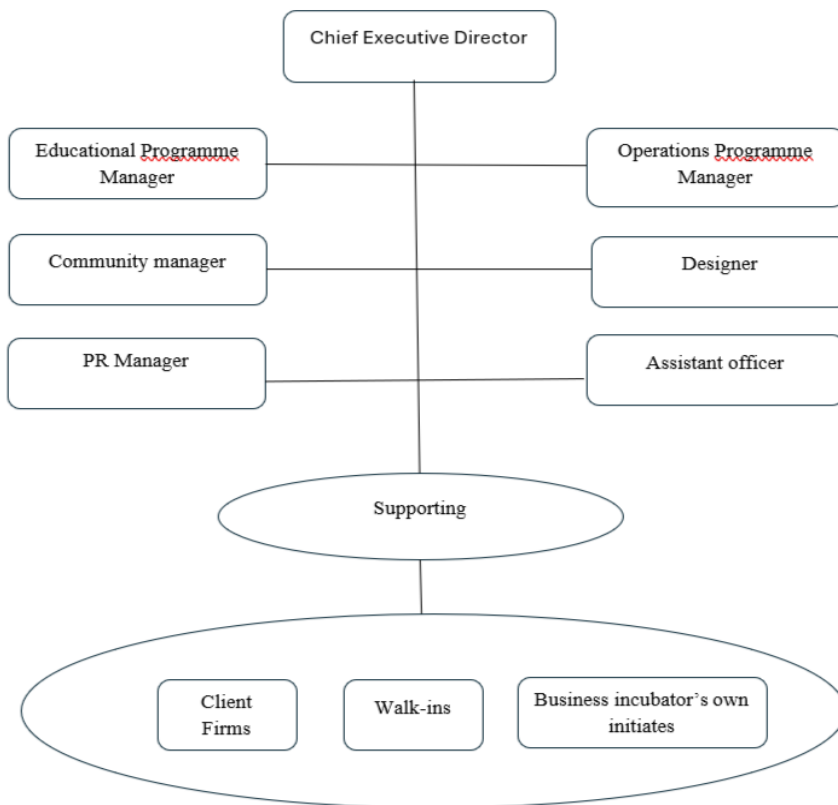


Figure 5 - MOST Inc. organisational structure

Source: Author's own

These comparisons demonstrate that MOST's approach of combining efficiency with a communal ethos is consistent with international trends and well suited to the needs of its entrepreneurial community (Suresh & Ramraj, 2012). MOST has remained economically efficient and highly responsive to the needs of its incubatees by maintaining a lean structure, a versatile team, governance, and a collaborative culture. MOST's ability to integrate flexibility, strategic focus, and a supportive environment underscores its role as a critical driver of entrepreneurial growth in Kazakhstan. Its organisational design not only facilitates operational success but also serves as a replicable blueprint for fostering innovation in similar contexts (Carayannis & von Zedwitz, 2005).

Service Portfolio and Value Propositions

MOST Inc. offers a diverse and comprehensive service portfolio tailored to the needs of its incubatees, ranging from aspiring entrepreneurs to established small businesses. It categorises these services based on the type of incubatee, the nature of the service (infrastructural or advisory), and their accessibility, whether free or fee-based. By providing a blend of foundational and advanced resources, MOST creates value for its incubatees. Global best practices in business incubation, which leverage a mix of physical, human, and social capital to support startups, align with this multifaceted approach to service delivery (Hackett & Dilts, 2004; Xiao & North, 2018). The service portfolio includes free and fee-based offerings designed to address various stages of the entrepreneurial journey. MOST provides core services like business planning assistance, funding application support, and customer development at no cost to make them accessible to early-stage startups. Fee-based services, including market research, design thinking workshops, and professional development courses, cater to more advanced needs, reflecting the incubator's ability to support businesses throughout their growth trajectory. This segmentation of services is a hallmark of effective incubation strategies, as highlighted by Grimaldi and Grandi (2005), who argue that tailoring services to different entrepreneurial phases enhances incubator effectiveness.

Infrastructure services form a critical part of MOST's value proposition, offering clients free access to office essentials such as PCs, desks, wireless boards, and secretarial support. Conference and private meeting rooms further facilitate professional interactions, creating a conducive environment for innovation and collaboration. The importance of physical infrastructure in incubation is well documented, highlighting its role in reducing operational costs for startups and fostering a community atmosphere (Phan et al., 2005). In addition to providing infrastructure, MOST emphasises skill development and capacity-building through

its diverse training programmes. These include customer development courses, startup courses, and professional development training, some of which are fee-based and open to a broader audience. The integration of such training programmes aligns with policy recommendations from international handbooks on entrepreneurship development, which highlight the significance of education and training in enhancing entrepreneurial competencies (Kalyuzhnova et al., 2019; UNECE, 2021). MOST also facilitates networking opportunities through business meetings and tracking sessions, providing entrepreneurs with access to mentors, investors, and industry experts. These services align with findings from Isabelle (2013), who underscores the value of networking in fostering collaboration and resource sharing among startups. Additionally, MOST's focus on design thinking workshops reflects a global trend in emphasising creative problem solving as a key entrepreneurial skill.

MOST strategically diversifies its revenue generation. The primary income sources include rents for office space and fees for training and advisory services, ensuring financial sustainability. Since 2018, the incubator has also received subsidies from government agencies such as QTV and Qazinnovations, which cover part of the staff wages and training programme costs (UNECE, 2021). Furthermore, it actively seeks ad-hoc funding opportunities from international organisations and NGOs, such as Chevron, to support specific initiatives. This hybrid funding model, combining public and private resources, is consistent with effective practices in incubator management, as noted by Bruneel et al. (2012), who argue that financial sustainability is crucial to long-term impact. MOST's service portfolio exemplifies a balanced approach to meeting incubatees needs while ensuring operational sustainability. By offering a combination of free and paid services, the incubator supports startups at various growth stages while generating revenue to maintain its activities.

Incubatee Profile

The incubatees at MOST Inc. represent a diverse group, encompassing a wide range of industries, business models, and stages of development. This diversity reflects the incubator's mission to support various entrepreneurial needs and foster an inclusive entrepreneurial ecosystem. Incubatees are categorised along multiple dimensions, including their industry affiliation, type of business (e.g., for-profit or non-profit, consulting or food processing), stage in the incubation process, size (in terms of financial growth, valuation, or number of employees), and business model (B2B or B2C). This multifaceted categorisation aligns with business incubation practices, which employ segmentation to match services to tenants' specific needs (Hackett & Dilts, 2004; Capatina et al., 2023). The profiles of incubatees highlight the incubator's ability to attract a range of industries, particularly technology-driven sectors such as internet technologies, app development, and robotics. Examples include Prodingi.kz, an internet-based financial marketplace; MedElement, focused on medical technology; and SmartPay, a payment solutions provider. These firms illustrate the growing importance of digital and technological innovations in Kazakhstan's entrepreneurial landscape. This aligns with global trends where technology startups dominate incubator tenant rosters due to their high growth potential and scalability (Phan et al., 2005; Bacalan et al., 2019).

MOST's focus on supporting incubatees at various stages of incubation, from pre-incubation spinouts to mature spin-ins, demonstrates its commitment to fostering a lifecycle approach to entrepreneurship. The inclusion of early-stage incubatees enables the incubator to nurture ideas and innovations from inception, while support for later-stage firms, such as those transitioning from incubation to market readiness, highlights its role in facilitating sustainable growth. Research by Grimaldi and Grandi (2005) underscores the value of such a staged approach, as it allows incubators to provide targeted resources and services tailored to the

unique challenges of each developmental phase.

Despite the broad spectrum of its incubatees, MOST also faces challenges in profiling and engaging them due to privacy concerns and the proprietary nature of their work. For example, detailed data on firm size, revenue, or technological specifics are often unavailable due to confidentiality agreements. Such limitations are common in incubation settings, as highlighted by Pauwels et al. (2016), where the protection of intellectual property and sensitive business information is crucial. Nevertheless, MOST's ability to engage with a representative sample of its incubatees and accommodate their needs reflects its adaptability and responsiveness. The diversity of business models among incubatees, including both B2B and B2C firms, adds another layer of complexity to the incubator's operations. For example, platforms like Pillowz, which focuses on online rental services, cater directly to consumers, while others like SmartPay serve businesses with specialised solutions. This range requires MOST to design versatile service offerings that address varied market demands. The ability to support diverse business models is a hallmark of effective incubators, as it broadens the scope of entrepreneurial impact and fosters cross-sector collaboration (Bruneel et al., 2012). The OECD (2024) emphasises the importance of diversifying tenant profiles to maximise the incubator's economic and social impacts. By hosting startups that address local and regional challenges while contributing to global markets, MOST strengthens its role as a driver of innovation and economic development in Kazakhstan.

The incubatee profile at MOST Inc. reflects a dynamic and inclusive approach to business incubation. The diversity of industries, business models, and developmental stages among its tenants underscores the incubator's capacity to cater to a wide range of entrepreneurial needs. This approach not only aligns with global best practices but also positions MOST as a critical player in fostering a vibrant entrepreneurial ecosystem. Through

its lifecycle-based support model and emphasis on technology-driven enterprises, MOST continues to contribute significantly to the growth of Kazakhstan's startup landscape.

Business Incubation Policy

Structured yet flexible procedures form the foundation of MOST Inc.'s incubation policy, which aims to attract, select, support, and graduate entrepreneurial ventures. The incubator employs a combination of outreach strategies to attract potential incubatees, including advertising through digital and physical media, word-of-mouth referrals, startup fairs, and meetup sessions. This proactive engagement aligns with best practices in incubator management, as identified by Hackett, Dilts (2004), and Bielicki (2023), who emphasise the importance of visibility and targeted outreach in ensuring a robust pipeline of high-potential applicants.

The onboarding process at MOST begins with an initial inquiry and inspection of the facilities, followed by the submission of a detailed application form (Appendix 19). The form collects critical information, including the nature and structure of the business, target customers, market strategy, competitive landscape, and the entrepreneur's qualifications and experience. This comprehensive initial step mirrors globally recognised frameworks, such as the European Commission's guidelines for incubator management, which advocate rigorous entry criteria to ensure alignment with incubator objectives and resource optimisation (EC, 2010). Following submission of the application, the selection process advances to an interview stage involving the incubator manager, director, and sometimes a board member. This multilevel evaluation process aims to assess key criteria, such as the firm's intellectual property status, the management team's capability and motivation, the business' potential to attract investment, and the extent of support required. The evaluators also consider the strategic fit

between the incubatee's objectives and MOST's mission, ensuring that the partnership contributes to the incubator's reputation and entrepreneurial ecosystem. Grimaldi and Grandi (2005) emphasise the importance of robust screening processes to the success of incubators. Once selected, the incubatees enter into a formal agreement with MOST, which delineates mutual responsibilities and expectations. MOST provides incubation assistance through a structured six-month review mechanism, which evaluates progress against predefined goals. Summary reports and meetings supplement these reviews, identifying challenges and facilitating targeted support. This iterative feedback loop allows MOST to adapt its services based on incubatees' evolving needs, reflecting the adaptive strategies advocated by Pauwels et al. (2016) for new-generation incubation models.

MOST places significant emphasis on intangible services, such as networking, training workshops, public relations, and access to one-on-one advice clinics. It widely advertises these services to ensure incubatees can access them as needed. Networking events and workshops are particularly vital, as they foster peer learning and create opportunities for collaboration and mentorship. Such emphasis on intangible assets aligns with Phan et al. (2005), who highlight the role of networking in strengthening business incubator ecosystems. However, as Kazakhstan's first private-sector incubator, MOST also faces challenges in balancing intangible and tangible offerings. While the incubator excels at providing training and community-driven services, there is a growing need to expand tangible services, such as office space, advanced equipment, and specialised consulting. This shift toward more resource-intensive support aligns with global trends in incubation, where a blend of software (intangible) and hardware (tangible) services creates a more holistic support system for startups (Voisey et al., 2006; Bruneel et al., 2012). Graduated companies remain connected to MOST through regular updates, event invitations, and features on the incubator's website. This ongoing

relationship not only strengthens alumni networks but also enhances the incubator's visibility and credibility within the entrepreneurial community. Such alumni engagement strategies are consistent with recommendations in the UNECE (2021) policy handbook, which stress the importance of fostering long-term relationships to sustain an entrepreneurial culture.

MOST Inc.'s incubation policy exemplifies a structured yet adaptive approach to nurturing incubatees. Its focus on rigorous selection, ongoing support, and alumni engagement reflects global best practices, while its emphasis on intangible services positions it as a leader in fostering community and innovation. Nevertheless, by expanding its tangible offerings, MOST could further enhance its value proposition and accelerate the growth trajectories of its incubators, aligning with emerging global trends in business incubation.

4.2 Thematic Findings

Theme 1: Institutional Bridging and Buffering

The “Industrial and Innovation Development of the Republic of Kazakhstan 2020-2025” (IIDRK 2020-2025) initiative exemplifies how emerging economies leverage institutional frameworks to facilitate economic transformation and innovation. This strategic initiative reflects the principles of institutional theory, particularly in its emphasis on creating formal structures and processes that enable innovation, entrepreneurship, and technological advancement (Scott, 2014). Institutional theory posits that the development of rules, norms, and frameworks plays a critical role in shaping economic and social interactions (Scott, 2008). In the context of Kazakhstan, the initiative underscores the business incubator's active role as an institutional intermediary, bridging systemic gaps and fostering collaboration among diverse stakeholders (North, 1990). The normative pressure stemming from IIDRK 2020-2025 reflects a deliberate government-driven effort to align Kazakhstan's economy with global standards in

technological and entrepreneurial innovation. This initiative parallels strategies observed in numerous countries where governments actively support SMEs and innovation ecosystems. Kazakhstan has embarked on a transformative path to build a knowledge-based economy that mirrors the capabilities of industrialised nations by establishing mechanisms to foster entrepreneurship and localising technical programmes (Ministry, 2016).

The localisation of essential and strategic technologies under this initiative highlights the dual role of institutions in regulating and enabling economic activities. Institutional theory emphasises the significance of formal mechanisms, such as policies and financial incentives, for legitimising new economic practices (DiMaggio & Powell, 1983). By investing 0.7 billion tenge into IIDRK 2020-2025, the government not only signalled its commitment to innovation but also set a precedent for institutional accountability and support in the country since its independence. The role of MOST and NURIS further demonstrates the integration of institutional frameworks to operationalise strategic goals. These organisations act as buffers, facilitating the flow of resources, knowledge, and networks essential to the incubation and growth of SMEs (Batjargal, 2007). As noted in Chapter I, business incubators, as institutional intermediaries, are pivotal in addressing structural and contextual challenges that impede entrepreneurial activity in emerging economies. Findings from *Policy Maker 1* and *Policy Maker 4* suggested that MOST Inc. and NURIS create legitimacy for nascent ventures by providing access to financial resources, mentorship, and critical infrastructure. Institutional theory underlines the importance of such intermediaries in stabilising emerging markets, particularly in contexts characterised by institutional voids or weak market mechanisms (Khanna & Palepu, 1997). According to *IMI*, by acting as a nexus between government, private sector actors, and entrepreneurs, both organisations align individual enterprise-level activities with broader national development objectives.

The IIDRK 2020-2025 initiative underscores a broader global trend where governments, particularly in developed and developing countries, recognise SMEs as pivotal drivers of economic growth and innovation. For example, the U.S. Small Business Innovation Research (SBIR) programme, initiated in 1982, demonstrates how targeted policies bridge the gap between knowledge creation and commercialisation by linking universities, public, and private sectors to nurture small enterprises (Wessner, 2008; Ratinho et al., 2010). Similarly, countries like China, Brazil, and South Korea have developed models that integrate substantial funding and regulatory adjustments to support business incubators, thereby fostering entrepreneurial initiatives and driving technological progress (Scaramuzzi, 2002; Qi et al., 2023).

The emphasis on localising technologies in the initiative resonates with the adaptive capacity of institutions to contextualise global best practices. Institutional theory highlights the significance of embedding innovations within specific cultural, economic, and social contexts to enhance their relevance and sustainability (Tolbert & Zucker, 1996). *Policy Maker 4* emphasised the programme's focus on tailoring incubation programmes to the unique challenges of entrepreneurs, such as limited market access and skill gaps, illustrating an adaptive institutional strategy. This approach not only addresses immediate barriers but also fosters a culture of innovation that aligns with Kazakhstan's long-term vision of a knowledge-based economy. However, *Policy Maker 4* highlighted that the integration of business incubators into the broader industrial strategy would enhance the dynamic interplay between institutional structures and entrepreneurial ecosystems.

The findings revealed a comparable commitment to leveraging business incubators as instruments for advancing the SME sector. Interviews with *IMs* and *Policy Makers* unanimously indicate that these incubators are primarily intended to promote small enterprises

and entrepreneurial ventures. This alignment is consistent with global practices observed in the literature, highlighting the importance of substantial governmental funding in establishing and operating incubators. According to *Policy Maker 1*, the initiative might provide insights for other emerging economies seeking to leverage institutional frameworks for economic transformation, but this will take time. *Policy Maker 9* emphasised that by positioning business incubators as central actors within its industrial and innovation development strategy, Kazakhstan might demonstrate the potential of targeted institutional interventions to catalyse systemic change. This approach aligns with institutional theory's perspective on the role of intermediary organisations in bridging institutional gaps and fostering inclusive growth (Meyer & Rowan, 1977). Moreover, the initiative's focus on embedding innovation within societal structures has broader implications for institutional theory. It highlights the need for institutional frameworks to be both robust and flexible, enabling them to adapt to the specific needs and dynamics of emerging markets. This dual capacity ensures that institutions not only support immediate developmental goals but also build resilience against future economic and technological disruptions. A key strategy underpinning this transformation is the execution of a national plan and strategy, which includes initiatives explicitly designed to support SMEs through financial backing and the establishment of business incubators. Kazakhstan started the development of business incubators later than many other countries, but this delay has led to a rapid proliferation of such entities. Data from the "1st Annual Roundtable of the Kazakh Association of Business Incubator Network" in 2024 revealed that Kazakhstan hosts 21 incubators, with the majority established within the past five years, indicating an accelerated effort to institutionalise entrepreneurship support.

Numerous participants, including incubator managers, policymakers, and incubatees, highlighted that incubators positively impact the domestic economy by supporting SMEs,

encouraging entrepreneurship, and fostering collaboration among emerging businesses. Multiple respondents highlighted the ability of incubators to reduce the failure rate of small businesses. *IM 1* stated that both incubator organisations:

“Of course, they have a positive effect since they contribute to the success of incubated firms. This increases the percentage of successful small businesses and decreases the percentage of failed projects”

This view aligns with *Policy Maker 1*, who noted:

“Incubators contribute to the development of the domestic economy, especially as they encourage more young people who are apprehensive about starting projects by linking them with support.”

Similarly, *Policy Maker 14* affirmed that incubators currently make a significant contribution to local development, predicting that their impact will increase over time while their services become more focused and specialised.

One of the distinctive contributions of incubators as institutional intermediaries lies in their ability to foster integration among businesses within their networks. *Incubatee 8* and *Incubatee 31* described the ecosystem within MOST Inc. and NURIS as an “*internal market*,” where incubatees collaborate and exchange services. This synergy promotes innovation and resource-sharing, enhancing the overall success of the incubator environment. For instance, the shared resources and collaborative culture within incubators enable emerging firms to overcome early-stage operational challenges.

Although the majority of the study participants agreed on the vital role of MOST Inc. and NURIS as institutional buffers for incubatees, the economy and the emerging entrepreneurial ecosystem, the measurement of incubators' contributions remains challenging.

Policy Maker 3 explained:

“There are no studies that quantify this effect because, unlike developed countries, Kazakhstan lacks separate taxation and budget systems for different regions. This makes it difficult to measure the impact accurately. Instead, we assess the effect of incubators using various indicators, such as the number of projects in a specific area, among others”

IM 8 noted that incubators are still in their early stages, and it may be premature to evaluate their full economic impact. Similarly, *Incubatee 17* acknowledged that while current incubators face limitations, improvements to the broader entrepreneurial ecosystem could significantly enhance their utility. Several participants emphasised the potential long-term contributions of incubators. While incubatees may currently have a minimal immediate economic impact, *Incubatee 30* expects their contributions to grow substantially in the future. Drawing comparisons with Brazil, he envisioned a scenario where Kazakhstan's incubators could achieve similar levels of economic significance through sustained support and ecosystem development. One of the critical functions of incubators is their bridging role in supporting the establishment of new businesses. As noted in Chapter I, business incubators provide services that significantly reduce the barriers to entry for startups.

IM3 explained:

“Yes, of course, and this context (i.e., the incubators) is suitable for Kazakhstan. For

example, in the USA, a company can use a residential address, but in Kazakhstan, a commercial address is required. This necessitates renting an office, which is costly for emerging companies, along with other expenses (such as setting up an office). However, in incubators, these costs are covered, and emerging companies are provided with these resources for free.”

IM 19 mentioned that the objective of MOST Inc. is to initiate profitable commercial projects. When asked if the incubators contribute to the startups, she affirmed they do, stating, “*We notice our benefit at the beginning of the projects.*” She emphasises that MOST Inc. significantly contributes by providing a supportive environment and bridging the gap between firms and their environment. IM 20 also confirms the substantial positive impact of its role of buffering founders on the initiation of new ventures. The incubatees interviewed were asked two main questions: firstly, whether both NURIS and MOST Inc. had contributed to their projects or if their projects had started before incubation; and secondly, whether the incubators had aided in the starting up of new projects. Incubatee 24 attributed 80% of his project’s success to NURIS:

“Because the incubator is with you, there will be commitment and compulsory follow-up, as you have a mentor and a monthly plan that fosters this commitment”

Similarly, Incubatee 31 highlighted NURIS’s reputation as a critical factor in his project’s success, while Incubatee 22 emphasised the importance of the resources provided by MOST Inc., such as office space and staffing support, in overcoming initial capital constraints. Estimates from several incubatees suggest that both incubators contribute 50–80% of the

initiation process of their businesses, illustrating the substantial support provided by these programmes.

In this study, participants largely echoed these findings, with the majority asserting that incubators in Kazakhstan play a vital role in improving the success rates of SMEs. The analysis reveals that MOST Inc. and NURIS have emerged as pivotal players within Kazakhstan's innovation ecosystem, exemplifying the buffering and bridging roles characteristic of successful incubation programmes. MOST Inc., for instance, acts as a buffer by providing startups with critical resources, such as access to funding networks, tailored mentorship, and co-working spaces, which help shield fledgling enterprises from external market pressures. Participants, including *Incubatees* and *Policy Makers*, highlighted the effectiveness of MOST's structured support programmes in reducing the vulnerability of startups during their nascent stages. This aligns with findings from global studies, such as those by Kim and Jung (2010), that emphasise the protective role of incubators in early-stage entrepreneurial development. Simultaneously, the active facilitation of connections between startups and external stakeholders, such as government officials, investors, and industry partners, highlights MOST's bridging role. Study participants noted that this bridging function not only accelerates the market entry of innovative products but also fosters collaborations that enhance the scalability and sustainability of incubatees. Conversely, NURIS has garnered recognition for its robust focus on the integration of scientific research and entrepreneurship. Participants identified NURIS's ability to buffer incubatees from the challenges of transitioning scientific discoveries into commercial products as a key factor in its success. The incubator's infrastructure, which includes state-of-the-art laboratories and prototyping facilities, provides a safe environment for experimentation and innovation, mitigating the high risks typically associated with tech-driven ventures. Furthermore, NURIS's bridging role is evident in its

partnerships with global innovation hubs and multinational corporations, which offer startups access to international expertise and markets. For instance, respondents cited examples of NURIS-supported incubatees that successfully entered foreign markets through these partnerships, underscoring the incubator's capacity to transcend local limitations and position enterprises on the global stage. This is similar to how ecosystems operate in places like South Korea and Brazil (Scaramuzzi, 2002; Qi et al., 2023), where buffering and bridging functions help the incubatees be more resilient and competitive. Despite the relative infancy of Kazakhstan's incubation ecosystem, participants' qualitative evidence highlights the crucial role of MOST and NURIS in promoting entrepreneurial growth and innovation. This evidence also shows how important it is to fix structural problems like the lack of rules for financial reporting and impact assessments, which make it harder to gain a full picture of how well incubators are working. We expect these incubators to expand their roles as they mature, fostering deeper integration of SMEs into local and global value chains, facilitating job creation, and strengthening industry-academia linkages. These findings suggest that business incubators in Kazakhstan have begun to make meaningful contributions to the local economy by supporting SME growth and fostering innovation. Despite the challenges inherent to quantifying their impact at this early stage, the positive trajectory of incubator development aligns with international best practices, indicating a promising future for their role in economic development.

Theme 2: Policy and Ecosystem Alignment

Business Incubators Addressing Structural Gaps

Participants of the study agreed that MOST Inc. and NURIS have emerged as critical mechanisms addressing the institutional voids that often hinder the entrepreneurial success of

incubatees. Chapter II shows that Kazakhstan has increasingly emphasised the development of SMEs by establishing a key strategic Damu Fund (Damu) to foster economic growth and diversification. By offering interest-free loans and capacity-building initiatives, the fund reduces barriers to entry and promotes entrepreneurial participation. Despite Damu's role as a significant governmental supporter of SMEs, the study's participants observed Damu's ability to provide SMEs with scarce financial resources, which contrasts with global examples of institutional interventions aimed at addressing financing gaps. For example, international initiatives such as the PHARE and TACIS programmes in Central and Eastern Europe and the former Soviet Union, as well as Brazil's CONTEC and PACTI programmes, have demonstrated the value of targeted institutional interventions in fostering entrepreneurial ecosystems (Scaramuzzi, 2002). Similarly, Taiwan's scientific parks and Saudi Arabia's Tamkeen initiative highlight the role of specialised infrastructure and financial mechanisms in addressing institutional gaps. These global practices provide valuable insights into Kazakhstan's efforts to strengthen its SME ecosystem, with institutional intermediaries like MOST Inc. and NURIS, reflecting a similar commitment to bridging gaps in entrepreneurial support systems.

As noted in Chapter II, weak enforcement mechanisms and limited access to credit markets have posed significant barriers to SMEs' scalability and sustainability. However, Damu's financial interventions and the emergence of MOST Inc. and NURIS have started to bridge these structural gaps. Study participants provided qualitative evidence of the transformative impact of both incubators, particularly in empowering incubatees to overcome institutional barriers. These findings align with institutional theory, which emphasises the importance of robust support mechanisms for enabling entrepreneurial growth in underdeveloped ecosystems.

Furthermore, the analysis revealed that the issue of financial support for SMEs in Kazakhstan is multifaceted, reflecting both progress and persistent challenges in the ecosystem. Some participants agreed that the government has demonstrated a moderate commitment to supporting SMEs through various financial initiatives. Currently, more than 15 financial support bodies exist in the country, including governmental, semi-governmental, private sector, and charitable organisations (UNECE, 2023). However, the majority of these entities have only recently come into existence, and their implementation effectiveness continues to vary. One of the critical findings of this study is the lack of awareness among *Incubatees* regarding the available financial support. Participants indicated insufficient information about the programmes available. For example, several *Incubatees* (1, 7, 8, 14, 19, 26, and 31) expressed that they were unaware of the specific opportunities offered by financial support programmes. This awareness gap significantly hinders the incubatees' access to resources that are essential for their growth and development. Furthermore, bureaucratic hurdles discourage many from applying for support. *Incubatees* 10, 17, and 28 noted that complex procedures and perceived inefficiencies in financing bodies prevented them from seeking grants or loans, as they believed the process would impede their business operations.

Despite being a cornerstone of government financial support, the analysis often criticised Damu for its inflexible and bureaucratic approach. For instance, *Incubatee* 2 described a prolonged delay in financing that caused substantial project setbacks and financial losses amounting to four million tenge. The fund's rigid adherence to predefined conditions, such as the requirement to purchase unnecessary equipment, reflects a misalignment between its operational practices and the practical needs of SMEs. This misalignment, as highlighted by several participants, undermines the effectiveness of the fund in fostering incubators. Participants expressed reluctance to re-engage with the fund's financing programmes, even

when they acknowledged procedural improvements, like *Incubatee 2*.

Analysis suggested that the complexity of conditions attached to funding programmes was another recurring issue. *Incubatees 22, 1, and 15* pointed out that the criteria used by Damu and Qazinnovations do not adequately differentiate between the diverse types of business projects, including those based on innovation versus traditional business models. This lack of nuanced evaluation criteria creates barriers for businesses seeking support tailored to their specific needs. Additionally, participants noted a disconnect in communication, describing the operations of these agencies as being in a “different realm,” which further exacerbates challenges for applicants. Financing difficulties are particularly prominent in the IT sector due to the high-risk nature of these projects. As *Incubatee 4* observed, high-risk sectors face greater scrutiny, making it even more challenging for IT-based projects to secure support. Many participants, including *Incubatees 6, 13, 15, and 17*, opted not to pursue grants or loans altogether, citing the perceived risks and responsibilities associated with such funding. Instead, they turned to business incubators like MOST Inc., which provide resources and support without incurring financial liabilities. Notably, *Incubatee 4* highlighted a comparatively positive experience with MOST Inc., perceiving the access to financial resources and mentorship as more aligned with their needs.

“Yes, generally speaking, many agencies seem to operate in a different realm, such as the National Agency for the Development of Innovation “Qazinnovations” and the Damu Entrepreneurship Development Fund. They communicate in a different language. However, the situation was significantly better at MOST”.

The analysis identified a significant gap due to the disproportionate focus on a limited

number of financing bodies. Although over 15 programmes offer financial support, the research participants primarily referenced Damu, Qazinnovations, and MOST Inc. Two key factors contribute to this focus: Damu's dominance as the oldest and most established financing institution, and the lack of visibility of newer programmes. The heavy reliance on a few entities suggests a need for broader dissemination of information and a more integrated approach to financing within the SME ecosystem.

The findings reveal a complex landscape where awareness gaps, bureaucratic inefficiencies, and a lack of alignment with incubatees' specific needs hinder financial support mechanisms, despite their abundance. Addressing these issues requires a more targeted approach to communication, streamlined processes, and differentiated evaluation criteria that cater to the diverse spectrum of incubatees. Strengthening the operational frameworks of prominent financing bodies and enhancing collaboration with business incubators like MOST Inc. and NURIS could play a pivotal role in improving access to financial resources, ultimately fostering a more robust and inclusive entrepreneurial environment.

Recruiting Skilled Personnel

The analysis revealed that incubatees, particularly emerging small firms striving to establish themselves within the competitive business landscape, are facing a critical institutional void in recruiting skilled personnel. The findings highlighted a systemic issue in the employment process, as outlined by *Policy Maker 5*, who identifies a pattern of employees leaving small enterprises shortly after joining to pursue opportunities with larger, more established companies. We attribute this to a broader cultural mentality, where individuals display a high degree of risk aversion and a preference for the stability offered by larger organisations. Such behaviour creates a significant barrier to the sustainability and growth of

emerging firms.

IM 20 underscored the importance of team building for incubatees, noting that the recruitment and retention of skilled personnel are pivotal for their success. However, both *IM 5* and *IM 2*, along with *Incubatee 2* and *13*, corroborated that finding and retaining qualified employees is a persistent challenge. This difficulty is particularly pronounced for emerging firms, which often struggle to offer competitive salaries that align with the expectations of skilled professionals. Analysis revealed that even when talent is available, these firms face considerable obstacles in attracting individuals willing to accept the financial and professional risks associated with early-stage enterprises. Participants suggested that simplifying regulations and ownership-related rules could potentially alleviate some of these recruitment challenges. For instance, facilitating the process of hiring employees from outside Kazakhstan could address the skills shortage, as proposed by *IM 13* and *Policy Maker 7*. However, the current regulatory framework does not adequately differentiate between high-growth firms and traditional small businesses, limiting the ability of the former to navigate these challenges effectively. Additionally, firms located outside major urban centres, such as the capital or other large cities, encounter heightened difficulties in attracting skilled employees because many local citizens are reluctant to work in smaller or less developed regions.

The findings also pointed to the role of MOST Inc. and NURIS in mitigating some of these recruitment challenges. *Incubatees 13, 14, 15, and 24* emphasised that incubators provide valuable support for employment and recruitment processes. Both incubators act as intermediaries, offering resources and networks that help small firms overcome barriers to talent acquisition. Interestingly, participants noted that the primary factor influencing employment decisions was not financial compensation but job security. This insight suggests that MOST Inc. and NURIS, by fostering a structured and supportive environment, contribute

to a sense of stability that is otherwise lacking in firms, thereby enhancing their appeal to potential employees. Likewise, participants highlighted that MOST Inc. and NURIS have demonstrated their capacity to mitigate some of these challenges by addressing the gaps in skilled personnel through targeted interventions. MOST, Inc., for example, facilitates access to a network of professionals and industry experts, connecting incubators with the human capital necessary for their growth. *IM 9* and *IM 10* highlighted MOST's role in providing tailored training programmes and mentorship opportunities, which not only upskilled existing employees but also attracted qualified talent to the ecosystem. These programmes are particularly impactful in technological sectors, where the demand for specialised expertise is high but the supply of such talent is limited. Similarly, participants noted that NURIS collaborates with academic institutions to create a pipeline of skilled graduates, offering internships and project-based opportunities that prepare students for roles within incubatees firms. This strategic partnership between incubators and educational institutions helps address the recruitment challenges that many incubators face, fostering a more dynamic and responsive labour market.

In addition, the findings revealed that the current regulatory framework in Kazakhstan does not adequately account for the specific requirements of technological companies, treating them in a similar manner to other enterprises that do not necessitate highly specialised skills. This regulatory oversight creates significant barriers for incubatees who must navigate a hiring landscape that fails to support their unique needs. Business incubators, on the other hand, act as intermediaries, assisting in navigating these regulatory challenges. For instance, *IM 11*, *IM 12*, and *IM 16* noted that NURIS has been instrumental in streamlining the recruitment process for incubators by facilitating partnerships with global talent pools and simplifying the administrative burdens associated with hiring specialised workers. Such initiatives not only

reduce the transaction costs associated with recruitment but also enhance the competitiveness of SMEs in attracting and retaining skilled employees.

The broader challenges of recruitment for SMEs are not unique to Kazakhstan and reflect globally observed trends. A study of over 4,500 SMEs in the United Kingdom identified six major impediments to growth, with recruitment difficulties and talent shortages comprising the top two challenges (Lee, 2014). This parallel highlights the fact that SMEs face universal challenges in sourcing qualified personnel and retaining skilled employees, particularly in emerging economies like Kazakhstan where systemic inefficiencies compound labour market dynamics. Participants consistently highlighted the difficulty of finding workers with the necessary qualifications and expertise. The retention of such employees also emerged as a critical concern, as incubators often struggle to provide competitive compensation or job stability relative to larger, more established organisations.

Therefore, the implications of these findings are significant. The inability to attract and retain skilled workers not only constrains the operational capacity of incubatees but also limits their potential to innovate and compete in dynamic markets. This issue is particularly critical for incubators with technological projects, which require specialised expertise to drive product development and market entry. MOST Inc. and NURIS provide a blueprint for addressing these challenges, demonstrating how targeted interventions can mitigate recruitment barriers and foster an enabling environment for incubatee growth.

Domestic Ecosystem Alignment

The development of a well-structured and dynamic ecosystem is widely regarded as essential to fostering technological innovation and entrepreneurial growth in Kazakhstan. As noted in Chapter II, a supportive ecosystem facilitates collaboration among various

stakeholders, enhances the operational capacity of SMEs, and enables emerging firms to navigate the complexities of their respective markets. The analysis revealed, however, that Kazakhstan's current ecosystem remains insufficiently developed to fully support these objectives, and significant gaps persist in its structure and functionality.

The findings highlighted diverse perspectives on the formation and functionality of a domestic ecosystem. *IM 11*, *IM 5*, and *Policy Maker 7* emphasised that creating a knowledge-based economy does not necessarily require the establishment of large-scale government initiatives such as Damu or Astana Hub. Rather, they suggested a more effective approach may lie in leveraging the capabilities of business incubators, particularly those affiliated with universities. Such incubators have the potential to act as microcosms of the broader ecosystem, providing an environment conducive to innovation and entrepreneurship without the need for extensive top-down governmental oversight. For instance, participants (*Incubatees 27, 28, and 30*) reported that their involvement with NURIS allowed them to establish crucial business partnerships within Nazarbayev University, demonstrating the localised impact of a well-functioning incubator.

Several respondents identify significant weaknesses in the existing ecosystem. *Policy Maker 5* argued that there is currently a weak ecosystem in Kazakhstan and attributed this to deficiencies in the legal and regulatory frameworks designed to support SMEs. The lack of a robust legal system and intermediary agencies such as MOST Inc. and NURIS that could bridge the gap between entrepreneurs and the market limits the ecosystem's capacity to sustain growth. Similarly, *IM 1* noted that the lack of clear economic diversification in current projects further restricts opportunities for innovation and resilience. *Policy Maker 7* adds another dimension to this critique, describing the ecosystem as "toxic" due to overly aggressive government financing strategies that demand immediate results. Such approaches fail to

account for the inherent risks and iterative nature of high-growth ventures. Instead, he suggested that the government delegate responsibilities to more specialised entities, such as MOST Inc. and NURIS, which can engage with incubators in a manner that is both flexible and aligned with their needs.

The analysis also revealed a consensus that the ecosystem should develop through a bottom-up approach, driven by individual initiatives and localised support systems rather than major top-down government projects.

Policy Maker 2 said:

“We have two choices: either imitate Russia or Silicon Valley. We are going to create something of our own. Ultimately, we need to follow some direction... Astana Hub, and others are copying it word for word. This system may be good for industrialisation, but where is entrepreneurship? What we are doing is very top-down; what we need is bottom-up, starting from individuals.”

While *Policy Maker 7* answered the same question as follows:

“The ecosystem is toxic now, in Kazakhstan. This is because of toxic financing from the government. It does not give a right to fail, the government always wants fast results... it's impossible with high growth firms. The government should delegate its functions to other agents and institutions such as universities, business incubators and funds that have reputation and trustee relationships with entrepreneurs as they speak one language.”

While the weaknesses in the ecosystem are evident, the potential for improvement is

equally clear. *Policy Maker 8* and *Policy Maker 10* acknowledged that incubators have a critical role to play in strengthening the ecosystem. However, they cautioned that incubators alone are insufficient without the development of corresponding industries to support them. *Policy Maker 10* further emphasises the need for integration and coordinated action to ensure that incubators contribute effectively to the broader economy. This view underscored the necessity to align the ecosystem's components, incubators, industries, and regulatory frameworks to achieve meaningful and sustainable growth.

Positive feedback on their events and programmes further supports the role of business incubators in fostering a more vibrant ecosystem. For instance, *Incubatee 29* emphasised the transformative effect of participating in NURIS Startup Weekend, highlighting the event's capacity to stimulate creativity and collaboration among individuals from various backgrounds.

“150 persons attended the conference, including designers, programmers and others. They sat together to work for three days, and their thinking was completely transformed. There is a type of magic in these events which is very exciting and surprising.”

When *Incubatee 32* was asked to evaluate NURIS's events, he replied:

“They are very useful. What impressed me the most is that there are people who quickly embrace new ideas. NURIS offers opportunities for communication and networking, which significantly reduce the gaps encountered since starting the work.”

He praised NURIS for offering networking opportunities that help bridge gaps in knowledge and resources. *IM 12* described the cultural shift toward high-growth ventures as

an “*outstanding trend*,” while *Incubatee 27* observed a significant change in societal perceptions of entrepreneurial projects, indicating a growing recognition of innovation-driven enterprises. The findings demonstrated that while the current ecosystem in Kazakhstan has notable deficiencies, it also holds considerable promise. The success of localised initiatives, such as university-based incubators, suggests that targeted support and grassroots development can significantly enhance the ecosystem’s capacity.

Incubator Model Alignment with the Ecosystem

The typologies of business incubators and their alignment with Kazakhstan’s entrepreneurial ecosystem are central to understanding the effectiveness and adaptability of incubator models. *IM 1* noted that the establishment of the first private incubator, MOST Inc., in 2014, marked the beginning of significant growth in the incubator culture. However, research shows that this growth has come with problems, especially when it comes to adapting incubator models to the local situation and fixing structural and operational inefficiencies. *Participants* highlighted that Kazakhstan’s incubation ecosystem remains underdeveloped compared to countries like the United States. *Policy Maker 7* attributed this disparity to obstacles posed by local laws and regulations, which incubator managers perceive as limiting their effectiveness. These regulatory challenges affect the adaptability and efficiency of incubators in providing necessary services to incubatees and fostering an environment conducive to innovation and business growth. *IM5*, *IM10*, and *IM15* emphasise the importance of tailoring models for local needs. By customising their approaches to fit a unique local context, incubators can better address the specific challenges and opportunities present in their environments. This adaptability is crucial to enhancing their support for startups and driving overall economic development. *IM 2* noted that their incubator’s primary goal is to establish

profitable projects and generate quality employment, contributing to economic diversification. *IM 1 and IM 2* expressed that the traditional incubator model, which offers a physical space and comprehensive services, remains the most appropriate for Kazakhstan. Cultural preferences, such as a preference for working outside the home, reinforce the relevance of this model. *Incubatee 3* corroborated this, citing access to office space as a primary motivator for joining an incubator. However, *IM 2* also pointed out that confidence in incubators is low, particularly among younger entrepreneurs who lack a clear understanding of their role and potential benefits. This highlights the need for improved communication and education about incubators to build trust and engagement among emerging entrepreneurs. By addressing these gaps, incubators can better serve the needs of young business owners and enhance their overall effectiveness.

Contrasting views emerged regarding the suitability of incubators versus accelerators. *IM 13* expressed the view that:

“Incubators are valuable for long-term research and development, whereas large investments and accelerators are beneficial for high-risk validation periods. Therefore, I generally prefer business accelerators as they are more effective than business incubators, which tend to operate at a slower pace.”

Incubatee 25 expressed a preference for accelerators due to their practical and results-oriented approach. Accelerators, which often require financial or equity commitments, apply structured pressure on entrepreneurs, driving accountability and rapid progress. *Incubatee 28* agreed, stating that given the choice between joining an incubator or an accelerator, accelerators are preferable because:

“Accelerators inherently apply pressure to ensure you accomplish your tasks, as they either invest in you as a partner or you pay them to benefit from their services over several months. In contrast, incubators typically do not offer partnerships or charge fees.” [This refers to NURIS providing free services.]

Incubatee 14 added that the preference between incubators and accelerators depends on the founder’s circumstances and the suitability of the incubator or accelerator for the individual and their project. He shared his experience of encountering a business accelerator but was unable to join because it required a full-time commitment for three months, a commitment that his day job could not accommodate. However, he pointed out that when working in a group of three or four, not everyone needs to commit full time, which makes an incubator a more suitable option. *IM 4* highlighted the difficulty with implementing accelerators in a risk-averse culture, noting:

“If you open an accelerator, no one will join because of our risk-averse culture. For example, a technological company in Kazakhstan organised a competition in 2022 for mobile applications, offering seed funding and full-time accelerator membership for three months to the top three winners. Although many applied, the winners refused to leave their jobs and join the accelerator full time, uncertain if they would start a business later. This highlights the complexities and difficulties of running an accelerator in such a context.”

The study findings underscored the importance of contextually tailored models. These models not only enhance the relevance of interventions but also improve overall outcomes by addressing the unique needs of different populations. Therefore, we encourage researchers to

take into account local factors in the development of future strategies. *IM 2* discussed the iterative process through which MOST Inc. developed its incubation model, emphasising:

“We studied the actions of other countries in two ways: an international team of consultants designed a model based on best practices, and another team also created a model for us. We needed to see some aspects in practice, so my colleagues and I travelled to many countries, with some staying for a month to learn. Upon returning, team members would suggest changes to fit the Kazakhstani context. We adapted the model throughout the year to align with local realities. Some incubators failed because they imported ready-made models. We did not, which contributed to our success.”

This insight aligns with the broader findings of the study, which suggest that incubator models must evolve in response to cultural, regulatory, and market-specific factors. These factors play a crucial role in shaping the success of incubator programmes as they cater to the unique needs and challenges faced by startups in different environments. Therefore, a one-size-fits-all approach is unlikely to yield optimal results, and tailored strategies should be prioritised to foster innovation effectively.

In Kazakhstan’s context, where the entrepreneurial ecosystem is still maturing, the distinction between incubators and accelerators is particularly relevant, as noted in Chapter I. Incubators are generally more accessible to incubatees in nascent stages of development, offering flexibility in time commitments and comprehensive support for foundational business needs. In contrast, accelerators cater to more advanced ventures, focusing on rapid market entry and growth. *IM 4* emphasised the need for both models to coexist within a broader ecosystem, with each addressing different stages of the entrepreneurial lifecycle. *Policy Maker 7* supported

this view, noting that accelerators are valuable but require the foundational work of incubators to prepare entrepreneurs for high-growth environments. This collaborative framework allows for a smoother transition between the phases of business development, ensuring that entrepreneurs have access to the necessary resources at each step. By fostering a symbiotic relationship between incubators and accelerators, the ecosystem can nurture innovation while maximising its potential for sustainable growth.

Analysis suggested that the services provided by incubators reflect their alignment with different stages of entrepreneurial development. For instance, MOST, Inc. prioritises scalable projects at the seed stage, emphasising market readiness and potential profitability. This approach contrasts with NURIS, which focuses on nascent-stage ventures, providing training and mentorship to build entrepreneurial capabilities. While both models have their merits, the findings suggested that incubators often fall short in terms of addressing the needs of incubatees or providing sustained support for existing businesses. *Policy Maker 7* and *IM 16* emphasised the importance of designing incubators that cater to diverse entrepreneurial needs, including support for incubatees' technology projects.

Analysis also revealed the challenges within the existing incubation ecosystem. Several participants identified “*negative incubation*,” where incubators accept projects without adequately assessing their specific needs or suitability for the services provided. This misalignment can lead to inefficiencies and hinder the growth of incubatees. *IM 14* noted that profit-driven selection criteria often exclude projects with high societal or technological value but limited immediate profitability. This focus on short-term profitability can stifle innovation and limit the diversity of projects that could otherwise contribute to societal advancement. This ultimately weakens the overall effectiveness of the incubation process by overlooking many potentially impactful ventures.

In addition, analysis indicated a widespread lack of understanding about the role and functions of incubators among entrepreneurs, policymakers, and even some staff within the incubators themselves. *Incubatee 8*, a graduate of MOST Inc., highlighted the minimal awareness surrounding incubators when initially joining the programme, reflecting a broader societal unfamiliarity with the concept. The majority of respondents, including incubator managers, incubatees, and policymakers, corroborate this statement, agreeing that awareness remains limited across Kazakhstan as a whole. Despite the overall poor awareness of incubators, there are indications of a steady increase in such in recent years, particularly in 2023. *Incubatee 6* and *24* attributed this rise to growing demand and improvements in the conditions for joining business incubators. *Policy Maker 7* attributed this positive trend to the efforts of both NURIS and MOST Inc. in organising symposiums and conferences aimed at promoting incubatees' development and technological innovation. However, the increase in awareness appears incremental rather than transformative. *IM 4* and *IM 15* estimate that awareness among the general population is currently at approximately 10-15%, a figure that underscores the nascent stage of this ecosystem. This limited awareness suggests that while initiatives are in place to foster growth, the overall impact on the broader community remains modest. As such, more extensive outreach and engagement efforts may be necessary to catalyse a significant shift in public understanding and support for business incubators.

The analysis showed that no systematic formal studies have measured incubator awareness levels; instead, incubator managers rely on anecdotal methods to gauge public familiarity. This reliance on anecdotal methods suggests a gap in empirical research, which may hinder the effective promotion and operation of incubators. Without formal studies, it becomes challenging to understand and enhance the impact of these programmes on their target audiences. *IM 1* explained:

“No, it’s not like what you are doing. To get a preliminary sense, we simply ask people in a new area how many are aware of incubators, which gives us an idea”.

IM 13 added,

“Some government officials are pleased with the existence of incubators but don’t understand how they operate, including some in charge of them.”

However, as *IM 13* noted, even government officials responsible for overseeing incubators often lack a clear understanding of their operations, which creates additional challenges in promoting these institutions effectively. *IM17* further emphasised that some staff members within incubators also fail to grasp their intended purpose, revealing a systemic gap in both internal and external awareness. This lack of understanding among both government officials and incubator staff highlights a critical need for better training and communication. Addressing this knowledge gap is essential to improving the effectiveness and promotion of incubator programmes.

This distinction between general awareness and in-depth understanding of incubators’ work is particularly notable. *Incubatee 11* pointed out that while there may be some familiarity with the term “incubator,” the actual comprehension of their functions and contributions remains limited. For instance, *Incubatee 10* frequently encounters questions from experienced technological incubatees who do not understand the role of incubators in supporting innovation and entrepreneurship. This lack of understanding may hinder the ability of these programmes to reach their full potential, as entrepreneurs fail to leverage the resources and networks that incubators provide. Conversely, there are pockets of increased awareness, particularly among

incubators who have attended conferences and events organised by MOST Inc. *Incubatee 15* estimated that approximately 70% of founders who frequent such events possess some level of knowledge about incubators, suggesting that targeted outreach efforts could be having a meaningful impact. These findings highlight the role of business incubators not only as providers of resources and mentorship but also as platforms for education and advocacy within the entrepreneurial community.

The implications of this limited awareness are significant for the broader development of Kazakhstan's entrepreneurial ecosystem. A lack of understanding about the role of incubators may limit their use by potential beneficiaries and hinder their ability to attract funding and support from key stakeholders. Furthermore, without formal assessments to measure and address gaps in awareness, incubators may struggle to identify effective strategies for outreach and engagement. To enhance awareness, a multifaceted approach is required. This could include launching national campaigns to educate the public about the functions and benefits of business incubators, integrating incubator-related content into educational curricula, and fostering collaborations between incubators and government entities to promote understanding at the policy level. Additionally, conducting systematic studies to assess awareness and perception of incubators would provide valuable insights for designing more effective programmes and interventions. The analysis underscored the importance of bridging the gap between general awareness and actual understanding of business incubators in Kazakhstan.

Analysis indicated a strong consensus on the need to expand and diversify the incubation ecosystem, integrating models and practices that align with both local needs and global best practices. The necessity for a diverse range of incubators is a recurring theme in the findings. *IM 1* emphasised that:

“Kazakhstan needs all types of incubators in the future,” emphasising the necessity for private sector involvement: “For a company to achieve success like Clokcster, it should adopt the internal or external principles of incubators.”

He emphasised the insufficiency of standard funding models in fostering innovation, citing international examples like Samsung, Google, 3M, and GE. These companies combine small initial investments with access to innovation centres to foster project growth. This observation underscored the importance of creating an ecosystem that not only provides financial support but also offers facilities, like prototyping centres, which are notably absent in Kazakhstan’s current landscape.

Analysis revealed public-private partnerships as a critical strategy for the future of incubation in Kazakhstan. *IM 6* advocated for increased collaboration between the public and private sectors, suggesting that such partnerships could *“minimise the potential for project failure.”* *IM 13*, emphasising the need for a multitude of incubators to foster a culture of entrepreneurship and innovation, supports this view. He added that the establishment of diverse incubation models would allow for greater inclusivity and flexibility in addressing the varied needs of incubatees.

The findings also highlighted the importance of tailoring incubator models to the unique requirements of incubatees. *IM 17* advocated for *“full incubation”* as the most suitable model for Kazakhstan, arguing that incubators should provide comprehensive services while allowing incubatees to select those most relevant to their projects. This approach reflects a recognition of the heterogeneity of incubatees’ nature, which ranges from nascent ideas requiring foundational support to more developed projects needing targeted assistance for market entry. He also noted:

“Some projects need more services than others, so incubators should not limit their acceptance to one type. They must provide all services, allowing the incubatee to select those needed.”

IM 10 further supported the value of commercial incubators, noting that their structure fosters greater freedom and security for incubatees through partnerships that align the interests of incubatees and incubators. The expansion of the incubation ecosystem must also address structural and operational challenges. *IM 6, IM 13, and IM 5* stressed the importance of strategically organising the types of incubators that should be established in the future. This includes identifying gaps in the current ecosystem, such as the lack of sector-specific incubators or those catering to incubatees, and designing models that cater to these unmet needs. Additionally, study participants pointed to the necessity of adopting an inclusive framework that integrates various stakeholders, government agencies, private enterprises, academic institutions, and international partners into the incubation process. By creating an inclusive framework, the aim is to foster collaboration among diverse stakeholders, ensuring that the incubation process is comprehensive and addresses the varied needs of all the participants involved. This approach not only enhances the effectiveness of incubators but also promotes sustainable growth and innovation within the ecosystem.

The incubation industry’s potential to drive an entrepreneurial ecosystem is significant, but its realisation requires that several barriers be overcome. The absence of specialised facilities, such as innovation and prototyping centres, limits the ability of incubators to effectively support high-tech and manufacturing ventures. Furthermore, the lack of standardisation and performance evaluation mechanisms poses challenges to ensuring the quality and impact of incubators. Addressing these issues not only involves investing in

infrastructure but also fostering collaboration between various stakeholders, including government entities, educational institutions, and private investors. By implementing comprehensive support systems, incubators can enhance their effectiveness and contribute to a more robust entrepreneurial landscape.

Durations and Exit Strategies in Emerging Ecosystems

The duration of the incubation period and the policies surrounding project exits are critical aspects of business incubators, influencing both the incubatees' development and the overall efficacy of the incubation process. Findings from this study reveal variability in incubation durations and exit strategies among both incubators in Kazakhstan, shaped by the type of incubator and the specific needs of the incubatees. These aspects highlight the interplay between structured incubation models and the flexibility required to support diverse entrepreneurial ventures. This interplay underscores the importance of tailoring incubation approaches to individual businesses, ensuring that each venture receives the appropriate support and guidance necessary for successful growth.

The incubation period varies significantly, depending on whether the incubator operates as a full-service entity or as a business accelerator. Often, *Incubatees 4* and *23* perceive the duration of incubation to be excessively long. *IM 1* explained that in MOST Inc., the shortest incubation period is typically three months, often for projects where incubators do not fully engage, while the longest period can extend for up to a year. Similarly, *IM 7* linked the incubation duration to the termination of services provided, indicating that shorter durations range from two months to a year, while longer periods can extend to two years, especially for projects involving loan repayment. This approach aligns with his perspective:

“The purpose of incubators is to create functional projects rather than just develop individuals. If business owners are pressured to repay loans in a short period, it could lead to the failure of their projects.”

Business accelerators, in contrast, tend to adopt shorter incubation periods, ranging from three to nine months, as described by *IM 6*. Accelerators often focus on intensive, time-bound interventions to evaluate project viability. Accelerators closely tie their exit policy to the project’s progress, with *IM 6* stating, “*I do not expect anyone to stay more than nine months.*” This reflects the accelerator’s goal of swiftly preparing projects for market entry or identifying challenges that necessitate revaluation.

While incubators provide structured timelines for incubation, analysis suggested that flexibility is a common feature of local exit policies. MOST Inc. and NURIS allow extensions based on the progress and needs of the project. For instance, *IM 5* highlighted the inclusion of exceptions in contracts to accommodate projects requiring additional time. This flexibility supports projects that show promise but have not yet reached full maturity, as illustrated by *Incubatee 31*, who stayed beyond the official one-year period due to the specific lifecycle of his project.

Exit policies among local incubators generally follow one of four pathways: successful graduation, project termination due to limited viability, repayment of funding, or the liquidation of inactive projects. An evaluation of the project’s ability to sustain itself independently typically marks successful graduation. *IM 2* explained that MOST Inc. assessed the market value of services provided to the incubatee to determine whether the project would generate sufficient income for self-sustainability. For projects that fail to achieve their goals, incubators adopt a supportive approach, as *IM 1* described:

“We don't view these individuals as failures. We organise a party to congratulate them on their efforts and encourage them to think about new projects.”

This practice underscores the role of incubators in fostering resilience and encouraging innovation even when initial ventures fail. Incubators often tie projects that repay funding to financial commitments like loans or equity stakes. *IM 4* noted that repayment signifies the conclusion of the formal incubation period. *Incubatee 30* highlights that NURIS policies to liquidate inactive projects streamline operations and create space for new ventures. This approach not only optimises resource utilisation but also fosters a dynamic ecosystem that fosters the growth of new ideas. By focusing on active projects, incubators can better support innovative initiatives that have the potential for success.

The findings also revealed that the actual exit process can be ambiguous, with some incubatees expressing uncertainty about the timing and structure of their graduation. *Incubatee 7* described a delay in his graduation ceremony, suggesting that incubators might postpone individual graduations in order to organise collective events for greater visibility and promotion of their successes. This approach, while beneficial for public relations, can create confusion among incubatees regarding their status within the incubator. This flexible approach to exit policies reflects the nascent stage of Kazakhstan's incubation ecosystem. *IM 3* stated, *“The exit policy is not fixed, and we aim to be flexible in our operations,”* highlighting the adaptability of incubators to the specific needs of incubatees. However, to ensure transparency and effective resource allocation, this flexibility must be balanced with clear guidelines.

The variability in incubation periods and exit policies among local incubators reflects the diversity of entrepreneurial needs and the developmental stage of Kazakhstan's incubation ecosystem. While flexibility is a strength, a lack of standardised policies can lead to ambiguity

and inefficiency. Establishing clear yet adaptable guidelines for incubation durations and exit strategies would enhance the effectiveness of incubators, providing a structured framework that accommodates the unique trajectories of entrepreneurial ventures.

Normative pressures arising from exit policies in business incubators reflect broader tensions between the evolving practices of local incubation ecosystems and international standards. These pressures highlight the need for a balance between local adaptability and global best practices to ensure that incubators can support entrepreneurs effectively while aligning with internationally recognised benchmarks. This alignment fosters greater credibility and competitiveness within the global market. Exit strategies serve as critical junctures in the incubation process, marking either the successful graduation of a project or its cessation. Several key factors typically influence these strategies: the project's readiness to function independently, its inability to achieve viability, the incubator's fund repayment, or the end of a defined incubation period, especially in accelerators where timelines are inherently shorter. These factors ensure that thoughtful decisions are made regarding exit strategies, balancing the potential for future success with the practical realities of the project's circumstances. Ultimately, a well-considered exit strategy can significantly impact both the project's future and the incubator's overall effectiveness.

The findings revealed that exit policies at MOST Inc. and NURIS are often characterised by flexibility rather than rigidity. Unlike the prescriptive frameworks observed in some international incubators, local practices lack stringent regulations specifying fixed timeframes or definitive criteria for project removal. While this flexibility allows incubators to adapt to the unique trajectories of individual projects, it also introduces a lack of clarity and consistency to the exit process. This variability can make it difficult for entrepreneurs to leave the incubator. Consequently, while flexibility can foster innovation, it may also hinder the

establishment of clear expectations and accountability within the incubator ecosystem. This ambiguity is consistent with the literature, which suggests that many incubators globally, particularly in emerging ecosystems, have not established clear and uniform exit criteria. Bruneel et al. (2012) emphasise that the absence of definitive restrictions and regulations governing incubator exits is a common characteristic, particularly in incubators designed to prioritise the developmental needs of projects over strict adherence to timelines. The findings align with this perspective, suggesting that business incubators operate within a normative framework that prioritises project success over strict exit timelines. This approach allows for greater flexibility in nurturing innovative ideas, fostering an environment where startups can evolve at their own pace. Consequently, the focus on developmental needs rather than rigid timelines may ultimately lead to more sustainable outcomes for both the incubators and the ventures they support. *IM 10*, *IM 12*, and *IM 16* noted that the flexible approach observed in these organisations may be influenced by collaborative relationships with international incubators and the adoption of practices aimed at maximising project outcomes. This focus on ensuring project viability, rather than adhering to arbitrary time constraints, reflects a commitment to fostering sustainable entrepreneurial ventures. The willingness of incubators to extend incubation periods when they are beneficial to a project highlights a developmental ethos that prioritises long-term success over short-term metrics. However, the lack of clarity in exit policies also presents challenges. Participants in the study expressed uncertainty regarding the criteria and timing of exits, which can create confusion and hinder effective planning on the part of both incubatees and incubators. This ambiguity may also contribute to inefficiencies in resource allocation, as extended incubation periods without clear objectives can strain incubator capacities and limit opportunities for new projects.

Analysis revealed that a tension between the need for flexibility and the benefits of

structured guidelines shapes normative pressures associated with exit policies. While the adaptability of business incubators allows for tailored support and extended incubation periods when necessary, the absence of formalised policies risks undermining transparency and accountability. Establishing clear yet flexible exit criteria could help balance these competing priorities by providing a framework that supports project development while ensuring efficient resource utilisation. This balance ensures that businesses receive the necessary support to grow while also maintaining oversight over resources, preventing mismanagement. By implementing adaptable exit criteria, incubators can foster a more transparent and accountable environment for all stakeholders involved.

Collaboration with international incubators offers an opportunity for business incubators to refine their exit policies by integrating best practices and lessons learned from more established ecosystems. This integration could include the adoption of performance-based exit criteria, regular evaluations to assess project readiness for graduation, and the development of post-incubation support mechanisms to ensure a smooth transition to independent operations. Such measures not only enhance the overall effectiveness of the incubation process but also build trust among entrepreneurs, investors, and mentors. By prioritising these strategies, incubators can better equip their startups for long-term success and sustainability in a competitive market. To ensure the success of startups within incubation programmes, a multifaceted approach is essential. By implementing performance-based exit criteria, incubators can effectively assess the readiness of projects for graduation, fostering an environment where only the most prepared ventures emerge. Regular evaluations not only keep the focus on growth but also allow for timely interventions where necessary. Additionally, establishing robust post-incubation support mechanisms is crucial to facilitating a seamless transition into the broader business ecosystem. Building trust among entrepreneurs, investors,

and mentors strengthens these relationships, creating a collaborative atmosphere that further nurtures innovation. Ultimately, equipping startups with the tools and resources they need ensures their long-term success and sustainability, paving the way for a vibrant entrepreneurial landscape that thrives on continuous development and resilience.

Theme 3: Networking and Resource Mobilisation

Contrasting Approaches

The literature review chapter reveals that the characteristics of business incubator models, the stage of intervention, the services provided, and the mission are crucial factors in understanding how incubators function and their effectiveness in fostering entrepreneurial success. These elements must align with the needs of incubatees and the specific institutional and economic contexts in which the incubators operate. Moreover, a comprehensive analysis of these factors can illuminate best practices and strategies that enhance the support provided to startups, ultimately leading to sustainable growth and innovation. By tailoring the incubator framework to meet the diverse needs of entrepreneurs, stakeholders can leverage these models to drive economic development and bring forth transformative change within their communities.

A comparative analysis of MOST Inc. and NURIS provided valuable insights into their operational frameworks, strategic objectives, resource mobilisation, and the role of networking. Both incubators share similarities, such as their mixed-use client focus and lean management styles, yet they differ significantly in their funding models, client profiles, and strategic orientations. Developing a comparative analysis framework, grounded in existing studies, enables a robust evaluation of their strengths, weaknesses, and contributions to the business incubation landscape. The insights gained from this comparative analysis can inform best

practices that other incubators might adopt to enhance their effectiveness. By understanding these distinctions and commonalities, stakeholders can better tailor their support to foster innovation and growth within their respective ecosystems.

Table 6 - Comparative analysis framework

BUSINESS INCUBATOR	NURIS	MOST Inc.
Aspect/Background		
Established	2016	2015
Funded by	Nazarbayev University	Private funding
Accomplishments	140+ graduate companies	100+ graduate companies 10000+ served entrepreneurs 90+ companies raised investments
Client focus	Mixed-use	Mixed-use
Original goals	1. Promoting a culture of innovation and entrepreneurship at the university. 2. Managing technology transfers by identifying and capturing the intellectual property arising from the university's research. 3. Supporting startups. 4. Building partnerships and bridging the gap between academic research and industry.	1. Help young people, unemployed persons, and others to establish their own businesses. 2. Assist small businesses already in existence to expand and provide further employment. 3. Change the traditional mindset into a more entrepreneurial one. 4. Enhance the entrepreneurial ecosystem in Central Asia.
Structure		
Additional body	Not available	Board of Members
Leadership	Director	CEO
Number of staff	9	7
Hierarchy	Structured, defined goals	Informal, flexible, needs-based
Management	Lean, corporate style	Lean, corporate style
Services		
Developmental	1. Enterprise development advice 2. Monthly one-to-one advice clinics 3. Regular workshops and training sessions 4. Facilitated linkages to research at the university 5. Networking opportunities 6. Media support	1. One-to-one business advice and guidance 2. Assistance with business planning 3. Assistance with funding applications 4. Business network meetings 5. Educational courses

Infrastructural	1. Part-time access, ample car parking, and security 2. Dedicated server room 3. Free Microsoft software for startups 4. Numerous seminar and meeting rooms of various sizes 5. Reception services 6. Wireless network	1. Wireless broadband 2. Training/conferencing facilities
Revenue	Not for profit	Client rentals, dividend and other income from shareholdings in clients' firms
Incubatees		
Participants	41	43
Sector	Information Communication and Technology, Cybersecurity, Digital Healthcare, Internet of Things, Artificial Intelligence, Agrotech, Big Data, Civil Construction Technologies	No particular sector focus
Incubation Policy and Practice		
Selection process	Application form > interview	Application form > interview
Contract	Agreement	Agreement

Source: Author's own

MOST Inc. functions as a privately funded incubator, relying on the rentals, dividends, and income from shareholdings in client firms of its incubatees. It follows a for-profit model, taking equity stakes in the businesses it supports to ensure financial sustainability and instil a business-focused mindset. As *IM 4* stated:

“The for-profit approach is the only viable one, encompassing the right mindset and philosophy for nurturing businesses. Charity rarely succeeds in this industry.”

This contrasts with NURIS, which is backed by Nazarbayev University, benefiting from a non-profit model that leverages academic research for entrepreneurial endeavours. This support structure allows NURIS to focus on innovation and development, enabling a synergy

between academia and business. As a result, it fosters a more sustainable approach to entrepreneurship compared to traditional profit-driven models. Ahmad (2012) highlights how governance structures mirror funding bases: privately funded incubators like MOST often adopt flexible and needs-based governance frameworks, while university-linked incubators like NURIS tend to have more formal and structured hierarchies. MOST's reliance on a board of members underscores its adaptable approach, while NURIS's director-led governance reflects its integration within the university's broader strategic goals. These observations align with Bruneel et al. (2012), who found that funding models significantly shape incubators' operational and strategic orientations, influencing their ability to scale and diversify. This suggests that both incubators' operational needs and funding sources influence their governance structures. Consequently, the interplay between funding and governance can determine how effectively an incubator can grow and evolve in response to market demands.

The service offerings of both incubators reveal a focus on supporting entrepreneurial growth and networking, yet the specifics reflect their strategic priorities. Networking within the incubation plays a crucial role in fostering partnerships among incubatees, thereby facilitating the exchange of knowledge and the establishment of marketing and technological relationships. This interconnectedness enhances the learning process and contributes significantly to innovation. In particular, most participants emphasised that MOST, Inc., and NURIS add substantial value by providing incubatees with access to extensive networks. The services offered by these institutions emphasise value-added services; the incubator manager acts as a central facilitator. This role involves interacting with both internal and external stakeholders, including incubatees, local and international businesses, investors, and research institutions. However, external networks alone are insufficient to ensure an incubator's success. Internal capabilities, nurtured and supported by the incubator manager, are critical in

transforming these networks into practical resources for entrepreneurial growth. *Incubatees* participating in the incubation programmes at MOST Inc and NURIS frequently shared insights and experiences related to various stages of business development. This collaborative environment enabled them to learn from one another while providing mutual emotional support. Despite the diversity of technologies employed, often tailored to specific customer needs, these enterprises must navigate similar key stages, such as technology development, sales, and marketing. The structured networking and support within these incubation ecosystems ensure that incubatees can collectively advance their ventures and address common challenges in an effective manner.

Analysis also revealed that NURIS prioritised research facilitation, intellectual property management, and access to specialised tools, positioning itself as a bridge between academic research and industry. Therefore, NURIS prioritised developing business-related capabilities through training, mentoring, and connecting incubatees to knowledge resources, particularly within the academic ecosystem at Nazarbayev University. For instance, NURIS organised intensive boot camps, as noted in *IM 12*: “*Business training benefits everyone, making it a crucial part of incubation.*” These programmes provide early-stage entrepreneurs with essential skills in business strategy, planning, and operations. Furthermore, NURIS maintains a robust mentoring network, offering around 20 hours of training and guidance per firm each month. MOST, Inc., in contrast, places greater emphasis on facilitating product launches and connecting incubatees with key external stakeholders, such as investors, suppliers, and clients. *IM 6*'s observation reflects this focus on market engagement.

“Our success is largely due to a robust network built around our ecosystem, including entrepreneurs, investors, and partners.”

This networking-centric approach underscored MOST's role as a bridge between incubatees and the broader business environment. By facilitating connections with industry experts, investors, and potential clients, MOST not only enhances the growth potential of its incubatees but also strengthens its position as a pivotal player in the entrepreneurial ecosystem. This strategy not only fosters innovation and collaboration among startups but also positions MOST as a vital resource for navigating the complexities of the business landscape. As a result, it cultivates a thriving environment where emerging ventures can flourish and succeed.

The mission of an incubator further shapes its operations, dictating whether it adopts a profit-oriented or non-profit approach. NURIS, as a university-sponsored incubator, operates on a non-profit basis, focusing on fostering innovation and entrepreneurship without taking equity from incubatees. This model allows NURIS to prioritise the success and development of its startups by providing resources and support that enable entrepreneurs to thrive in a collaborative environment. By emphasising mentorship, training, and access to funding, the incubator aims to cultivate a sustainable ecosystem that benefits both the University and the wider community. *IM 19* explained:

“We are sponsored by the university with a clear non-profit mission. This mission prevents us from charging for services or taking equity from the firms we incubate.”

MOST Inc., on the other hand, prioritise broader entrepreneurial support, including business advice, funding assistance, and networking opportunities. Ahmad's (2012) comparative analysis framework emphasised that the nature of services often reflects the intended outcomes: NURIS focused on creating spinoffs from academic research, while MOST Inc. targets regional development and grassroots entrepreneurship. Pauwels et al. (2016) note

that service differentiation is a critical factor in tailoring incubation programmes to meet distinct incubators' needs, as seen in the specialised offerings of NURIS versus the inclusive approach of MOST.

A comparative analysis revealed that NURIS's client base is smaller and more specialised, consisting of 25 participants engaged in high-tech sectors such as artificial intelligence, agrotech, and digital healthcare. This specialisation aligns with the strategic goal of bridging academic and industrial innovation. In contrast, MOST, with a broader client base of 56 participants, adopts an inclusive approach, serving diverse sectors and addressing societal challenges such as unemployment and mindset transformation. Likewise, MOST Inc. targets seed-stage ventures, offering resources and networks designed to facilitate market entry. While both approaches are valuable, they address distinct needs of incubators. As *IM 14* stated: "*There is no restriction on the type of firms; everyone can enter if we believe we can assist them,*" indicating a flexible yet strategic approach. Conversely, *IM 2* emphasised a more selective criterion, "*We accelerate only high-growth and high-potential businesses with the most profit-promising business ideas,*" reflecting MOST's focus on ventures closer to commercialisation.

Ahmad (2012) highlights the importance of client diversity in reflecting an incubator's mission. By fostering a diverse clientele, incubators can better address various market needs and enhance their overall impact. This diversity not only enriches the incubator's ecosystem but also promotes innovative solutions tailored to the wider range of challenges faced by different communities. For example, sector-specific NURIS excel in fostering deep innovation within niche markets, while generalist incubators like MOST Inc. play a crucial role in addressing macro-level socio-economic challenges. Hackett and Dilts (2004) also support this perspective, noting that the composition of an incubator's clientele often mirrors its strategic

focus and resource allocation. Strategic focus further differentiates these incubators. NURIS focuses on promoting innovation at Nazarbayev University, supporting technology transfers, and managing intellectual property. This aligns with its role as an academic-driven incubator seeking to create market-ready technologies. MOST Inc., conversely, targets societal impact through youth entrepreneurship, regional development, and ecosystem enhancement. These contrasting strategies reflect broader incubation models: university-linked incubators typically drive knowledge transfer and high-tech innovation, while privately funded incubators often prioritise socio-economic development and broader entrepreneurial cultural shifts (Ahmad, 2012). Isenberg's ecosystem framework reinforces these findings, highlighting the dual roles of incubators in fostering localised innovation and addressing global economic challenges (Isenberg, 2010).

Several participants emphasised that the performance outcomes provided a lens through which to evaluate the effectiveness of both incubators. NURIS's achievements, including more than 140 graduate companies and strong research commercialisation, demonstrate its success in leveraging academic resources to foster high-tech incubators. MOST Inc., with more than 100 graduate companies and 10,000 incubatees served, underscores its impact on regional development. The literature review chapter stressed that such outcomes are not merely metrics but reflections of the incubators' underlying missions. Grimaldi and Grandi (2005) also observed that university-linked incubators like NURIS excel in creating value through intellectual capital, while private incubators like MOST focus on scaling community-driven entrepreneurial initiatives.

The comparative analysis revealed the complementary nature of incubator models within a national entrepreneurial ecosystem, demonstrating how diverse incubation strategies can collectively drive innovation and economic growth. A critical aspect of this

complementarity lies in resource allocation and networking, both of which are foundational to the success of both incubators. Analysis showed that the differentiated resource allocation strategies ensure a holistic support system for incubatees, catering to various stages of business development and industry-specific challenges. Networking further amplifies the impact of these incubators by fostering collaboration and knowledge exchange among incubatees, investors, and other stakeholders. Both incubators not only build internal networks that promote peer-to-peer learning among incubatees but also leverage external networks, connecting entrepreneurs to global markets, research institutions, and specialised expertise. In this way, the combined efforts of incubators contribute to creating a robust entrepreneurial ecosystem, where resources and knowledge flow seamlessly. This synergy enhances the capacity of incubatees to innovate, scale their ventures, and address complex market demands. Together, resource allocation and networking act as pivotal mechanisms through which incubators complement each other, collectively advancing national innovation and economic development. By aligning their models with contextual and institutional priorities, MOST and NURIS offer valuable insights into the evolving landscape of business incubation in emerging economies. These insights not only foster resilience among startups but also empower them to navigate challenges with greater agility. As a result, the collaboration between incubators contributes to a thriving entrepreneurial culture that nurtures talent and encourages sustainable growth.

Effective Management

The role of managers and staff in business incubators is a critical determinant of the success of both the incubator and its incubatees. As highlighted in the literature, effective management directly influences the growth and sustainability of incubated enterprises. Zhu et

al. (2014) posit the importance of the incubator manager, defining this role as being responsible for overseeing operations and leveraging resources to assist incubatees (Hackett & Diltz, 2004b; Zhu et al., 2014; Kakabadse et al., 2020). Studies have consistently shown that collaboration between incubatees and managers can significantly enhance enterprise development (Scillitoe & Chakrabarti, 2010; Zhu et al., 2014). The efficacy of an incubator is thus a composite measure of managerial capabilities and the performance outcomes of the enterprises it supports. These performance outcomes can include factors such as revenue growth, market expansion, and overall business sustainability. Consequently, the success of incubators often hinges on the ability of managers to foster an environment that promotes innovation and collaboration among incubatees. Analysis highlighted both strengths and weaknesses in the current management and staffing frameworks of MOST Inc. and NURIS, offering insights into the challenges faced and potential areas for improvement.

In the local context, the role of incubator managers often intersects with institutional structures. *IM 6* observed that:

“Most, if not all, of those who manage our incubators are government officials or university professors. However, they should not be in charge of an incubator if they lack business experience. Consequently, they interact with projects in a routine manner rather than as traders. This issue extends beyond the managers to the staff, who should also have a business background to understand the stages project owners go through.”

This perspective aligns with broader concerns about the suitability of academic and bureaucratic professionals in roles requiring practical business experience. *IM 6* further noted that these managers tend to interact with projects in a “*routine manner rather than as traders*,”

underscoring the need for a deeper understanding of entrepreneurial challenges and the capacity to mentor effectively across project stages. This highlights the importance of having leaders who can navigate the complexities of entrepreneurship rather than merely following established procedures. Such skills are essential to fostering innovation and guiding teams through the various phases of project development.

The study challenges the universality of *IM 6*'s claim, noting significant variation across incubators in Kazakhstan. Government and university-linked incubators, such as NURIS, often reflect the academic and administrative composition described by *IM 6*. However, commercial incubators like MOST Inc. present a more diverse profile. Analysis of 20 incubator managers in this study revealed that 30% of them come from entrepreneurial or business backgrounds, rather than academia or government roles. These managers bring experience in managing new ventures, and many had previously guided founders before assuming incubator management roles. This diversity indicates that some incubators are making strides in aligning managerial expertise with the needs of their incubatees.

While business experience is not universal among incubator staff, its recognition as essential is growing. *Incubatee 1* emphasises the importance of field experience, noting that “*basic mentorship is sufficient for founders at the initial stage*,” but as projects grow, incubator participants require guidance from mentors with practical business expertise. *Incubatee 3* and *Incubatee 21* echo this sentiment, emphasising the crucial role of experienced business consultants in medium-sized projects. They identify experienced mentorship and technical advisory services as critical gaps in the current incubation framework. *Incubatee 24* highlighted a specific issue where the knowledge of incubatees surpasses that of the incubator staff, rendering the services provided less effective. *IM 5*, an incubator manager, corroborated this, stating that “*connecting them with a bad mentor*” is among the least beneficial experiences for

incubatees. The lack of specialised knowledge and technical skills among incubator staff, as noted by *Incubatee 26*, further complicates the effectiveness of the support provided. For instance, *Incubatee 26* reported that staff at a technologically focused incubator lacked the expertise to accurately estimate the time required for specific project stages, and they failed to provide follow-up or constructive feedback. These shortcomings underscore the need for incubators to recruit or train staff with technical and business expertise aligned with the incubator's focus.

The administrative origins of some incubators also contribute to systemic inefficiencies. *Incubatee 23* attributed many operational issues to the academic background of staff at a Nazarbayev University-linked incubator, describing significant administrative challenges that impede project progress. *IM 15*, a community manager of a business incubator, admitted to having no prior experience in incubators or project management, suggesting that such inexperience may contribute to the underperformance of incubators in fulfilling their objectives.

The evaluation of incubator managers and staff varies significantly across different incubators. Incubatees at MOST Inc. generally rated the performance of managers and staff as excellent or good, reflecting a higher degree of satisfaction with the support provided. Conversely, incubatees from NURIS described the performance as satisfactory, indicating room for improvement. This disparity points to differences in managerial and staff effectiveness across incubators and highlights the need for consistent standards and training across the ecosystem. The findings indicate a close relationship between the effectiveness of incubators in Kazakhstan and the expertise and approach of their managers and staff. While some incubators demonstrate strong alignment with entrepreneurial needs, others struggle due to a lack of business experience, inadequate technical expertise, and systemic inefficiencies.

Addressing these challenges requires targeted strategies, including the recruitment of professionals with entrepreneurial experience, ongoing training for staff, and the establishment of performance standards to evaluate managerial effectiveness.

The literature highlights the need for incubator managers to strategically deploy resources and foster collaboration with incubatees to support enterprise development (Hackett & Dilts, 2004b; Zhu et al., 2014). However, the findings suggested that the institutional pressures and competitive dynamics within Kazakhstan's entrepreneurial ecosystem further complicate the roles of incubator managers and staff. As discussed in institutional theory, these compel organisations to emulate successful models, often leading to the replication of practices that may not align with local needs. In Kazakhstan, such pressures result in imported incubation models that lack contextual adaptation, placing additional demands on managers to reconcile these models with the realities of the local entrepreneurial landscape. Furthermore, competitive pressures significantly influence the performance of incubator managers. The growing number of incubators in Kazakhstan has created a competitive environment where managers must demonstrate measurable success to attract incubatees, funding, and institutional support. This pressure often incentivises a focus on short-term metrics, such as the number of incubators or projects launched, at the expense of long-term enterprise development and sustainability. Such dynamics underscore the need for managerial expertise that balances immediate performance requirements with the strategic development of incubatees.

The findings further revealed that the absence of robust training and development opportunities for incubator personnel exacerbates these challenges. While the literature suggests that managerial expertise is crucial for navigating institutional pressures, many incubator managers in Kazakhstan lack access to the kind of structured training programmes that could enhance their ability to provide technical, strategic, and operational support. This

gap in capacity-building mechanisms limits the ability of managers to foster innovation and sustain enterprise growth, reducing the overall efficacy of incubators.

Analysis also highlights the dual role of incubator staff as both facilitators and mentors. Staff are often the first point of contact for incubatees, and they play a critical role in bridging the gap between entrepreneurs and external resources. However, when staff lack specialised expertise, as noted in several instances, their ability to guide incubators diminishes significantly. This not only affects the performance of individual enterprises but also undermines the reputation and perceived value of the incubator. The effectiveness of incubator staff in fostering entrepreneurial success hinges on their ability to facilitate growth and mentor incubatees via a supportive ecosystem. By bridging the gap between entrepreneurs and essential external resources, they play a pivotal role in navigating the complexities of business development. However, the impact of their guidance can be undermined in the absence of specialised expertise, which may not only limit the potential of individual enterprises but also compromise the overall reputation of the incubator itself. Therefore, ensuring that incubator staff possess both broad mentorship capabilities and depth in specific areas will be crucial to enhancing their contributions to aspiring entrepreneurs and sustaining the credibility of incubator programmes. Balancing these elements ultimately shapes a vibrant entrepreneurial landscape where innovation can thrive.

4.3 Synthesis and Implications

The findings of this study emphasise the significant influence of cultural and institutional factors on the functioning, operation, and effectiveness of MOST, Inc., and NURIS. Analysis identified various dimensions of the institutional cultural framework, aligning closely with the principles of institutional theory. One of the core concepts emerging

from the study is the role of the ecosystem in shaping incubators. This ecosystem, encompassing multiple stakeholders such as government agencies, private sector entities, and societal structures, provides the macro-level environment within which incubators operate. Top-down institutional processes and bottom-up social dynamics influence the development and functionality of incubators, highlighting the interconnectedness of cultural and institutional elements. As incubators navigate these complex relationships, they must adapt their strategies to leverage the support and resources offered by this ecosystem. Ultimately, the external cultural and institutional contexts profoundly impact the success of incubators, not solely determining their internal operations.

Institutional theory, as applied in this study, provides a lens through which to understand the ecosystem's impact on incubators. Scott (2008, p. 191) highlights the role of top-down processes such as “diffusion, translation, socialisation, imposition, authorisation, inducement, and imprinting,” which enable higher-level structures, such as government policies, to shape and constrain the actions of lower-level actors, like incubators and incubatees. This perspective emphasises that external factors, including government policies and societal norms, significantly influence how incubators operate and evolve. By recognising these dynamics, we can better appreciate the complexities involved in fostering successful entrepreneurial environments. The findings indicate that top-down mechanisms predominantly drive the ecosystem's development, with government policies such as IIDRK 2020-2025 or the Damu initiative playing a pivotal role. Participants consistently identified this relationship, noting that state-led initiatives often link to the expansion and sustainability of MOST Inc. and NURIS. We view this top-down influence as both a strength and a limitation. While government involvement provides necessary support and legitimacy, it also imposes constraints that may limit the flexibility and adaptability of incubators to address local needs.

Analysis also illuminated the presence of institutional pressures within the ecosystem, particularly mimetic pressures, where MOST Inc. and NURIS emulate practices from other countries. This imitation reflects an attempt to replicate successful models without fully adapting them to the unique cultural and institutional context of Kazakhstan. While these mimetic processes can introduce best practices, they may also lead to misalignment with local realities, as incubators face challenges with integrating imported models into a developing entrepreneurial landscape. This highlights the tension between adopting proven strategies and the necessity of tailoring them to fit local conditions. Consequently, while these efforts can drive innovation, they risk overlooking the specific needs and nuances of Kazakhstan's entrepreneurial environment.

In contrast to the top-down processes, bottom-up dynamics also play a critical role in shaping the ecosystem. Scott (2008) describes bottom-up activities as including “selective attention, interpretation, sense-making, identity construction, error, invention, conformity, and reproduction of patterns, as well as compromise, avoidance, defiance, and manipulation.” These processes highlight the agency of entrepreneurs, incubators, and other stakeholders in navigating and shaping the institutional environment. Participants indicated that social and cultural dimensions within the ecosystem foster institutional logics that influence the behaviours and strategies of incubators. This interplay between top-down and bottom-up processes underscores the complexity of ecosystem development and the importance of balancing these forces to create a supportive environment for entrepreneurship.

The findings also revealed gaps in the ecosystem, particularly in the organisational field. We noted a significant obstacle for local businesses due to the lack of sufficient regulations and supportive structures for incubatees. In this context, incubators often take on roles such as buffering and bridging beyond their traditional functions, acting as sources of

credibility and legitimacy for incubatees. This credibility is especially valuable for nascent businesses; it enhances their reputation and signals trustworthiness to external stakeholders. Affiliation with an incubator can facilitate access to loans, mutual funds, and contracts, providing tangible benefits that contribute to the sustainability and growth of SMEs.

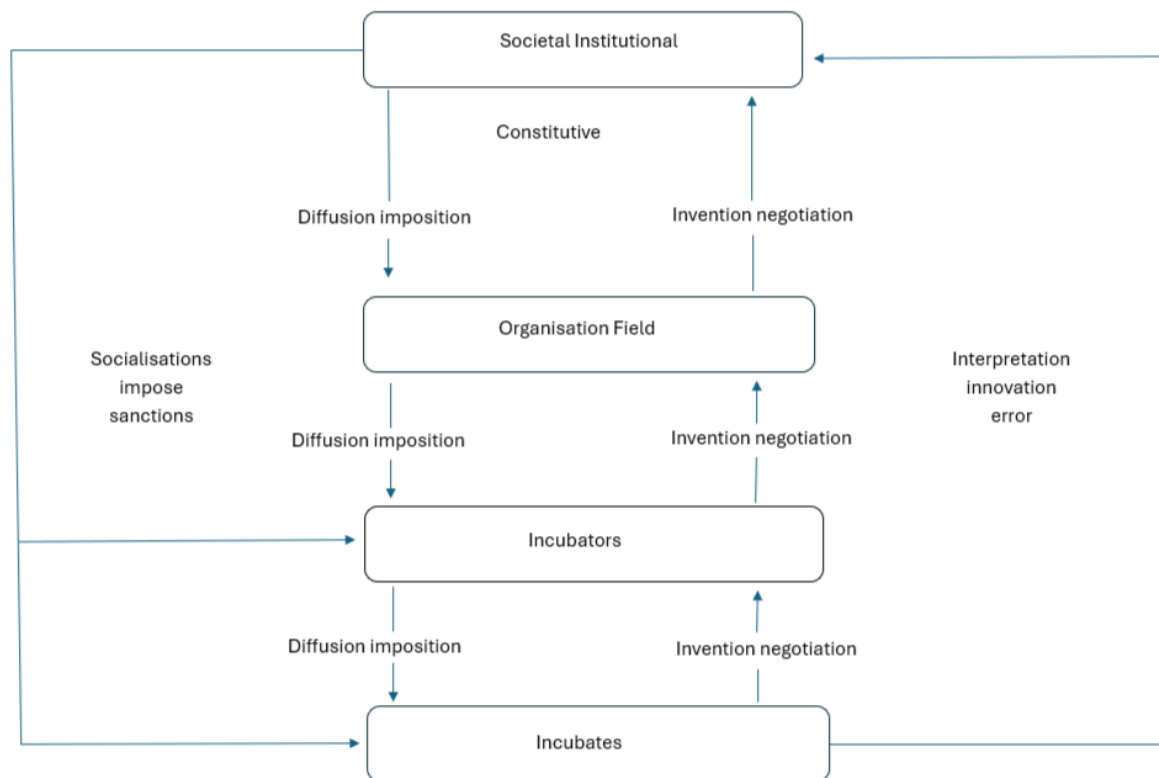


Figure 6 - Top-down and bottom-up processes in institutions and the impact of institutions on the incubatees in Kazakhstan

Adapted from Scott (2008, p.192).

Another institutional factor influencing incubators is the promotion of self-employment. The findings demonstrated that both incubators positively impact self-employment by creating jobs and offering alternative approaches to addressing unemployment. Government support for SMEs has further amplified these effects, providing a foundation for increased entrepreneurial activity. However, the study also identified a significant gap in

awareness of incubators and their benefits. This lack of awareness is evident not only among the general public but also among officials directly or indirectly involved in overseeing incubators. Such limited understanding restricts the potential reach and impact of incubators, highlighting the need for greater advocacy and public education efforts.

Cultural and institutional factors exert a profound influence on the operation and development of business incubators in Kazakhstan. The ecosystem, shaped by top-down and bottom-up processes, provides a dynamic framework within which incubators navigate their roles. While government policies and institutional norms offer critical support, they also present challenges that necessitate adaptation and innovation. We can strengthen Kazakhstan's incubation ecosystem to better support SMEs and contribute to broader economic and social development by addressing regulatory gaps, fostering greater awareness, and balancing top-down and bottom-up dynamics. These findings underscore the importance of viewing incubators not in isolation but as integral components of a larger institutional and cultural system.

The path toward a robust incubation ecosystem in Kazakhstan hinges on a concerted effort to address the regulatory gaps that currently hinder innovation and entrepreneurship. By fostering awareness among budding entrepreneurs and stakeholders about the resources available, the groundwork is laid for a more vibrant startup culture. Moreover, achieving a delicate balance between top-down initiatives and bottom-up grassroots movements is essential to creating an environment that nurtures creativity and collaboration. Finally, recognising incubators as vital components within the broader institutional and cultural landscape ensures that they are not viewed in isolation but rather as integral players in the national quest for economic diversification and technological advancement. Together, these strategies will not only strengthen Kazakhstan's incubation ecosystem but also propel it toward a future brimming

with potential and opportunity.

Organisational Field

The concept of an organisational field provides a comprehensive framework for understanding the various factors influencing the operation and development of business incubators in Kazakhstan. This concept, as discussed earlier, refers to the environment in which organisations operate and interact with each other, as well as their broader institutional context. The analysis emphasised the interplay of multiple elements within the organisational field that shape the functionality and effectiveness of MOST, Inc., and NURIS. One significant factor is the geographical landscape of Kazakhstan. As a vast country with a population exceeding 20 million, the size and distribution of the population create unique challenges for incubators. The large geographical expanse results in uneven access to resources, infrastructure, and entrepreneurial support, thereby influencing the reach and impact of incubators. In urban centres such as Almaty and Nur-Sultan, incubators benefit from their proximity to universities, government agencies, and business networks, which enhances their ability to provide comprehensive services. In contrast, rural areas and smaller cities face constraints due to limited infrastructure and fewer opportunities for networking and collaboration. This disparity highlights the need for tailored incubator models that address the specific needs of entrepreneurs in different regions.

The establishment of the first incubator in Kazakhstan in 1998 marked the beginning of a nascent incubation culture, which has since evolved in response to changing societal expectations and economic priorities. The findings revealed significant variation in how different stakeholders perceive the role and potential of incubators. Factors such as the type of incubator, its target demographic, and the nature of the businesses under incubation shape these

perceptions. For instance, NURIS often focuses on fostering innovation and research-driven enterprises, while MOST, Inc. prioritises market-ready ventures with high growth potential. These variations influence the expectations of incubators and underscore the importance of aligning their objectives with the needs of their incubatees and the broader organisational field.

The type of incubatee also plays a critical role in determining the impact and benefits of incubators. The findings indicated that incubatees requiring high levels of technological infrastructure, such as those in the IT or manufacturing sectors, benefit the most from incubators with well-developed facilities and networks. In contrast, service-orientated businesses often seek mentorship and access to markets, which may not require the same level of infrastructural support. This distinction underlines the need for both incubators to adopt differentiated approaches based on the sectoral and developmental needs of their incubatees.

The findings revealed a close relationship between the effectiveness of NURIS and MOST Inc. and the institutional support they receive. This includes both governmental and private sector backing, which influences the resources available to them and their credibility. Government-led initiatives often provide financial support and policy frameworks that enable incubators to operate, but they may also impose bureaucratic constraints that limit flexibility. Conversely, private sector involvement can introduce innovations and market-driven approaches, although it may prioritise profit-oriented objectives over broader developmental goals. The interaction of these factors within the organisational field shapes the capacity of incubators to deliver meaningful support to incubatees. Cultural and societal norms also influence the organisational field in Kazakhstan, shaping the perception and utilisation of incubators. The findings reveal that societal awareness of incubators remains limited, particularly in rural areas and among less-experienced entrepreneurs. This lack of awareness constricts the ability of incubators to attract diverse and promising projects, thereby limiting

their overall impact. Enhancing the public's understanding of the role and benefits of incubators is therefore essential to maximising their potential in the organisational field.

The organisational field comprises a complex interplay of geographical, institutional, and cultural factors that collectively influence the effectiveness and reach of business incubators. Addressing the challenges posed by geographic disparities, aligning incubation models with sectoral needs, and fostering greater societal awareness are critical steps in enhancing the impact of incubators. By considering these elements within the broader context of the organisational field, policymakers and stakeholders can develop strategies that leverage the full potential of incubators as engines for innovation and economic growth. The findings underline the importance of a holistic approach that integrates regional, institutional, and cultural dimensions to build a robust and inclusive incubation ecosystem in Kazakhstan.

Institutional Logics

The relationship between institutional factors and the functioning of incubators in Kazakhstan is a critical element that influences the broader entrepreneurial ecosystem. The findings of this study demonstrate how the governmental policies and regulatory frameworks imposed on SMEs can create barriers to private sector development. From an institutional perspective, these constraints hinder the ability of incubators and their incubatees to adopt sustainable practices and strategies. External pressures, rooted in rigid regulatory systems, shape the decision-making processes and operational strategies of SMEs, limiting their capacity to innovate and grow. This aligns with institutional theory, which emphasises the role of formal structures and policies in shaping organisational behaviour.

The ethos of incubators deeply embeds Kazakhstan's national plans, often aligned with broader economic development objectives. This integration reflects an adherence to

institutional logics, as incubators adapt their practices to align with state-driven priorities. Such alignment underscores the importance of understanding how institutional logic influences incubator operations and their role in supporting entrepreneurial ventures. The embedding of these logics within incubator frameworks contributes to the theoretical understanding of how incubators operate within specific institutional contexts, offering a foundation for future research on the interplay between national policies and entrepreneurial ecosystems.

Despite these alignments, the challenges faced by MOST Inc. and NURIS highlight the complexities of navigating a regulatory environment that is not always conducive to SMEs' development. The findings revealed that rigid policies and bureaucratic inefficiencies often impede incubators' operational effectiveness. These constraints extend to the selection processes of incubatees, where stringent governmental oversight can act as both a safeguard and a barrier. While such policies aim to protect social capital and ensure that incubators support viable ventures, they may also exclude potentially innovative projects that do not conform to predefined criteria.

In addition to these institutional barriers, societal responses to regulatory challenges occasionally exploit loopholes, leading to non-compliance with legal frameworks. These practices undermine the integrity of the entrepreneurial ecosystem and create additional challenges for incubators. Addressing these issues requires a balanced approach that minimises regulatory burdens while maintaining accountability and fostering an atmosphere of trust and compliance. Analysis revealed specific criteria and strategies for incubators to enhance the success of their incubatees, offering practical insights into overcoming institutional challenges. For example, the incorporation of flexible policies that accommodate diverse entrepreneurial needs can mitigate the constraints imposed by rigid selection processes. Similarly, fostering stronger collaboration between government entities and incubators can streamline operations

and reduce bureaucratic inefficiencies. The findings also emphasise the importance of capacity-building within incubators and ensuring that managers and staff possess the skills and knowledge necessary to navigate institutional complexities effectively.

The government's direct involvement in incubator operations, from an institutional perspective, reflects a strategy to protect social capital. While this involvement provides legitimacy and resources, it requires careful management to prevent overregulation and maintain the flexibility incubators need to foster innovation. The intricate balance of government involvement in incubator operations highlights its significant role in safeguarding social capital while simultaneously necessitating a cautious approach to regulation. Governments can enhance the effectiveness of these incubators by fostering an environment that promotes innovation and entrepreneurship, but they must manage this carefully to avoid overregulation that could stifle creativity and adaptability. Moreover, we cannot overstate the importance of capacity-building within incubators, as it provides stakeholders with the necessary skills to navigate complex institutional landscapes. Together, these elements underscore the potential for productive government engagement that not only supports emerging ventures but also cultivates a thriving ecosystem for future economic growth.

Institutional Pressures

After classifying institutional pressures into three main categories and adding competitive pressure as a distinct category, the following paragraphs delve into the impact of these four pressures on business incubators in emerging countries. By identifying and discussing these pressures, it becomes possible to better understand the environment from which business incubators originate. As Gstraunthaler (2010, p. 397) notes, "Incubators are subject to pressure from both public and private shareholders, and they adopt specific strategies

to address these expectations.” This highlights the dual influence of stakeholders in incubators, emphasising the necessity for these organisations to navigate competing demands effectively. Consequently, understanding these pressures is crucial to developing strategies that align with both public interests and private sector goals.

Mimetic Pressure

The findings highlighted instances where mimetic pressure has led to positive outcomes, particularly when local incubators emulate successful models within Kazakhstan. For example, participants frequently referenced MOST Inc. as a benchmark for procedural and operational excellence. Adopting practices from MOST Inc., a notable success, exemplifies the concept of “positive mimetic pressure.” By modelling their operations around the practices of a proven incubator, other organisations can enhance their efficiency, credibility, and effectiveness. This alignment with a local standard also facilitates the adaptation of practices to the cultural and institutional context of Kazakhstan, which is critical for ensuring relevance and applicability.

Kazakhstan’s governmental strategy to establish incubators in every university and city further reinforces this form of mimetic pressure. By creating a uniform network of incubators, the government seeks to standardise practices while promoting widespread access to entrepreneurial support. This policy-driven approach aligns with Kraatz and Zajac’s (1996) observation that mimetic adaptations at the national level often result in successful implementation due to shared institutional norms and expectations. Mimetic pressure within this localised framework enables incubators to leverage established practices while remaining responsive to the unique needs of Kazakhstan’s ecosystem.

Conversely, the findings also revealed challenges associated with “negative mimetic

pressure,” particularly when local incubators attempt to replicate practices from international counterparts. While international models often offer valuable insights and proven strategies, their direct application to Kazakhstan’s context has not always been successful. Several participants noted that practices imported from global incubators failed to account for Kazakhstan’s cultural, regulatory, and economic nuances. This misalignment highlights the risks of adopting practices without sufficient contextual adaptation. Unlike local models such as those of MOST Inc. and NURIS, which align more closely with domestic institutional logics, international practices often require significant modification to ensure their effectiveness within new environments.

The analysis identified another dimension of mimetic pressure that originates from the aspirations of the incubatees themselves. Many participants expressed a desire to emulate the perceived benefits and successes experienced by peers in other incubators, both locally and internationally. This form of pressure underscores the growing awareness of the role of incubators in entrepreneurial success but also reveals gaps in the strategies employed to raise broader awareness and understanding of incubation benefits. Despite the organisation of conferences and events aimed at promoting incubators, the findings suggested that clear and effective managerial strategies for awareness-raising remain weak. Mimetic pressure significantly impacts incubators from an institutional perspective, given the widespread perception of success as a replicable outcome. The findings raised important questions about the role of managerial performance in navigating these pressures. Specifically, there is a need to explore whether increased mimetic pressure fosters a stronger belief among managers in the advantages of mimetic adaptation and whether this translates into improved incubator effectiveness. The study findings indicated that while mimetic pressure can drive positive change, its impact is contingent on the ability of managers to critically evaluate and adapt

practices to align with the specific needs of their context.

Ultimately, mimetic pressure plays a dual role in shaping the development of incubators in Kazakhstan. Positive mimetic pressure, exemplified by the emulation of successful local models like MOST Inc., enhances the alignment of incubator practices with local institutional and cultural norms. When international practices are copied without being properly adapted to the local context, negative mimetic pressure can occur. This shows how important critical evaluation is in the adoption process. The aspirations of incubators further illustrate the growing influence of mimetic pressure within the entrepreneurial ecosystem, highlighting both opportunities and challenges for incubator managers. These results helped us learn more about how mimetic pressure changes over time and what that means for how incubators are designed and run in Kazakhstan and other similar places.

Normative Pressure

The normative framework governing business incubators suggests that these entities should ideally function as self-sufficient enterprises. However, in the context of Kazakhstan, government-imposed regulations and rules introduce constraints that challenge this ideal. These constraints not only hinder the ability of incubators to achieve financial and operational autonomy but also create additional obstacles that influence their strategies and practices. The interplay of constraints and expectations, from an institutional perspective, serves as a lens through which to scrutinise the shaping of norms and values within the incubation ecosystem. The findings highlight that the majority of incubators in Kazakhstan are government-funded institutions, making their dependence on state support a defining characteristic. While this dependence provides financial stability and legitimacy, it simultaneously imposes limitations on the flexibility and autonomy of incubators. This duality necessitates a nuanced analysis that

considers both the benefits and constraints of government involvement. Government support situates incubators within Kazakhstan's political ecosystem, requiring them to align their operations and outcomes with national priorities and political objectives. This alignment is crucial for securing ongoing funding and demonstrating achievements that resonate with the state's economic development agenda.

Prominent sources of government support include institutions like Qazinnovations and Damu, which provide financial assistance to SMEs and business incubators. These entities exemplify the centrality of government-backed initiatives in sustaining the incubation ecosystem in Kazakhstan. However, this reliance also reinforces the institutionalisation of incubators, embedding them within a framework that prioritises compliance with governmental objectives over independent innovation. This dependency emphasises the importance of considering a broader political and economic context when analysing the operational dynamics of incubators.

The analysis identified the incubators themselves as another significant source of normative pressure, imposing expectations on their incubatees. Participants noted that incubators often set performance standards and operational benchmarks, which influence how incubatees approach their projects. This type of normative pressure aligns with Sherer's (2010) observation that the successful implementation of an organisational model can lead to its replication by other entities. Within the incubation environment, companies learn from the experiences of their peers, adopting successful practices while avoiding ineffective ones. This dynamic fosters a culture of continuous improvement, where the exchange of knowledge and strategies contributes to the overall effectiveness of the incubation process.

Similarly, the analysis revealed that consulting firms, acting as third-party advisors, further intensify normative pressures within the ecosystem. These firms provide tailored

recommendations and guidelines to both incubators and incubatees, shaping their strategies and decision-making processes. As noted by DiMaggio and Powell (1991), consulting companies play a crucial role in facilitating knowledge transfer, leveraging insights gained from other enterprises to drive improvement and innovation. The findings suggest that the involvement of consulting firms enhances the strategic capabilities of incubators and their participants, enabling them to navigate the challenges of operating within a complex institutional framework.

The cumulative effect of these normative pressures stemming from government policies, incubator-imposed expectations, and consulting firm interventions shapes the operational landscape of business incubators in Kazakhstan. While these pressures drive standardisation and alignment with institutional norms, they also highlight the tension between autonomy and dependence within the ecosystem. The reliance on external support, particularly from the government, underscores the need for incubators to balance their role as facilitators of entrepreneurship with their institutional obligations.

The normative pressures influencing incubators in Kazakhstan reflect a multifaceted interplay of constraints and expectations. Government funding and regulatory oversight provide essential support but also limit operational autonomy, embedding incubators within the political and economic priorities of the state. At the same time, incubators exert their own normative influence on incubatees, fostering a culture of learning and improvement. Consulting firms contribute to this ecosystem by facilitating knowledge transfer and strategic alignment. In Kazakhstan's incubator ecosystem, the intricate interplay of government funding and regulatory oversight often curtails operational autonomy, yet it establishes a robust framework that fosters innovation. Within this environment, the normative influence of incubators serves as a catalyst for cultivating a rich learning culture among incubatees, encouraging them to adapt

and thrive. Furthermore, the role of consulting firms becomes increasingly vital as they bridge gaps in knowledge transfer and strategic alignment, equipping startups with essential tools to navigate the complexities of their respective markets. Together, these elements form a dynamic ecosystem that not only supports emerging enterprises but also drives Kazakhstan's broader economic growth, cultivating an entrepreneurial spirit ready to thrive in the face of challenges.

Coercive Pressure

Analysis revealed both formal and informal coercive pressures affecting incubators in Kazakhstan, each exerting unique influences on their functioning. Formal coercive pressures stem from regulatory frameworks, financing mechanisms, and institutional mandates. The findings highlighted that many participants view Kazakhstan's regulations as a constraint, particularly in relation to the institutionalisation and operational efficiency of incubators. Participants frequently cited challenges such as inadequate financing, labour-related issues, and restrictive government policies. For instance, regulations governing foreign companies and the protracted procedural processes required for compliance pose significant hurdles. Ribeiro and Scapens (2006) assert that the government and its agencies can be a source of coercive pressure, a perspective that aligns with the challenges identified in this study. These regulatory demands often limit the flexibility and adaptability of incubators, creating additional complexities for entrepreneurs navigating the system.

Informal coercive pressures also play a significant role in shaping the incubation landscape in Kazakhstan. One prominent example is the government's focus on addressing unemployment through the promotion of self-employment. This initiative, while beneficial in creating opportunities for entrepreneurship, places additional demands on incubators to accommodate and support a growing number of entrepreneurs. The government's substantial

investment in self-employment programmes underscores its commitment to fostering economic participation, yet this support introduces implicit expectations that incubators deliver measurable outcomes.

Incubatees, too, face informal coercive pressures influenced by societal and familial dynamics. Family influence becomes a significant factor, especially in the emerging country's cultural and social structure, where families are typically large, interconnected, and supportive. This interconnectedness means that the career paths of individual family members often shape the aspirations and decisions of others within the family network. For example, an entrepreneur's success in a government-supported self-employment programme can motivate relatives to pursue similar paths, creating a ripple effect of informal coercive and mimetic pressures within the entrepreneurial ecosystem. These familial influences intersect with other societal factors, such as the perceived inadequacy of formal education systems in providing viable career opportunities. For many, the lack of positive educational outcomes encourages a pivot toward entrepreneurial pursuits, often with the support or encouragement of family networks. This dynamic reflects a blend of coercive and mimetic pressures, where external and internal factors jointly influence entrepreneurial behaviour.

The dual nature of coercive pressure, formal and informal, creates a complex environment for incubators in Kazakhstan. On the one hand, formal pressures stemming from government mandates and regulatory frameworks provide structure and resources but also impose significant constraints; on the other, informal pressures arising from societal dynamics, unemployment initiatives, and familial networks influence the motivations and expectations of entrepreneurs. Together, these pressures shape the operational strategies of incubators, requiring them to navigate a landscape defined by both institutional rigidity and social fluidity.

Competitive Pressure

The study findings revealed that competitive pressures exist both among incubators themselves and, to a lesser extent, among the incubatees they support. These pressures shape how incubators operate, innovate, and position themselves within the entrepreneurial ecosystem. Competitive pressures among incubators manifest in the drive to innovate and maintain relevance in a rapidly evolving environment. For instance, the launch of an accelerator programme by a university incubator appeared to catalyse a response from MOST Inc., which subsequently introduced its first accelerator initiative in collaboration with a renowned accelerator in the SEPCA region. Competitive pressures force incubators to imitate successful strategies within their sector to prevent perceptions of innovation or responsiveness lagging. This aligns with institutional theory, which suggests that organisations often adopt the practices from sectoral leaders to gain legitimacy and remain competitive.

The findings further indicated that other incubators are likely to follow the leaders in their field, reinforcing sector-wide trends. This imitation highlights the interconnectedness of competitive and mimetic pressures, as incubators strive to adopt practices that align with perceived benchmarks of success. However, these pressures are not without challenges; the pursuit of innovation may divert resources from foundational services, potentially impacting the overall quality of support provided to incubatees. In contrast, competitive pressures among incubatees within incubators are less pronounced. Incubators actively avoid accepting similar businesses simultaneously, emphasising collaboration over competition among their participants. This approach reflects a strategic focus on fostering cooperative networks and shared learning environments rather than direct rivalry. However, the findings also revealed that some incubator managers are reconsidering this approach. One manager indicated plans to accept similar SMEs in the future, aiming to introduce controlled competitive pressures to drive

higher performance and innovation among incubatees.

The theoretical framework of institutional theory provides a broader lens for understanding the role of competitive pressures within Kazakhstan's incubation ecosystem. The study ties together ideas from institutional theory with the analysis results to show how different types of pressures—coercive, normative, mimetic, and competitive—affect how business incubators change over time. From an institutional perspective, these pressures collectively drive incubators to adapt and align with sector norms and expectations, influencing their strategies and practices.

The findings showed that MOST Inc. and NURIS are subject to the three primary types of institutional pressures: coercive, normative, and mimetic. These pressures often intersect, creating complex dynamics that influence decision making and operational strategies. For example, regulatory requirements imposed by external advisory bodies might initially appear as suggestions but can evolve into coercive pressures when mandated by professional regulatory organisations. Conversely, competitive pressures arise from the need to respond to sectoral leaders or rival organisations, further complicating the interplay of influences. Navigating the complex landscape of decision making within institutions requires a keen understanding of the various pressures that shape operational strategies. Coercive, normative, and mimetic influences play pivotal roles, often intertwining to create a challenging environment for leaders. Regulatory demands from external advisory bodies can impose coercive pressures that compel organisations to adapt their practices, while the competitive dynamics of the sector drive responses to both industry leaders and rival entities. This intricate web of influences not only dictates immediate choices but also shapes long-term strategic directions, underscoring the necessity for institutions to remain agile and responsive amid evolving pressures. Ultimately, recognising and addressing these multifaceted institutional

forces is essential to fostering effective decision making that aligns with organisational goals and external expectations.

4.4 Concluding Summary

This chapter has provided a comprehensive analysis of the roles and effectiveness of MOST Inc. and NURIS, focusing on their adaptation to the local institutional environment, their role as institutional intermediaries, and their interaction with the entrepreneurial ecosystem. It has explored how these incubators navigate institutional voids, fragmented markets, and a nascent entrepreneurial ecosystem by offering critical support to startups through resource mobilisation, networking, and skill development. MOST, Inc., and NURIS, Inc. demonstrate distinct yet complementary strategies, with MOST fostering inclusivity and community engagement and NURIS emphasising technology-driven entrepreneurship and academic partnerships. Both incubators bridge critical gaps in funding, networks, and knowledge, enabling startups to overcome institutional barriers.

The chapter also highlighted their impact on labour market development, showcasing partnerships with academic institutions and tailoring training programmes to address skill shortages. Additionally, the analysis underscored the importance of flexible policies on incubation periods, exit strategies, and resource allocation, reflecting the evolving maturity of Kazakhstan's incubation ecosystem. By situating these findings within a broader theoretical context, this chapter underscores the transformative potential of business incubators in addressing institutional voids, fostering innovation, and catalysing SME growth. MOST Inc. and NURIS exemplify the role of incubators as drivers of economic development and innovation in Kazakhstan. The insights gained offer a basis for refining incubation strategies, including enhanced regulatory frameworks, expanded funding mechanisms, and stronger

international partnerships.

The following chapter will engage in a critical discussion of the findings with relevant theoretical frameworks and the extant literature to evaluate the role, challenges, and future potential of business incubators in Kazakhstan. This section will consider how the results in Chapter IV answer the overarching research question and three sub-questions. It will also provide a comprehensive analysis of the implications of these results for tailoring business incubators to emerging economies, their potential to assist institutions in problem solving, and their role in launching new businesses within the emerging entrepreneurial ecosystem.

Chapter V: Discussion

This chapter integrates the findings from the case studies with the theoretical frameworks outlined above, addressing the study's main research question and three sub-questions and highlighting the implications for institutional theory and entrepreneurial practice in emerging economies. While addressing the overarching research question, the case studies reveal that the business incubators MOST Inc. and NURIS fill institutional voids by providing resources, mentorship, and networking opportunities to compensate for systemic gaps. They adopt context-specific strategies, leveraging academic resources (NURIS) and fostering investor relations (MOST Inc.), while navigating constraints such as limited funding and bureaucratic hurdles via partnerships and innovative models. By addressing the first research sub-question, the analysis reveals that as institutional intermediaries, incubators act as bridges by connecting entrepreneurs with key stakeholders, buffers by shielding startups from external risks, and catalysts by fostering innovation and influencing policy through their success. By answering the study's second research sub-question, analysis reveals that interactions with the ecosystem indicate strong collaboration with academia and government to enhance resources, startups' dependency on incubators for guidance, and feedback loops where successful ventures boost the incubators' reputation, attracting more support.

The study contributes to institutional theory by demonstrating how incubators adapt to and reshape institutional environments. A conceptual framework integrating the IPO model with business lifecycle stages is proposed, emphasising the need for adaptive strategies in dynamic ecosystems. Practical implications include enhancing funding mechanisms to ensure incubator sustainability, simplifying regulations for startups, and promoting cross-sector collaboration. Incubators should develop scalable, resource-efficient models and invest in training programmes to address cultural barriers and foster entrepreneurial mindsets.

Limitations to the study include the context-specific nature of the findings, and its reliance on qualitative data, which introduces subjectivity. Future research could involve comparative studies across emerging economies, quantitative analysis to validate findings, and exploration of digital and virtual incubation models. This chapter synthesises the study's findings, emphasising the pivotal role of business incubators as institutional intermediaries in Kazakhstan. By addressing institutional voids and fostering collaboration, incubators contribute significantly to entrepreneurial success and economic diversification. The study advances current theoretical understanding and offers actionable insights for policymakers and practitioners in emerging economies.

5.1 Tailoring Business Incubators for an Emerging Institutional Context

Optimal Incubator Models for Kazakhstan

Business incubators in Kazakhstan are a relatively new initiative that has grown substantially in recent years. With 28 business incubators and accelerators and five research parks currently operating (Qazinnovations, 2023), the ecosystem has become an integral part of the country's entrepreneurship support framework. These incubators aim primarily to nurture emerging technology ventures and pre-startup projects into sustainable businesses, with some also specialising in fields such as the industrial, educational, and medical sectors. This diversification reflects both global trends in incubator typologies and the unique demands of Kazakhstan's context. We identify three primary models of business incubators: full business incubators, virtual incubators, and business accelerators. All types of organisations, be they

governmental, mixed, private, NGO, or university-based entities, implement these models. State financing mechanisms or collaborations with state-affiliated organisations, like MOST, Inc. or NURIS, a university-associated incubator, often link government-backed incubators to their operations. This reliance on state funding aligns with practices in other emerging economies, where public investment often compensates for limited private-sector involvement (Bruneel et al., 2012; Mrkajic, 2017). This trend highlights the significant role that government plays in fostering entrepreneurship in these regions. By stepping in where private investment is scarce, public funding helps create a supportive environment for startups and innovation.

In assessing the most appropriate business incubator models for Kazakhstan, this study explored two case organisations and diverse stakeholder perspectives, including those of incubator managers, policymakers, and incubatees. Findings reveal a divergence in opinion regarding the suitability of traditional incubators versus business accelerators, while virtual incubators garnered limited support. Proponents of traditional incubators argue that their longer-term structure provides a more gradual and less resource-intensive approach, making them suitable for Kazakhstan's nascent entrepreneurial ecosystem. Unlike accelerators, traditional incubators do not demand full-time commitment from incubatees, thereby accommodating participants who may simultaneously hold other responsibilities. This aligns with the findings of Dutt et al. (2015), which suggest that extended incubation timelines benefit entrepreneurs in developing skills and refining ideas without undue pressure. This flexibility allows entrepreneurs to balance their ventures with other obligations, fostering a more sustainable development process. As a result, traditional incubators may be better suited to nurture the growth of startups in emerging markets like Kazakhstan.

Conversely, advocates for business accelerators highlight their ability to deliver faster results, driven by intensive programmes and strong industry linkages. Sectors such as

technology and high-growth industries particularly value accelerators due to their critical speed and scalability (Pauwels et al., 2015). However, we have identified certain cultural factors, including a prevalent risk-averse mindset, as potential barriers to the adoption of accelerators in Kazakhstan. Participants referenced instances where competition winners opted out of accelerator programmes, illustrating challenges in aligning entrepreneurial readiness with the demands of such intensive models. Some participants in the study emphasised that virtual incubators, while rarely used, represent an untapped potential in Kazakhstan. Their cost-effectiveness, scalability, and ability to address geographical disparities could prove beneficial in a country with low population density and significant rural areas. Virtual incubators align with global trends in technology-driven entrepreneurship support but require further exploration and adaptation to local conditions to gain traction (Mrkajic, 2017). Despite their limited implementation, the unique advantages of virtual incubators have the potential to significantly improve Kazakhstan's entrepreneurial landscape. To maximise their impact, it will be essential to tailor these models to meet the specific needs and characteristics of the local environment.

The findings indicated that Kazakhstan would benefit from adopting a pluralistic approach to business incubation, with models tailored to different stages of entrepreneurial development. For nascent-stage entrepreneurs, traditional incubators provide the necessary infrastructure, skill development, and mentorship to address knowledge gaps and mitigate the risks associated with early-stage ventures. This aligns with research emphasising the importance of incubation programmes in reducing externalities such as market failure and inadequate support in emerging economies (Audretsch et al., 2006; van Weele et al., 2017). For seed-stage ventures, accelerators offer critical resources, such as funding, market access, and networking opportunities, to address the challenges associated with commercialisation and

scaling (Pauwels et al., 2015). Virtual incubators could complement these efforts by reaching underserved regions of the country and enabling broader access to entrepreneurial resources (Vaz, de Carvalho & Teixeira, 2022). In addition, the integration of international best practices into locally adapted models is vital to the success of incubation in Kazakhstan. Past failures of incubators that directly replicate foreign models without considering local nuances underscore the importance of contextualisation (Mrkajic, 2017). MOST Inc.'s collaboration with TechStars serves as an example of how to tailor partnerships with international organisations to regional contexts, leveraging shared cultural and economic similarities. This approach not only enhances the relevance of incubation strategies but also fosters innovation by aligning global expertise with local needs. By embracing a context-driven methodology, incubators can better support startups and drive sustainable growth in the region.

The diversity of business incubator models presents a strategic opportunity for Kazakhstan to build a robust entrepreneurial ecosystem. Implementing traditional accelerators and virtual incubators in parallel allows the ecosystem to cater to entrepreneurs at varying stages of development, from ideation to commercialisation. This pluralistic approach not only addresses the diverse needs of entrepreneurs but also fosters a culture of innovation and adaptability, positioning Kazakhstan as a competitive player in the global entrepreneurship landscape. Evaluation of these models over time will provide critical insights into their effectiveness, enabling further refinement and optimisation to ensure sustainable growth.

Impact of Incubation on Incubatees' Development

Global studies on business incubation performance (Hausberg & Korreck, 2020) demonstrate a close relationship between the growth and development of incubatees and the effectiveness of business incubator models. Empirical research highlights that the impact of

incubators is contingent on their ability to deliver tailored services, foster networks, and provide sustained mentorship (Dutt et al., 2015). In Kazakhstan, the dramatic increase in incubators, now supporting over 1,200 SMEs annually, reflects efforts to diversify the economy and promote entrepreneurship. However, the absence of systematic evaluations limits their ability to measure critical outcomes, such as survival rates, funding success, and employment generation, which aligns with the findings of Loganathan and Subrahmanya (2022) that emphasise the role of evaluation in enhancing incubator performance. The lack of robust follow-up mechanisms also mirrors global challenges, as identified by Xiao and North (2018), where the absence of post-incubation support often diminishes the long-term benefits for incubatees.

Comparing incubators in other emerging economies reveals that they achieve effective incubation by combining tangible resources like office space and funding with intangible support like mentorship and market access (Lasrado et al., 2016). For example, MOST Inc., which collaborates with Techstars, exemplifies the integration of global best practices, leveraging international networks to enhance startup scalability. However, smaller incubators lack such capabilities, reflecting disparities in resource allocation and organisational expertise—a challenge similarly noted in studies by Mrkajic (2017) on the uneven performance of incubators in developing contexts.

Our findings also aligned with Qi et al. (2023), who argue that the quality and specificity of incubation services significantly affect their outcomes. While Kazakhstan's incubators effectively address the needs of nascent ventures, their inability to support advanced incubatees—those requiring market expansion, strategic partnerships, or scaling—reflects a broader issue in emerging markets, where generic service models often fail to meet diverse entrepreneurial needs. Studies by Wei et al. (2022) further underline the importance of tailored

follow-up mechanisms, emphasising that ongoing support post-incubation enhances SMEs' growth trajectories.

Kazakhstan's incubators also face challenges in tracking and measuring their performance relative to their regional counterparts. While UNECE (2021) provides general overviews, the lack of detailed regional data restricts cross-border learning and adaptation. This underscores the relevance of research by Audretsch et al. (2006), which emphasises that incubators must embed feedback loops and performance metrics to ensure continuous improvement. A focus on quality over quantity, as suggested by Lasrado et al. (2016), is particularly pertinent for Kazakhstan, where many incubators risk becoming providers of physical infrastructure rather than enablers of entrepreneurial success.

By linking these findings to the broader literature, it becomes evident that addressing gaps in evaluation, follow-up support, and tailored services is critical to maximising Kazakhstan's incubators. These steps align with global best practices, reinforcing the potential of incubators to drive sustainable growth and innovation in emerging economies.

Managing Incubators in Kazakhstan: Key Insights

The success of business incubators depends significantly on the capabilities and leadership of their managers and staff. Extensive research emphasises the pivotal role that incubator managers play in overseeing operations, fostering collaboration with incubatees, and driving the incubation process (Hackett & Dilts, 2004b; Zhu et al., 2014). Effective incubator management involves a strategic combination of task orientation, relationship building, and change-driven initiatives, all of which are critical in supporting entrepreneurial ventures (Yukl, 2012). This illustrates that incubators function not only on resources but also on leaders' interpersonal and strategic skills. Strong leadership can enhance the overall environment,

making it more conducive to innovation and growth for emerging businesses. For Kazakhstan, where the business incubation ecosystem is still in its developmental stage and shaped by unique institutional and cultural contexts, these dynamics are particularly relevant.

The relationship between incubator managers and incubatees serves as the foundation for the incubation co-production process (Rice, 2002). Entrepreneurs, who understand their challenges and seek specific forms of assistance, often initiate this relationship. Effective collaboration hinges on several factors, including the leadership style and integrity of the incubator manager, the incubator's infrastructure, and the personal characteristics of the entrepreneur (Lichtenstein, 1992). Research indicates that task-orientated incubator managers efficiently utilise resources like personnel and infrastructure, while relationship-orientated managers foster support, empowerment, and development for incubatees (Yukl, 2012). Change-orientated leadership further enhances creativity and adaptability, enabling incubators to respond effectively to external challenges.

Despite the importance of skilled management, the findings highlighted several gaps in the expertise and experience of incubator managers and staff in Kazakhstan. Many participants noted that incubator personnel often lack commercial and technological expertise. This is particularly problematic given the increasing complexity of incubatees' needs, especially in technology-driven and high-growth sectors. Previous studies have similarly observed that the lack of relevant experience among managers can affect the performance of incubated businesses (Scillitoe & Chakrabarti, 2010; Zhu et al., 2014). The study identified contrasting performances among Kazakhstan's incubators, partly attributable to differences in managerial expertise. For example, MOST Inc. and NURIS exhibited better outcomes with managers who had prior experience in commercial projects or had received training from international organisations. *IM 2* reported leveraging experience in establishing businesses in Kazakhstan,

which contributed to the success of the incubator. In contrast, *IM 3* acknowledged lacking such experience, and the incubator under their management had yet to produce any successful businesses after 18 months of operation. These findings underscored the critical role of managerial expertise in determining the success of incubators and their incubatees.

Participants also highlighted the absence of consultants with entrepreneurial experience within Kazakhstan's incubators. Successful incubatees serving as consultants could provide valuable insights based on their own experiences, guide them through challenges, and offer access to broader networks. Common in international incubators, this practice has the potential to significantly enhance incubatee support and improve overall incubator performance. Efforts to address these challenges are evident in initiatives such as those by MOST Inc. and NURIS, which offer training programmes for incubator staff both domestically and internationally. These programmes aim to equip managers and staff with the skills needed for effective incubation management. However, the need for targeted training in commercial and technological domains remains critical, particularly as incubators diversify their focus to include SMEs and high-growth sectors.

The findings revealed that to address the challenges facing business incubators, several strategies can be considered. First, incubators should prioritise hiring and training managers with commercial and technological expertise. This would equip staff to meet the diverse needs of incubatees. Second, partnerships with experienced entrepreneurs could enhance the quality of mentorship and expand the networks available to incubatees. Third, a systematic evaluation framework should be established to assess incubator performance and pinpoint areas for improvement. Such evaluations could guide the development of targeted training programmes and inform policy decisions on the establishment of new incubators.

The capabilities and leadership of their managers and staff significantly influence the

effectiveness of business incubators in Kazakhstan. Despite the significant progress in developing the incubation ecosystem, critical challenges persist due to gaps in expertise and the absence of systematic evaluations. By addressing these issues and leveraging best practices from both local and international contexts, Kazakhstan can enhance the performance of its incubators and foster a more vibrant entrepreneurial ecosystem.

Conceptual Framework of the Business Incubator Model for Emerging Countries

Figure 7 presents a conceptual framework of a business incubator model that closely aligns with the findings, highlighting the interconnectedness of various elements influencing business incubators in Kazakhstan. The model, which draws from the empirical research, integrates the inputs, processes, and output (IPO) framework to address the dynamic and evolving model of incubators in Kazakhstan. This approach aligns with the study's literature review (Aernoudt, 2004; Bruneel et al., 2012; Pauwels et al., 2016), which emphasises the importance of tailoring incubator models to the specific institutional and economic contexts in which they operate. The model identifies key input dimensions such as sponsorship, mission, incubatee level, and services provided, all of which are central to understanding how incubators function within an entrepreneurial ecosystem. The findings highlighted how the type of sponsorship—public, private, or university-based—influences incubator strategies and their ability to address institutional gaps. For instance, NURIS, with its university-based structure, excels at fostering research commercialisation and technology transfer and addressing innovation deficits within the ecosystem. Similarly, MOST Inc., driven by private partnerships, demonstrates agility in responding to market constraints and leveraging external networks for growth. These findings resonate with the incubation literature's argument that sponsorship plays a critical role in shaping the resource distribution and focus of incubators.

The lifecycle stages and organisational structures outlined in the model reflect the dynamic nature of the institutional pressures—competitive, coercive, and mimetic—that incubators face as they evolve. The thesis findings illustrate how incubators transition through stages such as the nascent and seed, adapting their strategies to meet the changing needs of their ecosystem. This aligns with Hackett and Dilts (2004) and Pauwels et al. (2016), who emphasise that incubators must align their objectives and processes with their lifecycles to remain effective. The integration of lifecycle stages into the model highlights how incubators move from soft measures, such as business skills development, to tough measures, including profitability, sales turnover, and customer acquisition. Processes like business capability development, market reach expansion, and infrastructure support are central to the model and reflect the impact of ecosystem dynamics on incubators. The thesis findings highlight that a country's entrepreneurial ecosystem, characterised by fragmented linkages and regulatory constraints, exerts significant pressure on incubators. By acting as intermediaries and addressing institutional voids, incubators play a crucial role in mitigating these pressures and facilitating entrepreneurial growth. This aligns with the work of Grimaldi and Grandi (2005), who argue that incubators must dynamically adapt their processes to external environmental changes.

The thesis findings validated the outcomes described in the model, including improved business skills, increased confidence, profitability, and customer acquisition. Incubatees in Kazakhstan exhibit higher survival rates and better access to resources compared to non-incubated ventures, highlighting the tangible benefits of incubation programmes. These findings are consistent with the literature, including Amezcua et al. (2013) and Bruneel et al. (2012), which emphasise the importance of measurable outcomes in demonstrating the value of incubators in their ecosystems. Further, the taxonomy-based dimensions of the model

enhance its relevance by providing a framework to analyse the heterogeneity of incubators and their adaptability to different contexts. The thesis underscores the need for context-specific models that address the diverse needs of entrepreneurs and the varying pressures exerted by institutional voids. This perspective aligns with that of Dutt et al. (2015), who highlight that the type of sponsorship influences not only resource distribution but also the strategic focus of incubators.

Overall, the conceptual framework of the business incubator model serves as a robust tool that connects theoretical insights with empirical evidence, offering a nuanced understanding of the business incubator's functioning and model. It provides actionable strategies for policymakers, practitioners, and academics to optimise the effectiveness of incubators, particularly in emerging economies where institutional gaps pose unique challenges. By integrating lifecycle stages, organisational structures, and ecosystem linkages, the model advances the literature on business incubation and offers a practical roadmap for fostering entrepreneurial ecosystems in institutionally weak environments.

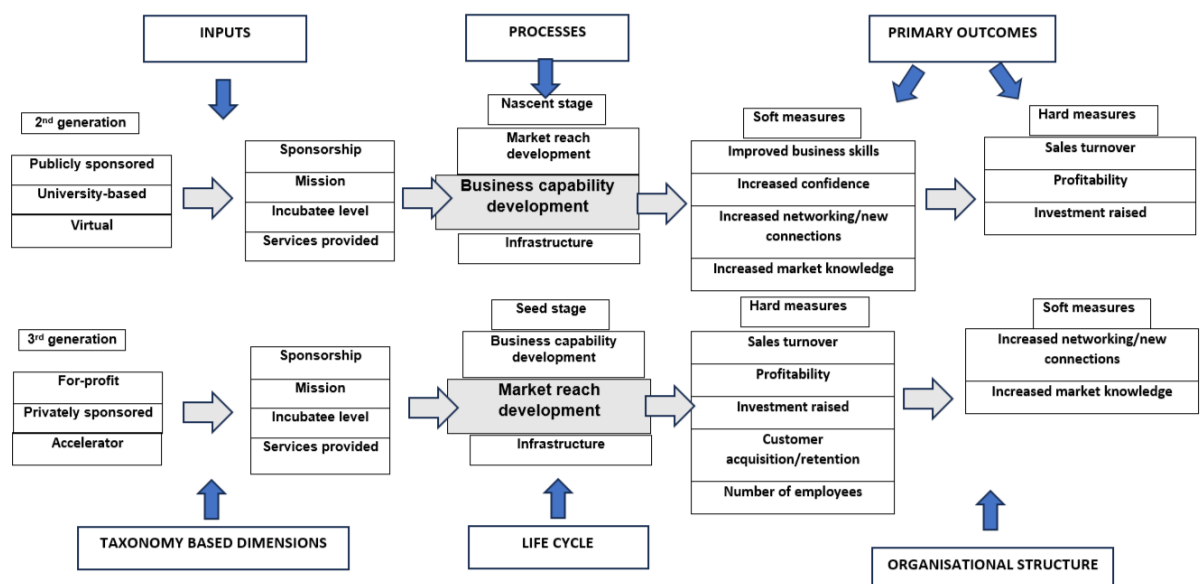


Figure 7 - Conceptual framework of the business incubator model for emerging countries

Source: Author's own

5.2 Business Incubators as Key Intermediaries in Addressing Institutional Challenges

Bridging Barriers for SMEs: The Role of Incubators

Business incubators serve as pivotal institutional intermediaries in addressing the systemic barriers that impede SME growth in Kazakhstan, particularly in contexts marked by infrastructural, legal, and financial challenges. Poorly developed e-commerce infrastructure, such as the mere 25% of retail stores using digital payment systems in 2022, poses significant challenges for tech-savvy small businesses that rely on convenient payment options. Regulatory inefficiencies, including delays in permit approval and the absence of frameworks for stock options or venture capital agreements, further constrain entrepreneurial efforts. Weak intellectual property laws and logistical barriers, such as a lack of standardised delivery addresses, exacerbate these issues, particularly for innovation-driven startups. The findings revealed that MOST Inc. and NURIS are prominent examples of incubators mitigating these barriers, with MOST Inc. supporting over 200 startups, many of which have successfully raised venture capital or expanded into international markets. NURIS, affiliated with Nazarbayev University, is notable for its advanced mentorship programmes, providing innovation-driven SMEs with the technical expertise and cognitive legitimacy needed to navigate these challenges effectively.

The barriers faced by incubatees align with those identified in broader research on emerging markets (Ayyagari et al., 2007; World Bank, 2023), but specific distinctions also emerge. For instance, while digital infrastructure gaps are common across the SPECA countries, Kazakhstan's relatively advanced infrastructure provides a stronger baseline for

incubator-supported growth compared to neighbouring Kyrgyzstan or Tajikistan, for instance. However, regulatory inefficiencies and limited access to venture capital remain consistent challenges across the region as a whole, reflecting the shared institutional voids in Central Asia (UNECE, 2021). Unlike neighbouring countries, Kazakhstan benefits from MOST Inc., which excels at fostering sociopolitical legitimacy through strategic networks with global accelerators such as TechStars. In contrast, smaller incubators in the region often lack the resources and institutional backing needed to deliver comparable outcomes.

The success of MOST Inc. and NURIS illustrates the diverse roles incubators can play in addressing these systemic challenges. For example, MOST Inc. enhances sociopolitical legitimacy by connecting incubatees with policy stakeholders and potential investors, while NURIS focuses on technical mentorship and innovation capacity-building, helping startups secure patents and navigate intellectual property systems. Participants cited examples of startups that successfully scaled operations or entered international markets due to incubator support, highlighting the importance of tailored approaches. However, gaps remain, particularly in providing post-incubation support to monitor and sustain these successes, as most incubators lack mechanisms to track graduate performance and address scaling challenges.

Comparing these findings with the literature, the role of business incubators in Kazakhstan aligns with global best practices, which emphasise bridging resource gaps, fostering market access, and enhancing regulatory navigation (Dutt et al., 2015; Qi et al., 2023). However, the effectiveness of incubators in Kazakhstan hinges on their ability to address the specific needs of incubatees at different stages of growth, from nascent ventures requiring foundational resources to scaling businesses in need of advanced market and financing support. To maximise their impact, incubators must implement rigorous evaluation mechanisms,

enhance post-incubation services, and leverage international collaborations to address gaps in resources and networks. By focusing on these areas, incubators can better support the diverse challenges faced by startups, ultimately fostering a more robust entrepreneurial ecosystem in Kazakhstan. This tailored approach will ensure that both new and growing businesses receive the comprehensive assistance necessary for their success.

Frameworks and Policies in Business Incubators

The selection phase is a critical component of business incubation, serving as a decisive stage for both incubators and incubatees. For incubators, this phase determines the allocation of resources and the likelihood of success for incubated projects. Accepting unsuccessful projects can adversely affect an incubator's overall performance, making the selection process essential. Structured selection criteria, while not a complete guarantee against failure, provide a mechanism to filter potential incubatees and identify ventures with promising traits. Bergek and Norrman (2008) describe this as the “picking-the-winners approach,” where incubator staff evaluate projects to enhance the likelihood of successful outcomes. Acceptance into an incubator represents a significant milestone for entrepreneurs, providing the resources and support essential for the growth and development of their ventures.

Research findings indicated that MOST Inc. and NURIS apply selection criteria that align with international practices while addressing the unique needs of the local ecosystem. These criteria emphasise the viability of the business idea and the entrepreneur's motivation to launch and sustain a venture. The application process typically involves an initial assessment of written applications followed by interviews conducted by incubator managers, who use both logical and intuitive evaluation methods. This approach mirrors global practices, where

motivation, innovation, and team dynamics are key considerations in selecting incubatees (Voisey et al., 2013; Capatina et al., 2023). Both incubators also exhibit a certain flexibility in the application of their selection criteria, allowing for the inclusion of diverse projects. For instance, some incubators prioritise technical expertise; others focus on the scalability and uniqueness of the business model. This adaptability enables incubators to support a broader range of incubatees, fostering innovation and inclusivity. However, our findings revealed a lack of clarity regarding certain criteria, a challenge consistent with international observations regarding the ambiguity of selection processes in some incubators (Bruneel et al., 2012). Likewise, incubatees face various challenges during the selection phase. Common obstacles include unclear application requirements, stringent office space policies, and high expectations regarding project readiness. For example, some incubators require project owners to work exclusively from incubator facilities, which can be problematic for incubatees who already have established workspaces. While this policy aims to facilitate mentorship and collaboration, it may exclude advanced projects that do not require close supervision. International incubators commonly adopt virtual incubation as a flexible alternative to address this issue.

Another significant challenge is the duplication of project ideas. Proposals resembling existing projects frequently encounter rejection due to a perceived lack of originality. However, NURIS is willing to consider duplicate ideas provided they demonstrate profitability. This approach highlights the balance between fostering innovation and ensuring market viability (Ratinho et al., 2010). Logistical challenges, such as delays in the application and acceptance process, also hinder incubatees. Increased interest in business incubators in Kazakhstan has led to backlogs and lengthy waiting times. While the emergence of new incubators has alleviated this issue, it nevertheless underscores the importance of resource planning and capacity management within the ecosystem. The selection phase not only filters candidates but also

prepares incubators for the demands of business incubation. By requiring applicants to refine their business models, conduct market analyses, and evaluate technical feasibility, incubators encourage a culture of strategic thinking and innovation. This preparatory process enhances incubatees' understanding of market dynamics and equips them with the necessary skills to navigate the complexities of venture creation. Kim and Jung (2010) highlight that strong selection processes in technology incubators significantly contribute to the innovative capacity and economic efficiency of incubated projects.

The findings further emphasised the importance of pre-incubation training for motivating incubators and increasing their likelihood of success. For instance, some of Kazakhstan's incubators initially viewed a week-long mini-training programme as challenging, but ultimately recognised it as beneficial for refining business ideas and boosting entrepreneurial confidence. Such initiatives underscore the role of the selection phase in fostering a sense of accomplishment and reducing the risk of failure of new ventures. Variability in selection criteria among Kazakhstan's incubators benefits entrepreneurs by offering diverse pathways to incubation. A more suitable incubator may accept incubatees who do not otherwise meet its requirements. This diversity mirrors international practices, where incubators tailor selection criteria to their strategic objectives and resources (Bergek & Norrman, 2008). In Kazakhstan, this flexibility reflects an understanding of the local entrepreneurial ecosystem's needs and challenges.

Selection policies in Kazakhstan's incubators also play a strategic role in promoting collaboration between institutions such as universities, private companies, and incubators. By aligning these entities toward a common goal of fostering innovation and knowledge accumulation, selection criteria contribute to the transformation of entrepreneurial ideas into high-value ventures. This coordination is particularly critical in emerging economies like

Kazakhstan, where the capacity for generating innovative firms remains limited. The selection phase is thus both a filter and a preparatory stage, ensuring that incubators allocate resources effectively while empowering incubatees to succeed. In Kazakhstan, the application of clear, flexible, and inclusive selection criteria can enhance the impact of business incubation programmes, fostering a robust entrepreneurial ecosystem that drives innovation and economic growth. The findings highlight the need for continued refinement of selection processes to address local challenges and align with international best practices, ensuring that incubators remain effective catalysts for incubatees' success.

5.3 Fostering New Ventures: Interactions between Ecosystem Elements and Business Incubators

Domestic Ecosystem

The literature emphasises the contributions of leaders and venture-oriented professionals to human capital in entrepreneurial ecosystems, and links economic and social infrastructure with elements like universities, physical infrastructure, and local communities (Isenberg, 2010; Spigel, 2017). The broader entrepreneurial ecosystem often overlooks technology, which has been a major driving force behind business incubators for a number of decades. However, the current emphasis on innovative technologies in the incubation process is fostering economic dynamism within local communities. Public policy plays a crucial role in shaping entrepreneurial ecosystems by addressing specific challenges and creating enabling environments. Entrepreneurial policies, designed to motivate individuals to start businesses, focus on the incubation and acceleration stages, targeting motivation, opportunity, and skill development. The primary objective of such policies is to increase entrepreneurial activity and

foster business creation (Lundstrom & Stevenson, 2005).

In Kazakhstan, the entrepreneurial ecosystem is rapidly evolving, with significant progress driven by government initiatives. Participants acknowledged the steps taken by the government but highlighted that the ecosystem remains fragmented. Chapter II notes that an effective entrepreneurial ecosystem facilitates business expansion, job creation, and the development of an entrepreneurial culture. It is characterised by elements such as supportive policies, accessible finances, transparent governance, robust regulatory frameworks, and active public-private partnerships. These components must interact in a cohesive manner to enable entrepreneurs to leverage synergies, promoting innovation and competitiveness. However, in Kazakhstan, analysis indicated that limited coordination between key stakeholders, such as universities, local communities, and private enterprises, has hindered the ecosystem's full potential. This lack of collaboration has stifled efforts to establish innovation hubs and technology parks, which are essential to bridging gaps between academia and business. Despite their establishment, administrative inefficiencies and regulatory complexities continue to hinder entrepreneurial activity in the country. While the government has introduced programmes such as "Business Roadmap 2025" and Damu to support SMEs, low awareness and accessibility have limited their impact. As highlighted in Chapter IV, many incubatees remain unaware of the financial resources available, and those who are aware often encounter bureaucratic hurdles that delay or impede their access to support. These challenges are particularly acute for technology-driven projects, where rapid access to resources is critical to maintaining competitiveness. There is no doubt that financial support is a cornerstone of entrepreneurial ecosystems, and while Kazakhstan has made strides in this area, challenges still remain. There are several initiatives like the Damu Fund and Astana Hub that provide SMEs with seed funding, venture capital, and low-interest loans, yet many incubatees perceive these

resources as difficult to access. Participants highlighted lengthy waiting periods for funding approval and a lack of alignment between funding procedures and the fast-paced needs of incubatees. MOST Inc. and NURIS in Kazakhstan have emerged as crucial intermediaries in addressing these financial challenges. By connecting incubators with financial institutions and guiding them through application processes, incubators help mitigate barriers to securing funding. For instance, MOST, Inc. provides seed funding and collaborates with venture capital firms to prioritise investments in incubators. Similarly, NURIS works closely with government programmes to facilitate access to grants, loans, and other financial incentives. These efforts not only address immediate financial needs but also equip entrepreneurs with the skills and networks necessary to allow for sustainable growth (Zhuravleva, 2019).

The findings revealed that human capital is another component of the entrepreneurial ecosystem, yet it remains a challenge in Kazakhstan. Despite Kazakhstan's investments in higher education, the actual quality and relevance of this education to industry needs remains limited. Incubatees frequently struggle to recruit and retain skilled employees, particularly during the growth phases of their businesses. They often cannot offer competitive salaries, leading to high turnover rates as employees leave to join larger firms. Participants stressed the importance of building capable teams, noting that recruitment difficulties often hinder business expansion. These challenges underscore the need for policies and initiatives to develop a skilled workforce aligned with the needs of emerging ventures.

Policy frameworks in Kazakhstan have shown progress in supporting entrepreneurship, but gaps in implementation and effectiveness persist. Participants stressed the need for streamlined administrative processes related to taxation, intellectual property protection, and recruitment. While programmes like "Business Roadmap 2025" have laid the foundation for ecosystem development, stronger collaboration between the public and private sectors is

essential to achieving sustainable growth. Moreover, fostering a culture of innovation remains a critical challenge. Participants noted that while there has been increased social awareness of SMEs, the ecosystem lacks the innovation-driven mindset necessary for transformative growth. Events such as conferences and forums have been instrumental in addressing this gap, providing networking opportunities and exposing entrepreneurs to new ideas and practices.

Despite its challenges, Kazakhstan's entrepreneurial ecosystem presents significant opportunities for tailored development. Participants emphasised the need for a grassroots approach to ecosystem building, focusing on local needs rather than adopting external models wholesale. While internationally recognised ecosystems like Silicon Valley offer valuable lessons, direct replication in Kazakhstan is unlikely to succeed due to contextual differences. Instead, successful practices should be adapted to suit Kazakhstan's distinct socio-economic and institutional environment. Business incubators are well positioned to lead this transformation. By orchestrating resources, fostering collaboration among stakeholders, and providing mentorship, incubators can drive the development of a more robust entrepreneurial ecosystem. Strengthening partnerships with universities, private companies, and government agencies can further enhance the effectiveness of incubation programmes and foster innovation.

Kazakhstan has made notable progress in supporting SMEs and fostering entrepreneurship, but substantial challenges remain. Limited coordination among ecosystem actors, insufficient human capital, and barriers to accessing financial resources constrain entrepreneurial growth. Nevertheless, recent government initiatives and the efforts of business incubators have laid the groundwork for significant improvements.

The Role of Business Incubators in the Creation of New Ventures

The role of business incubators in Kazakhstan is an area that has received limited academic attention. Despite the progress, a comprehensive assessment of the long-term impacts of its developments would be premature. Initiatives from both the government and the private sector have shown promise, but a more conducive environment for entrepreneurship and innovation requires greater coordination between incubation facilities, technological parks, and universities. Kazakhstan also lags in R&D, a critical area that requires increased investment to enhance market performance and technological advancement. Participants acknowledged the role of incubators in enabling incubatees to establish new ventures. Locally adapted business opportunities foster economic value and improve business productivity, though growth remains modest. We highlighted MOST Inc. and NURIS due to their efforts to create a favourable environment for incubatees. These incubators are still in the early stages of their development in terms of resources and service quality. Government policies supporting incubation programmes are beneficial, but they require enhancement to maximise their impact. Qazinnovations, in partnership with private sector entities, supports accredited incubation facilities by providing funding and resources for entrepreneurial ventures. The public-private partnership model underpins many of these initiatives, with private incubators actively fostering innovation by encouraging both local and international participation in the incubation process.

The findings align with the extant literature, which emphasises the economic benefits of business incubators. Participants consistently highlighted the role of incubators in fostering the success of SMEs in Kazakhstan, which in turn increases the number of successful ventures while reducing entrepreneurial failures. *Policy Makers* specifically noted that incubators contribute to addressing local unemployment by enabling projects that generate jobs. For

example, some incubators use employment generation as a key metric for evaluating the success of their programmes. *IMs* explained that job creation is a critical criterion for project selection, reflecting the broader economic priorities of the Kazakhstani government. Despite these positive developments, some participants expressed scepticism about the long-term impact of incubators, citing a lack of comprehensive regulations, such as those requiring tax disclosure and income reporting for incubated projects. This gap in regulatory oversight complicates efforts to measure the economic contributions of incubators accurately. Nonetheless, the findings revealed a positive trend in the role of MOST Inc. and NURIS in supporting SMEs and contributing to local economic development, consistent with international research on business incubation (Yang et al., 2009; Kim & Jung, 2010; Marques et al., 2010; Schwartz & Hornyk, 2010).

The findings also highlighted the potential of Kazakhstan's incubators to support technological innovation. High-tech ventures, which can often begin at home with very limited resources, benefit from incubator programmes designed to help incubatees refine their ideas and develop prototypes. These programmes not only facilitate the transition from concept to operational business but also play a significant role in the selection process for incubation.

Comparative analysis of the findings with the literature underscores both alignments and deviations. While many aspects of Kazakhstan's incubators reflect global trends, certain characteristics are unique to the local context. For instance, the nascent stage of incubator culture in Kazakhstan, where significant traction only became apparent post-2017, presents both challenges and opportunities. Evaluating the experiences of past incubators can provide valuable lessons for improving current practices and informing future initiatives. Despite the substantial number of incubators in Kazakhstan, participants emphasised the need for further efforts to enhance their effectiveness. Awareness of incubators' roles and services remains

limited, even among entrepreneurs and policymakers, which can hinder their impact. Expanding awareness campaigns and fostering stronger connections between incubators and local communities could improve participation and outcomes. Moreover, integrating incubators more closely with universities and research institutions could address gaps in R&D and drive innovation. The findings suggested that Kazakhstan's incubators are well-suited to the local context, providing critical support for new ventures while addressing unique challenges faced by entrepreneurs. However, additional investment in infrastructure, regulatory frameworks, and human capital development is required to fully realise their potential. Drawing on international experiences while tailoring strategies to local needs can help Kazakhstan build a robust incubation ecosystem that fosters long-term economic growth and innovation.

This study highlights the significant role of business incubators in supporting entrepreneurship and contributing to Kazakhstan's economic development. By providing essential resources, facilitating job creation, and promoting innovation, incubators are laying the groundwork for a thriving entrepreneurial ecosystem. However, sustained efforts in policy development, infrastructure enhancements, and stakeholder collaboration are necessary to maximise their impact.

5.4 Concluding Summary

The concluding section of Chapter V synthesised the key insights discussed, situating them within the broader theoretical and practical frameworks of business incubators in emerging economies. The chapter integrated findings on how business incubators adapted to institutional environments, their role as intermediaries in addressing systemic barriers, and their interplay with elements of the entrepreneurship ecosystem to foster the growth of SMEs.

Through these dimensions, the discussion advanced both theoretical understanding and practical guidance, underscoring the pivotal role that business incubators have played in resource-constrained environments. Section 5.1 highlighted the necessity of tailoring business incubator models to align with the unique realities of these environments. Adaptations included accommodating local regulatory requirements, cultural norms, and resource constraints to ensure the relevance and efficacy of incubation processes (Autio & Levie, 2017). The findings emphasised that adopting models from developed economies without contextual adaptation often led to suboptimal outcomes. Instead, incubators integrated localised strategies to address the specific challenges facing entrepreneurs in emerging economies. Section 5.2 built on this by exploring the role of business incubators as institutional intermediaries. In environments with systemic challenges, such as limited access to finance, weak entrepreneurial networks, and market information asymmetries, incubators functioned as vital conduits linking entrepreneurs with necessary resources and institutional structures. By addressing institutional voids, incubators mitigated the barriers that hindered entrepreneurial success. This intermediary role extended beyond resource provision; incubators actively contributed to institutional innovation by influencing policy, advocating for regulatory improvements, and fostering collaborative networks that enhanced the entrepreneurial environment. The discussion in Section 5.3 shifted focus to the interaction between entrepreneurship ecosystem elements and business incubators. Business incubators serve as critical nodes within this ecosystem, leveraging external resources, such as financial institutions, government programmes, and academic organisations, while simultaneously contributing to ecosystem development. This dual role enhances the dynamism and resilience of entrepreneurial ecosystems, particularly in resource-constrained environments. The findings demonstrated how incubators facilitated collaboration, fostered knowledge exchange, and drove innovation

by integrating ecosystem resources into their incubation processes. For instance, partnerships with universities and technological parks not only provided entrepreneurs with access to technical expertise but also fostered a culture of innovation and entrepreneurship in the local community.

Through these interconnected discussions, Chapter V presented a comprehensive discussion of the multifaceted role of business incubators in emerging economies. The findings highlighted the critical importance of contextualising incubation practices for local environments, leveraging institutional intermediaries to overcome systemic challenges, and fostering dynamic entrepreneurial ecosystems. These insights provided actionable recommendations for policymakers, incubator managers, and other ecosystem stakeholders to enhance the effectiveness of entrepreneurial support mechanisms. Chapter V reinforced the transformative potential of business incubators in fostering entrepreneurship, driving economic diversification, and building resilient ecosystems in emerging economies. While the challenges were significant, the opportunities for impactful intervention through tailored incubation strategies and collaborative ecosystem development were equally compelling.

Conclusions and Recommendations

This thesis has explored the role of business incubators as institutional intermediaries in Kazakhstan, addressing critical gaps in the literature on entrepreneurship in emerging economies. By examining the operations of MOST Inc. and NURIS, the study has provided insights into how business incubators adapt to, and influence, institutionally void environments.

This study makes several key contributions. Theoretically, it extends institutional theory by showing how business incubators reshape formal and informal institutional structures and develops a context-specific framework that integrates the IPO model with lifecycle stages and ecosystem dynamics. Empirically, it highlights adaptive strategies used by incubators to address resource constraints, cultural resistance, and regulatory challenges while demonstrating their dual role as buffers and bridges within entrepreneurial ecosystems. Practically, it recommends strengthening institutional linkages among academia, government, and the private sector, simplifying regulatory processes to support startups, and promoting cultural shifts toward entrepreneurship through education and media campaigns. The study's findings are context-specific to Kazakhstan and may not fully generalise across other emerging economies. Its reliance on qualitative data introduces subjectivity, requiring further research for validation. Future research directions include comparative studies of incubators in other emerging economies, quantitative testing of the proposed framework, and exploration of digital incubation models to overcome institutional barriers.

Kazakhstan's entrepreneurial ecosystem is at a critical juncture, with business incubators playing a vital role in fostering innovation and economic diversification. By addressing institutional voids and promoting collaboration, incubators support startups while acting as agents of institutional change. This research underscores the importance of context-

specific strategies in enhancing incubator effectiveness and offers actionable insights for stakeholders to nurture entrepreneurship in emerging economies. Overall, the findings advance both theory and practice, providing a roadmap for optimising business incubators to support sustainable economic growth in challenging institutional environments.

Summary of Thesis Context, Literature, and Methodology

The context of this study centred on the pivotal role of business incubators as institutional intermediaries in the emerging economy of Kazakhstan. The country's transition from a centrally planned to a market-driven economy over the past three decades has created a fertile yet challenging environment for entrepreneurship. This transitional phase has been marked by significant institutional voids, including weak enforcement of property rights, limited access to finance, and underdeveloped entrepreneurial networks (Khanna & Palepu, 1997; Kalyuzhnova et al., 2019). These voids present barriers to firms, making the role of business incubators indispensable. Kazakhstan's economic diversification efforts, driven by a desire to reduce reliance on natural resource extraction, have prioritised fostering innovation and entrepreneurship (Pomfret, 2019). Business incubators are central to this strategy, offering not only physical infrastructure and operational support but also access to critical networks and knowledge-sharing platforms (Etzkowitz et al., 2005; Pauwels et al., 2015). The choice of Kazakhstan as the study's focus was particularly compelling given its unique socio-economic dynamics and the need to adapt business incubator models to institutionally void environments.

Chapter I synthesised existing research on business incubators, institutional theory, and institutional voids, highlighting critical gaps. Business incubators have evolved from first-generation models focused on shared resources to third-generation models emphasising networking and technological integration (Bruneel et al., 2012; Mian et al., 2016; Pawels et al.,

2016). However, much of the existing research has focused on developed economies, where institutional environments are relatively supportive (Scaramuzzi, 2002; Hackett & Dilts, 2004; Mrkajic, 2017). Chapter I considered business incubators from three main areas of the literature: performance studies, typology and model studies, and business incubators as institutional intermediaries. It examined their classification, evaluation, and interactions with institutions and identified several significant gaps. Firstly, there is a dearth of research on the role of business incubators as institutional intermediaries, which is crucial to the systematic investigation of business incubator dynamics. Certain studies (Mair et al., 2012; Dutt et al., 2016; Bhatt et al., 2022) have looked at certain parts separately, but they do not offer a full picture of the role of the intermediary (Mrkajic, 2017). This complicated the study of resource distribution, interpersonal interactions, and the regulation of entrepreneurial ecosystems in novel contexts. Secondly, an issue arose over the adequacy of the established business incubator model to meet the demands of entrepreneurs in institutionally deficient environments. Given the increased negative externalities, existing models were unable to comprehensively meet the requirements of entrepreneurs. This thesis filled the gap by giving an understanding of how to more effectively adopt business incubator models for institutionally deficient environments for improving entrepreneurial ecosystems. Lastly, although few studies (Grandi & Grimaldi, 2005; Surana et al., 2020) have examined the synergies between incubators and ecosystem components, such as venture capital, universities, and government agencies, this study explored these interactions by offering insights into how incubators can enhance ecosystem dynamics and foster sustainable entrepreneurship.

This thesis drew extensively on institutional theory, particularly its framework of regulative, normative, and cognitive pillars (Scott, 2008). The theory provides a robust lens for understanding how business incubators interact with and influence their institutional contexts.

This thesis set out to contribute to institutional theory by demonstrating how incubators can act as agents of institutional change, influencing both formal and informal institutions to create more conducive environments for entrepreneurship.

The overarching aim of this research was to critically examine the role of business incubators as institutional intermediaries in overcoming institutional barriers and fostering entrepreneurial ecosystems in emerging economies, with Kazakhstan as the focal case. This aim was underpinned by one overarching research question and three sub-questions, each addressing a distinct dimension of the incubation phenomenon within an institutionally void environment. The findings and discussion demonstrated how these were systematically addressed, providing both theoretical and practical insights.

The thesis employed a qualitative case study approach, an ideal choice for exploring complex social phenomena in depth (Yin, 2018). This methodology allowed for a nuanced understanding of how business incubators operate within Kazakhstan's unique institutional context. The case study design was particularly well suited to addressing the main research question and three research sub-questions, which required an exploration of both macro-level institutional dynamics and micro-level incubation practices. The selection of MOST Inc. and NURIS as case studies was strategic. MOST Inc., a private-sector incubator, provided insights into market-driven incubation models, while NURIS, a university-affiliated incubator, highlighted the role of academia in fostering entrepreneurship. This dual focus facilitated a comparative analysis of differing business incubator strategies within the same institutional context (Eisenhardt, 1989). The data collection process was rigorous and multifaceted. Semi-structured interviews with 66 participants, which included incubator managers, incubatees, and policymakers, formed the primary data source. These interviews were complemented by an analysis of policy documents, archival records, and media reports, ensuring data triangulation

that enhanced the validity of the findings (Patton, 2015). The interviews were designed to elicit detailed insights into the challenges, strategies, and outcomes of business incubators in Kazakhstan. Thematic analysis was used to identify patterns and themes within the data (Braun & Clarke, 2006). This approach allowed for a systematic examination of how incubators navigate institutional voids, foster entrepreneurial networks, and contribute to ecosystem development. The analysis was informed via institutional theory, with particular attention on the interactions between the regulative, normative, and cognitive dimensions of the institutional environment.

The literature and methodological choices informed the study's findings in several ways. First, the focus on institutional theory and voids provided a robust framework by which to analyse the challenges faced by Kazakhstan's business incubators and incubatees. Second, the case study approach allowed for a detailed exploration of how these incubators adapt their models to local conditions, filling critical gaps in the existing literature on business incubators in emerging economies. The findings demonstrated that MOST Inc. and NURIS effectively navigated institutional voids by leveraging both formal and informal networks. MOST Inc., for instance, relied heavily on private sector partnerships to overcome funding gaps, while NURIS utilised its academic affiliations to provide knowledge-based support to incubatees. These insights underscore the importance of context-specific strategies in enhancing the effectiveness of business incubators.

Research Findings and Response to Study's Research Question and Sub-questions

The results of the data analysis process for the 66 individuals who were interviewed are reported in Chapter IV. The study's main research question and three sub-questions guided the presentation and discussion of themes and research objectives of the study were directly

addressed after each category was analysed, and the results are summarised below.

a. How do business incubators adapt to the institutional environment of emerging economies?

This first research sub-question stemmed from the observation that most business incubators are modelled on frameworks developed in economically advanced contexts. These frameworks often failed to account for the unique challenges of emerging economies, such as institutional voids, limited resources, and socio-cultural dynamics. Drawing on institutional theory, this study explored how incubators can adapt their structures and processes to effectively navigate these barriers. The study revealed that adaptation involves both internal and external modifications. Business incubators in Kazakhstan, such as MOST Inc., adopted flexible operational models that prioritise cost efficiency and resource optimisation. For instance, MOST Inc. emphasised private-sector collaborations to secure funding and mentorship opportunities, bypassing the limitations of state funding and weak financial markets. NURIS, on the other hand, leveraged its academic affiliation to provide specialised technical expertise and access to university resources. Both incubators tailored their programmes to align with the cultural norms and expectations of the local entrepreneurial community. This involved incorporating mentorship programmes that emphasised trust-building and long-term relationship development, addressing the inherent mistrust in institutional structures prevalent in Kazakhstan (Kalyuzhnova et al., 2019). These findings extend institutional theory by demonstrating how incubators not only operate within institutional frameworks but also actively reshape them. By bridging formal institutional gaps, such as regulatory weaknesses, and addressing informal barriers, such as cultural attitudes toward entrepreneurship, incubators act as dynamic agents of institutional change (North, 1990; Scott, 2008).

b. What role do business incubators play, as institutional intermediaries, in overcoming barriers to entrepreneurial success?

The aim of this sub- question was to explore the dual role of business incubators as recipients and agents of institutional influence. In an emerging economy like Kazakhstan, where institutional voids hinder entrepreneurial activity, the mediating role of incubators becomes critical. The study identified two primary functions of business incubators as institutional intermediaries. Business incubators shield firms from external uncertainties and institutional failures. For example, both MOST Inc. and NURIS provided incubatees with subsidised office spaces, legal support, and access to professional networks, mitigating the risks posed by weak market-supporting institutions. Likewise, business incubators facilitated interactions between incubatees and external stakeholders, such as government agencies, investors, and industry players. By fostering these connections, business incubators enable startups to access critical resources and opportunities otherwise unavailable due to institutional constraints. For instance, MOST Inc. demonstrated its bridging capacity by organising networking events that connected incubatees with international investors. NURIS, in contrast, focused on bridging the gap between academic research and industry needs, facilitating technology transfer and commercialisation efforts.

The findings reinforced the concept of business incubators as intermediaries that not only buffer firms from environmental risks but also act as catalysts for institutional reform. This dual role underscores the importance of tailoring business incubation strategies to the specific institutional context, a perspective that has is somewhat underexplored in the extant literature (Hackett & Dilts, 2004; Dutt et al., 2016).

c. How do elements of the entrepreneurial ecosystem interact with business incubators to foster new ventures?

This sub-question focused on the broader ecosystem within which business incubators operate. It sought to uncover how interactions with government, academia, private sector actors, and other stakeholders influence the incubation process and entrepreneurial outcomes. The research identified several critical ecosystem interactions. While both incubators benefited from government policies promoting entrepreneurship, challenges such as bureaucratic inefficiencies and inconsistent support were evident. MOST Inc., for example, operates independently of government funding to avoid these challenges, while NURIS relies on government grants to support technology-driven initiatives. NURIS exemplified the potential of university-affiliated incubators to drive innovation. Its close ties with Nazarbayev University facilitate the transfer of academic research to marketable products, fostering innovation-driven startups. Both incubators actively engage with the private sector to enhance their resource base. MOST Inc.'s partnerships with multinational corporations provide incubatees with access to global markets and expertise.

These interactions highlighted the importance of a cohesive entrepreneurial ecosystem in amplifying the impact of a business incubator. However, the findings also underscored the fragmented nature of Kazakhstan's ecosystem, where weak linkages between key actors often limit the effectiveness of business incubation programmes (Kalyuzhnova et al., 2019).

Overall, business incubators in Kazakhstan have adapted by providing resources and bridging institutional voids. MOST Inc. and NURIS demonstrated varying strategies tailored to local challenges, such as limited funding and weak regulatory frameworks. Their success lies in integrating local cultural and economic contexts into their operational models.

The incubators serve as crucial intermediaries by mediating between formal institutions (e.g., government policies) and informal entrepreneurial networks. This dual role

enables them to buffer firms from external institutional deficiencies while fostering relational ties to external stakeholders.

Theoretical and Empirical Contributions

The study contributes to the literature by integrating institutional theory with the business incubator phenomenon in the underexplored context of emerging economies. The study identifies several key theoretical advancements.

Developed economies have predominantly applied institutional theory. This research extends its application to emerging economies, demonstrating its relevance in contexts characterised by institutional gaps. By examining the regulative, normative, and cognitive pillars of institutional theory, the study highlighted how incubators not only adapt to but also reshape institutional frameworks (North, 1990; Scott, 2008). For instance, the buffering role of business incubators addresses regulative gaps, such as limited funding opportunities, weak awareness of governmental support, inadequate property rights, and weak enforcement mechanisms. The bridging role shapes normative aspects, promoting trust and cooperation among ecosystem participants. Unlike previous studies (Carayannis & Zedtwitz, 2005; Bergek & Norrman, 2008; Pauwels et al., 2016) that primarily viewed business incubators as passive participants in entrepreneurial ecosystems, this study uniquely positioned them as active agents of institutional change. This study contributed to the literature of institutional voids by illustrating how incubators mediate between formal institutions, such as government policies, and informal cultural norms, thus creating an enabling environment for entrepreneurship. By focusing on Kazakhstan, the study offered a detailed exploration of how institutional voids manifest in emerging economies. It demonstrated how incubators can fill these voids by acting as intermediaries that provide resources and networks and facilitate the alignment of ecosystem

elements, such as academia, industry, and government.

This thesis also added to the body of institutional theory by looking at business incubators in Kazakhstan within a larger institutional framework. It achieved this by focusing on four different types of institutional pressures: competitive, coercive, and mimetic. The study revealed that the pressures occur during various stages of the lifecycle of business incubators, which is characterised by multiple pressures. Business incubators transition from one type of pressure to another based on their lifecycle. Another unique theoretical contribution of this research is its identification of the impact of the “ecosystem” on the pressure phases, which affect business incubators in multiple ways. Different types of pressure can be created by the presence, or indeed absence, of rules and regulations related to incubatees, which are part of the “ecosystem.” Similarly, the government’s top-down approach, a component of the “ecosystem,” exerts diverse pressures on incubatees. This top-down approach can lead to both supportive and restrictive environments for incubatees, influencing their operational flexibility and growth potential. Consequently, understanding these pressures is crucial to the development of effective strategies within business incubators.

The study advances the understanding of how business incubators must be context specific. It identified strategies, such as leveraging academic affiliations and fostering private-sector partnerships, that are particularly effective in institutionally void environments. These insights refine existing theoretical frameworks on business incubation (Bruneel et al., 2012; Mian et al., 2016; Mrkajic, 2017).

In addition, this thesis made a significant contribution to the literature on the development of incubator models. Building on the work of Bruneel et al. (2012) and Grimaldi and Grandi (2005), it highlighted a distinct trajectory in the evolution of incubator models within emerging countries. Additionally, the findings contributed to the broader discussion on

sponsorship in the context of intermediaries (Amezcu et al., 2013). As aligned with Dutt et al. (2016), the study acknowledged that the allocation of resources and decision-making processes of incubators are influenced by the type of sponsorship they receive. However, in contrast to Dutt et al., this research revealed that more pronounced institutional voids not only alter the distribution of services provided but also necessitate the development of various incubator models. These models are better equipped to address the diverse needs of incubatees, which arise from varying external factors. Chapter V presented a conceptual framework that integrates empirical findings and theoretical insights to create an optimal model of business incubators in Kazakhstan, contributing to the literature. The model shows how incubators fill gaps in the system and meet the needs of a wide range of entrepreneurs by using the inputs, processes, and outputs (IPO) framework and aligning it with stages of the business lifecycle, types of sponsorship, and ecosystem connections. This optimal framework advances the study of business incubation by providing a practical, context-specific tool for enhancing incubator performance and fostering entrepreneurial ecosystems in emerging economies.

The empirical contributions of the thesis stem from its in-depth case studies of MOST Inc. and NURIS, two of Kazakhstan's most prominent incubators. These contributions fill critical gaps in the literature on business incubation in emerging economies. This study provides novel empirical data on business incubation in Kazakhstan, a context that has received limited scholarly attention. It highlighted the unique challenges faced by business incubators in this region, such as limited funding, cultural resistance to entrepreneurship, and fragmented ecosystem linkages. The comparative analysis of MOST Inc. and NURIS offers insights into how different types of incubator operate within the same institutional context: MOST Inc., a private-sector-driven incubator, demonstrated agility in navigating market constraints by forming strategic partnerships with multinational corporations; NURIS, a university-affiliated

incubator, showcased the potential of academic institutions to drive innovation and entrepreneurship through technology transfer and research commercialisation. By incorporating the views of diverse stakeholders, including incubator managers, incubatees, and policymakers, the study captured a holistic understanding of the functioning of business incubators. This approach highlighted the importance of ecosystem collaboration in enhancing the effectiveness of business incubators.

The findings revealed that incubatees in Kazakhstan have higher survival rates and better access to resources compared to non-incubated ventures. This empirical evidence underscored the critical role of business incubators in reducing entrepreneurial risks and fostering venture success. In addition, the study highlighted how business incubators act as vehicles for policy implementation in emerging economies. By aligning their objectives with national strategies for economic diversification and innovation, incubators contribute to broader developmental goals.

The combined theoretical and empirical contributions of this research provide a comprehensive framework for understanding business incubators in emerging economies. The insights are particularly valuable for academics seeking to explore the intersection of institutional theory and entrepreneurship, policymakers aiming to design effective incubation programmes, and practitioners looking to optimise incubation strategies in institutionally void environments.

Table 7 - Theoretical and empirical contributions of the study

Category	Contribution	Significance
Theoretical Contributions		
Institutional Theory	Extended to emerging economies with institutional voids.	Demonstrates the relevance of institutional theory in dynamic and transitional contexts.

Role of Business Incubators	Identified incubators as active agents of institutional change.	Highlights incubators' dual role in buffering and bridging institutional gaps.
Institutional Voids	Provided a nuanced understanding of how voids manifest and are mitigated by business incubators.	Fills a critical gap in the literature on institutional challenges in emerging economies.
Context-Specific Models	Advanced the understanding of contextually adapted business incubator models.	Offers actionable insights for designing incubation programmes in diverse institutional environments.
Empirical Contributions		
Case Study Insights	Dual case studies of MOST Inc. and NURIS.	Provides detailed, context-specific data on incubation practices in Kazakhstan.
Stakeholder Perspectives	Integrated views of managers, incubatees, and policymakers.	Offers a holistic perspective on the dynamics of business incubation.
Entrepreneurial Outcomes	Demonstrated the positive impact of incubation on startup success.	Empirical validation of incubation's role in reducing entrepreneurial risks.
Policy Implementation	Highlighted incubators' role in aligning with national economic strategies.	Showcases their contribution to broader developmental goals.

Source: Author's own

Practical Implications for Business Incubation Managers and Policymakers

This study provides a comprehensive guide for incubator managers and policymakers to enhance the effectiveness of incubation practices. By addressing both the operational and policy dimensions, it offers actionable strategies for fostering entrepreneurship and economic development in emerging economies.

The following analytical framework synthesises the practical implications and recommendations for incubator managers and policymakers:

Table 8 - Analytical framework for practical implications and recommendations

Stakeholder	Area of Focus	Practical Implication	Recommendation
Incubator Managers	Context-Specific Models	Business incubators must tailor models to local needs.	Develop modular services, including funding, mentorship, and legal assistance.
	Ecosystem Collaboration	Success depends on ecosystem connectivity.	Facilitate networking events and partnerships with universities and private firms.
	Virtual business incubation	Digital platforms are increasingly important.	Invest in online mentoring, training, and resource-sharing platforms.
	Monitoring and Evaluation	Impact measurement is critical.	Use data-driven metrics to track performance and refine programmes.
	Entrepreneurial Culture	Cultural barriers hinder entrepreneurship.	Integrate cultural awareness and confidence-building programmes.
Policymakers	Regulatory Frameworks	Bureaucratic inefficiencies stifle startups.	Simplify registration processes and establish one-stop platforms for entrepreneurs.
	Financial Support	Funding access remains a significant barrier.	Offer grants, subsidised loans, and tax incentives for private incubator investments.
	University-Industry Linkages	Collaboration is underutilised.	Support joint research projects and technology transfer initiatives.
	Regional and Sectoral Diversification	Urban-centric focus creates disparities.	Promote regional incubators focused on local industries and sectors.

	Entrepreneurial Education	Lack of skills and knowledge limits startups.	Incorporate entrepreneurship into education curricula and vocational training programmes.
	Incentives for Collaboration	Coordination among ecosystem actors is insufficient.	Provide grants to incubators with strong cross-sector partnerships.

Source: Author's own

Business incubator managers play a critical role in ensuring the success of entrepreneurial ecosystems by designing effective programmes, fostering collaborations, and adapting strategies to local contexts. Their responsibilities require careful consideration of the unique challenges and opportunities within their institutional environments. One of the most significant practical implications is the need for context-specific business incubation models. In environments like Kazakhstan, as characterised by institutional voids and negative externalities, incubators might develop flexible and innovative approaches. This requires managers to offer integrated services that go beyond standard incubation practices, such as legal assistance, financial guidance, mentorship programmes, and access to market linkages. A modular approach to service provision ensures that diverse startup needs are met efficiently and effectively.

Embedding business incubators within a robust entrepreneurial ecosystem is equally critical. The study underscored the importance of fostering collaborations with universities, private-sector partners, and government agencies. Ecosystem connectivity amplifies the resources available to incubators and their incubatees, creating synergies that drive innovation and growth. Regular networking events, joint research initiatives, and public-private partnerships are practical ways to strengthen these connections. For example, MOST Inc.'s collaboration with multinational corporations demonstrates the potential of leveraging external

expertise and resources to enhance the capabilities of local businesses. Such partnerships not only provide financial and technical support but also expose firms to global best practices and market opportunities.

The rapid advancement of digital technology presents significant opportunities for business incubators to expand their reach and impact through virtual incubation. Digital platforms enable incubators to offer remote mentoring, online training programmes, and virtual networking opportunities, which are particularly valuable in geographically dispersed regions. Investing in digital infrastructure allows incubator managers to bridge physical gaps and provide equitable access to resources for entrepreneurs in remote areas. This technological integration can enhance the scalability and inclusivity of incubation programmes, aligning with global trends in entrepreneurship support.

Effective business incubation also hinges on robust monitoring and evaluation mechanisms. Continuous evaluation enables managers to measure the impact of their programmes and identify areas for improvement. By implementing data-driven performance-tracking systems, incubators can monitor key metrics such as startup survival rates, funding acquisition, job creation, and market penetration. Feedback loops, wherein incubatees regularly share their experiences and challenges, are invaluable for refining programme delivery and ensuring alignment with entrepreneurial needs. These evaluation processes not only validate the incubators' contributions to the ecosystem but also provide insights for future strategic planning.

Cultural attitudes towards entrepreneurship significantly influence the success of startups, especially in emerging economies. In Kazakhstan, for instance, cultural stigmas surrounding business failure and entrepreneurial risk-taking can deter potential entrepreneurs. Incubator managers might address these cultural barriers by incorporating entrepreneurial

confidence-building initiatives into their programmes. Training sessions, workshops, and mentorship opportunities that emphasise resilience and the acceptance of failure as a learning process can help shift societal perceptions. Building an entrepreneurial culture that celebrates innovation and risk-taking is fundamental to creating a thriving ecosystem.

Policymakers play an equally pivotal role in shaping the enabling environment for incubators and startups. Bureaucratic inefficiencies and unclear regulatory frameworks are often cited as significant barriers to entrepreneurial activity. Streamlining these frameworks by simplifying business registration processes, reducing compliance costs, and providing clear operational guidelines can significantly enhance the ease of doing business for startups. The establishment of one-stop government platforms for entrepreneurs can further reduce administrative burdens, allowing entrepreneurs to focus on scaling their ventures.

Access to funding is another critical area where policy interventions are needed. In emerging economies, limited access to financial resources is a persistent challenge for startups. Policymakers should develop targeted financial programmes, such as grants, seed funding, and subsidised loans, specifically for incubatees. Additionally, incentivising private investments in incubators through tax benefits and co-investment schemes could attract more resources into the ecosystem. These financial mechanisms can help mitigate the high costs and risks associated with startup ventures, making entrepreneurship a more viable career option.

Fostering stronger linkages between universities and industry is another area of focus for policymakers. Academic institutions are vital contributors to innovation, yet their potential is often underutilised in emerging economies. Policymakers should establish frameworks that encourage collaboration between universities and incubators, such as funding for joint research projects, technology transfer programmes, and entrepreneurial education initiatives. By leveraging academic research and expertise, incubators can enhance their value proposition and

drive innovation-led entrepreneurship.

Regional and sectoral diversification is essential to ensuring equitable access to entrepreneurial support. Concentration of incubation activities in urban centres often leaves rural areas underserved, despite their potential for sector-specific innovation. Policymakers should promote the establishment of regional incubators tailored to local industries, such as agriculture-focused incubators in rural areas. These incubators could address the unique challenges of their respective sectors while unlocking opportunities for regional economic development.

Finally, effective business incubation requires coordinated efforts among ecosystem actors. Policymakers should create incentives for cross-sector collaboration by offering grants to incubators that demonstrate strong partnerships with private firms, non-profits, and academic institutions. These collaborations could pool resources, knowledge, and expertise, creating a more cohesive and supportive ecosystem for entrepreneurs.

This integrated approach to incubation management and policy design could transform business incubators into powerful drivers of economic growth and innovation in emerging economies. By addressing institutional voids, fostering ecosystem collaboration, and nurturing an entrepreneurial culture, both incubator managers and policymakers can unlock the full potential of entrepreneurship as a catalyst for sustainable development.

Recommendations for Future Research

While this research provides valuable and novel insights into the role of business incubators in emerging economies, it has several suggestions for future research to address. This study highlights critical areas for further exploration, including comparative analyses across multiple emerging economies, longitudinal studies to capture ecosystem evolution, and mixed method approaches that integrate qualitative and quantitative data. By addressing these,

future research could build on the insights provided by this study, advancing the understanding of business incubation in institutionally void environments.

A critical area for future research is comparative studies across multiple emerging economies. This study's focus on Kazakhstan provided insights into business incubation practices in a specific institutional and cultural context, but examining similar environments in other emerging economies, such as Brazil, India, or South Africa, could reveal both universal patterns and context-specific nuances (Khanna & Palepu, 1997; Chandra & Fealey, 2009). Comparative analyses could explore how different levels of institutional development, cultural norms, and policy frameworks shape the roles and effectiveness of business incubators; for instance, studies could investigate how incubators in resource-dependent economies like Kazakhstan differ from those in countries with diversified economic bases (Kalyuzhnova et al., 2019; Autio & Fu, 2015).

The integration of quantitative methods into future research is another valuable direction. While the qualitative approach of this study provided rich, context-specific insights, quantitative analyses could complement these findings by offering broader generalisability and statistical validation. Metrics such as startup survival rates, revenue growth, employment creation, and funding acquisition could be used to assess the tangible impacts of business incubation (Colombo & Delmastro, 2002; Byarugaba, 2016). Large-scale surveys or econometric studies could identify patterns and correlations across different incubation models, contributing to a more robust evidence base for policymakers and practitioners.

Future research could also delve deeper into the mechanisms by which business incubators act as institutional intermediaries. This study highlighted the buffering and bridging roles of incubators, but further exploration is needed to unpack how these functions are operationalised in different institutional contexts. For example, studies could examine how

incubators negotiate with government agencies, foster trust among ecosystem actors, and navigate cultural norms to promote entrepreneurship (Scott, 2008; Dutt et al., 2016). Detailed case studies focusing on specific interventions or programmes could provide actionable insights into these mechanisms.

The rise of digital and virtual incubation presents an exciting area for future inquiry. The COVID-19 pandemic accelerated the adoption of digital tools, transforming how incubators deliver services and engage with entrepreneurs. Research could examine the effectiveness of virtual incubation models compared to traditional, location-based approaches (Naidenkov, 2017; Khomenko et al., 2020). For instance, studies could explore how digital mentoring platforms, online training programmes, and virtual networking events impact startup performance. The role of emerging technologies, such as artificial intelligence and blockchain, in enhancing incubation processes also warrants further investigation (Kraus et al., 2019).

Sector-specific research could provide additional insights, particularly regarding how incubators address the unique challenges and opportunities of different industries. For example, agricultural incubators in rural areas may require different resources and strategies than technology incubators in urban centres (Pomfret, 2019; Ayandibu & Houghton, 2017). Research could also explore how sector-specific incubators contribute to broader economic goals, such as food security or digital transformation.

Gender and inclusion represent another important area for future exploration. Women entrepreneurs often face distinct challenges, such as limited access to funding and networks and societal biases (Brush et al., 2009). Studies could investigate how incubators address these barriers and promote gender equity within entrepreneurial ecosystems. For example, research could evaluate the impact of women-focused incubation programmes or analyse gender

disparities in terms of access to incubator resources and outcomes (Byarugaba, 2016; Franco et al., 2018).

Finally, future research should engage more deeply with the policy environment. While this study highlighted the role of government support in enabling business incubation, further investigation is needed to understand how specific policies influence incubator effectiveness. Comparative analyses of policy frameworks across countries or regions could identify best practices for fostering supportive ecosystems (Khanna & Palepu, 1997; Dvoulety et al., 2018). Additionally, research could explore the interplay between local, regional, and national policies and examine how alignment—or lack thereof—affects incubation outcomes (Gstraunthaler, 2010; Kalyuzhnova et al., 2019).

In conclusion, the potential for future research in the field of business incubation is vast and multidimensional in its scope. By expanding the geographical scope, adopting longitudinal and quantitative methods, exploring emerging trends, and addressing critical issues such as inclusion and policy alignment, future studies would be able to build on the foundation laid by this research. These efforts would not only deepen academic understanding but also provide practical guidance for enhancing the effectiveness of business incubation in fostering entrepreneurship and driving sustainable economic development.

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Appendixes

APPENDIX 1: The literature review on business incubators protocol

1. Criteria for *inclusion* for review

- a. Studies providing theoretical contributions.
- b. Both theoretical and empirical studies
- c. Time (2005 –2023)
- d. Articles with impact factor more than (*3 and above) (Kraus et al. 2020)

2. Search method and scope (2,396 articles)

- a. A full search of articles within the database Web of Science

Focus on title and abstract - TS=(** incubat* OR * business incubat* OR *business accelerat* OR *company builder* OR *innovation cent* OR *entrepreneurship cent* (Topic) and *institutions* OR *formal institutions* OR *government* OR *university* (Topic) and *impact* OR *support* OR *policy* OR *effect* OR *enforcement OR *process* OR *intervention* OR *cooperation* OR *business model*)* (n=12,425)

Constraints to increase robustness are the following:

- Publication Year (2004-2023) (n=11,562)
- Research Areas (Business Economics and Operations Research Management Science) (n=3,450)
- Document types and language (Articles and Review Articles - English) (n= 2,396)

3. Exclusion criteria by theoretical relevance (72 articles)

Not related to management, business or economics

- b. Screen title and abstract to exclude studies in which the primary focus is not on business incubators.

- Studies focused on EEs and open innovation

- Studies focused on accelerators
- Studies focused on TTOs and Science Parks
- Studies focused on Venture Associations
- Studies focused on EUs and HEIs
- Studies focused on Innovation ecosystems
- Studies focused on Entrepreneurship Policy studies
- Studies focused on Family firms
- Studies focused on the relationship between entrepreneurship and economic growth, city management.
- Exclude papers from the same authors that present similar arguments or theories.
- Results unavailable electronically or by other reasonable means.
- Unrelated discipline such as environmental studies

APPENDIX 2: The list of key research papers included in the sample

	Author (year)	Title	Source	Type	Location	Research Method
1	Capatina et al. (2023)	Exploring causal recipes of startup acceptance into business incubators: a cross-country study	<i>International Journal of Entrepreneurial Behavior and Research</i>	Empirical	Italy and Romania	QCA methodology
2	Carayannis & Zedtwitz (2005)	Architecting gloCal (global-local), real-virtual incubator networks (G-RVINS) as catalysts and accelerators of entrepreneurship in transitioning and developing economies: lessons learned and best practices from current development and business incubation practices.	<i>Technovation</i>	Empirical	Central and Eastern Europe	N/A
3	Dvoulety et al. (2018)	Are publicly funded Czech incubators effective? The comparison of performance of supported and non-supported firms	<i>European Journal of Innovation Management</i>	Empirical	Czech Republic	Counterfactual analysis
4	Simon & Miller (2022)	Business incubation as a community of practice: an emergent cultural web	<i>Entrepreneurship and Regional Development</i>	Empirical	Ireland	Interviews
5	Adham et al. (2018)	Diagnosing Business Incubation for Social Purpose: A Viable System Model Approach	<i>Systemic Practice and Research</i>	Conceptual	Malayasia	N/A
6	Tritoasmoro et al. (2022)	Determinant factors of lean start-up-based incubation metrics on post-incubation start-up viability: case-based study	<i>Journal of Science and Technology Policy Management</i>	Empirical	Indonesia	Mixed method: Multiple linear regression and interviews
7	Gorackzowska (2020)	Enterprise innovation in technology incubators and university business	<i>OECONOMIA COPERNICANA</i>	Empirical	Poland	Oslo methodology (modeling)

		incubators in the context of Polish industry				
8	Patton (2013)	Realising potential: The impact of business incubation on the absorptive capacity of new technology-based firms	<i>International Small Business Journal: Researching Entrepreneurship</i>	Empirical	United Kingdom	Case study
9	Grimaldi & Grandi (2005)	Business incubators and new venture creation: an assessment of incubating models	<i>Technovation</i>	Empirical	Italy	Case study
10	Xiao & North (2018)	The role of Technological Business Incubators in supporting business innovation in China: a case of regional adaptability?	<i>Entrepreneurship and Regional Development</i>	Empirical	China	Mixed method
11	Nicholls-Nixon et al. (2021)	Entrepreneurial ecosystems and the lifecycle of university business incubators: An integrative case study	<i>International entrepreneurship and management journal</i>	Empirical	Canada	Case study
12	Ikebuaku & Dinbabo (2018)	Beyond entrepreneurship education: business incubation and entrepreneurial capabilities	<i>Journal of entrepreneurship in emerging economies</i>	Empirical	Nigeria	Mixed method
13	Ahmed et al. (2020)	An Opportunity Structure for Entrepreneurship Growth: The Mediating and Moderating Role of Business Incubators and Government Regulations	<i>Pacific Business Review International</i>	Empirical	Pakistan	Method of nonprobability sampling
14	Redondo & Camarero (2017)	Dominant logics and the manager's role in university business incubators	<i>Journal of Business & Industrial Marketing</i>	Empirical	Spain and Netherlands	Quantitative method

15	Gretzinger et al. (2021)	Understanding incubation during foreign market entry: lessons learnt from an illustrative Danish case study.	<i>Journal of Business & Industrial Marketing</i>	Conceptual	Brazil, Russia India and China	Case study
16	Harima et al. (2019)	Functional domains of business incubators for refugee entrepreneurs	<i>Journal of Enterprising Communities: People and Places in the Global Economy</i>	Empirical	Germany	Case study
17	Kiran & Bose (2020)	Stimulating business incubation performance: role of networking, university linkage and facilities	<i>Technology Analysis & Strategic Management</i>	Empirical	N/A	PLS-Sem model
18	Gstraunthaler (2010)	The business of business incubators an institutional analysis - evidence from Lithuania	<i>Baltic Journal of Management</i>	Empirical	Lithuania	In-depth interviews
19	Schwartz & Hornyh (2010)	Cooperation patterns of incubator firms and the impact of incubator specialization: Empirical evidence from Germany	<i>Technovation</i>	Empirical	Germany	Regression analysis
20	David-West et al. (2018)	Platforms in Sub-Saharan Africa: startup models and the role of business incubation	<i>Journal of Intellectual Capital</i>	Empirical	Sub-Saharan African (SSA)	Correlation analysis
21	Bacalan et al. (2019)	The Incubatees' Perspective on Identifying Priority Enabling Factors for Technology Business Incubators	<i>Engineering Management Journal</i>	Empirical	Philippines	TOPSIS model (Quantitative study)
22	Qi et al. (2023)	Promotion or inhibition of different incubation services? Evidence from government funding of China	<i>Asia Pacific Journal of Innovation and Entrepreneurship</i>	Empirical	China	The generalised score matching method

23	Shekhar (2023)	Role and contributions of an incubator in academic intrapreneurship-An examination	<i>Technovation</i>	Empirical	India	Interviews
24	Somsuk & Laosirihongthong (2014)	A fuzzy AHP to prioritize enabling factors for strategic management of university business incubators: Resource-based view.	<i>Technological Forecasting & Social Change</i>	Empirical	Thailand	Mixed methodology
25	Lin et al. (2014)	Improving business incubator service performance in China: the role of networking resources and capabilities	<i>Service Industries Journal</i>	Empirical	China	Mixed methodology
26	Öberg et al. (2020)	Inside the incubator - business relationship creations among incubated firms	<i>Journal of Business & Industrial Marketing</i>	Empirical	Sweden	Interviews
27	Tang et al. (2019)	Exploring technology business incubators and their business incubation models: case studies from China	<i>Journal of Technology Transfer</i>	Empirical	China	Case study
28	Dutt et al. (2015)	How open intermediaries address institutional failures: The case of business incubators in emerging - market countries	<i>Academy of Management Journal</i>	Empirical	N/A	Quantitative method
29	Nicholls-Nixon et al. (2022)	How incubation creates value for early-stage entrepreneurs: the People-Place nexus	<i>Entrepreneurship and Regional Development</i>	Empirical	Canada	Interviews
30	Secundo et al. (2023)	University business idea incubation and stakeholders' engagement: closing the gap between theory and practice.	<i>European Journal of Innovation Management</i>	Conceptual	Italy	Case study

31	Lasrado et al. (2016)	Do graduated university incubator firms benefit from their relationship with university incubators?	<i>Journal of Technology Transfer</i>	Empirical	USA	Latent Growth Analysis (quantitative method)
32	Fernández et al. (2015)	Business incubation: innovative services in an entrepreneurship ecosystem	<i>Service Industries Journal</i>	Empirical	Spain	Mixed method
33	Al-edenat & Al Hawamdeh (2021)	Revisiting the entrepreneurial ventures through the adoption of business incubators by higher education institutions	<i>International Journal of Management Education</i>	Empirical	Jordan	Quantitative method
34	Sydow et al. (2022)	Entrepreneurial Workaround Practices in Severe Institutional Voids: Evidence From Kenya	<i>Entrepreneurship Theory and Practice</i>	Empirical	Kenya	Interviews
35	Liu (2020)	The micro-foundations of global business incubation: Stakeholder engagement and strategic entrepreneurial partnerships	<i>Technological Forecasting & Social Change</i>	Empirical	China and UK	Storytelling method (qualitative)
36	Monsson & Jorgensen (2016)	How do entrepreneurs' characteristics influence the benefits from the various elements of a business incubator?	<i>Journal of Small Business and Enterprise Development</i>	Empirical	Denmark	Mixed method
37	Cooper et al. (2012)	Motivations and obstacles to networking in a university business incubator	<i>Journal of Technology Transfer</i>	Empirical	N/A	Case study
38	Cheng et al. (2023)	Legitimacy-building role of incubators: a multiple case study of activities and impacts of business incubators in a developing Chinese city.	<i>Chinese Management Studies</i>	Empirical	China	Multiple Case Study

39	M'Chirgui et al. (2018)	University technology commercialization through new venture projects: an assessment of the French regional incubator program	<i>Journal of Technology Transfer</i>	Empirical	France	Case study
40	Soetanto & Jack (2011)	Business incubators and the networks of technology-based firms	<i>Journal of Technology Transfer</i>	Empirical	UK	Quantitative method
41	Nicholls-Nixon et al. (2022)	How university business incubation supports entrepreneurs in technology-based and creative industries: A comparative study	<i>Journal of Small Business Management</i>	Empirical	USA	Interviews
42	Etzkowitz et al. (2005)	Towards meta-innovation in Brazil: The evolution of the incubator and the emergence of a triple helix	<i>Research Policy</i>	Empirical	Brazil	Interviews
43	Chan et al. (2022)	Digitally-enabled university incubation processes	<i>Technovation</i>	Empirical	Canada	Multiple Case Study
44	Xiao & North (2017)	The graduation performance of technology business incubators in China's three tier cities: the role of incubator funding, technical support, and entrepreneurial mentoring	<i>Journal of Technology Transfer</i>	Empirical	China	Quantitative method
45	Baraldi & Havenvid (2016)	Identifying new dimensions of business incubation: A multi-level analysis of Karolinska Institute's incubation system	<i>Technovation</i>	Empirical	Sweden	Case study

46	Hong et al. (2019)	Incubator interdependence and incubation performance in China's transition economy: the moderating roles of incubator ownership and strategy	<i>Technology Analysis & Strategic Management</i>	Empirical	China	Quantitative method
47	Woolley & MacGregor (2022)	The Influence of Incubator and Accelerator Participation on Nanotechnology Venture Success	<i>Entrepreneurship Theory and Practice</i>	Empirical	USA	Quantitative method
48	van Weele et al. (2018)	Start-EU-up! Lessons from international incubation practices to address the challenges faced by Western European start-ups.	<i>Journal of Technology Transfer</i>	Empirical	Netherlands, Germany, USA, France, Switzerland	Interviews
49	Vanderstraeten et al. (2020)	Organizational sponsorship and service co-development: A contingency view on service co-development directiveness of business incubators	<i>Technovation</i>	Empirical	Belgium, Netherlands, UK, Ireland	Quantitative
50	Wulung et al (2018)	A model for selecting appropriate technology for incubator-university collaboration by considering the technology transfer mechanism.	<i>International Journal of Production Research</i>	Empirical	N/A	Numerical analysis
51	Freire et al. (2022)	Technology-based business incubators: the impacts on resources of startups in Brazil	<i>International Journal of Emerging Markets</i>	Empirical	Brazil	Mixed method
52	Patton et al. (2009)	Elements that underpin high-tech business incubation processes	<i>Journal of Technology Transfer</i>	Empirical	UK	Interviews

53	Fernandes et al. (2017)	Strategic assets in technology-based incubators in Brazil	<i>European Journal of Innovation Management</i>	Empirical	Brazil	Mixed method
54	Ratinho & Henriques (2010)	The role of science parks and business incubators in converging countries: Evidence from Portugal	<i>Technovation</i>	Empirical	Portugal	Multiple Case Study
55	Miranda & Borges (2019)	Technology-based business incubators an exploratory analysis of intra-organizational social networks	<i>Innovation & Management Review</i>	Empirical	Brazil	Multiple Case Study
56	Galvao et al. (2019)	The role of start-up incubators in cooperation networks from the perspective of resource dependence and interlocking directorates	<i>Management Decision</i>	Empirical	Portugal	Multiple Case Study
57	Loganathan & Subrahmanya (2022)	Business incubators as support mechanisms for the economic development: case of Maringa's technology incubator	<i>Technology Analysis & Strategic Management</i>	Empirical	India	Quantitative method
58	Surana et al. (2020)	Strengthening science, technology, and innovation-based incubators to help achieve Sustainable Development Goals: Lessons from India	<i>Technological Forecasting & Social Change</i>	Empirical	India	Process tracing
59	McAdam et al. (2016)	Situated regional university incubation: A multi-level stakeholder perspective	<i>Technovation</i>	Empirical	UK	Case study
60	Gao & Hu (2017)	The upgrade to hybrid incubators in China: a case study of Tuspark incubator	<i>Journal of Science and Technology Policy Management</i>	Empirical	China	Case study

61	Redondo & Camarero (2017)	Social Capital in University Business Incubators: dimensions, antecedents and outcomes	<i>International Entrepreneurship and Management journal</i>	Empirical	Spain and Netherlands	Quantitative method
62	Klofsten et al. (2020)	Incubator specialization and size: Divergent paths towards operational scale	<i>Technological Forecasting & Social Change</i>	Empirical	Sweden, Finland and Germany	Quantitative method
63	Rothschild & Darr (2005)	Technological incubators and the social construction of innovation networks: an Israeli case study	<i>Technovation</i>	Empirical	Israel	Interviews
64	Fukugawa (2018)	Is the impact of incubator's ability on incubation performance contingent on technologies and life cycle stages of startups? evidence from Japan?	<i>International entrepreneurship and Management journal</i>	Empirical	Japan	Regression analysis
65	Chan & Lau (2005)	Assessing technology incubator programs in the science park: the good, the bad and the ugly	<i>Technovation</i>	Empirical	China	Microeconomic analysis
66	Soetanto & Jack (2016)	The impact of university-based incubation support on the innovation strategy of academic spin-offs	<i>Technovation</i>	Empirical	UK	Quantitative method
67	Barbero et al. (2014)	Do different types of incubators produce different types of innovations?	<i>Journal of Technology Transfer</i>	Empirical	Spain	Non parametric method
68	Lindelöf & Hellberg (2023)	Incubation-An evolutionary process	<i>Technovation</i>	Theoretical	N/A	Bibliometric analysis
70	Wei et al. (2022)	Incubation model of the Maker Spaces in China: co-working or co-creating?	<i>Technology Analysis & Strategic Management</i>	Empirical	China	

71	Wu et al. (2023)	The impact of incubator network strategy on the entrepreneurial performance of start-ups: a resource bricolage perspective	<i>Innovation - Organisation & Management</i>	Empirical	China	Mixed method
72	Mrkajic (2017)	Business Incubation Models in Institutionally Void Environments: Evidence from Egypt	<i>Technovation</i>	Empirical	Egypt	Case study

APPENDIX 3: Publications by journals and type of research

Journal	Empirical	Conceptual	Total counts
<i>Technovation</i>	12	1	13
<i>Journal of Technology Transfer</i>	9	0	9
<i>Technological Forecasting & Social Change</i>	4	0	4
<i>Technology Analysis & Strategic Management</i>	4	0	4
<i>European Journal of Innovation Management</i>	2	1	3
<i>Entrepreneurship and Regional Development</i>	3	0	3
<i>International Entrepreneurship and Management Journal</i>	3	0	3
<i>Journal of Business & Industrial Marketing</i>	2	1	3
<i>Entrepreneurship Theory and Practice</i>	2	0	2
<i>Journal of Science and Technology Policy Management</i>	2	0	2
<i>Service Industries Journal</i>	2	0	2
<i>Academy of Management Journal</i>	1	0	1
<i>International Journal of Entrepreneurial Behavior and Research</i>	1	0	1
<i>Systemic Practice and Research</i>	1	0	1
<i>Oeconomia Copernicana</i>	1	0	1
<i>International Small Business Journal: Researching Entrepreneurship</i>	1	0	1

<i>Journal of Entrepreneurship in Emerging Economies</i>	1	0	1
<i>Pacific Business Review International</i>	1	0	1
<i>Journal of Enterprising Communities: People and Places in the Global Economy</i>	1	0	1
<i>Baltic Journal of Management</i>	1	0	1
<i>Journal of Intellectual Capital</i>	1	0	1
<i>Engineering Management Journal</i>	1	0	1
<i>Asia Pacific Journal of Innovation and Entrepreneurship</i>	1	0	1
<i>International Journal of Management Education Studies</i>	1	0	1
<i>Journal of Small Business and Enterprise Development</i>	1	0	1
<i>Chinese Management Studies</i>	1	0	1
<i>Journal of Management Education Studies</i>	1	0	1
<i>Journal of Small Business Management</i>	1	0	1
<i>Research Policy</i>	1	0	1
<i>International Journal of Production Research</i>	1	0	1
<i>International Journal of Emerging Markets</i>	1	0	1
<i>Management Decision</i>	1	0	1
<i>Innovation & Management Review</i>	1	0	1
<i>Innovation - Organisation & Management</i>	1	0	1

APPENDIX 4: Functional impacts of the institutional framework for fostering entrepreneurship in Kazakhstan

Institutional frameworks for the support of entrepreneurial activity	Core organisational actors	Main activities	Functions facilitating entrepreneurial development						
			Safeguarding the legal rights and economic interests of	Provision of informational resources	Service support	Scholarly support	Legislation support	Financial support	Innovation, incubation and technology
1	2	3	4	5	6	7	8	9	10
State-level institutions for the promotion of entrepreneurship	QazTech Ventures JSC	Facilitating the development of technology-driven entrepreneurship, including youth-led initiatives, via mechanisms such as venture capital support, business incubation, and technological consultancy (Qaztech, 2024)			*		*	*	*
	Damu Entrepreneurship Development Fund JSC	Promoting the development of youth entrepreneurship through the coordinated provision of financial, informational, and advisory support services (Damu, 2024).		*	*	*	*	*	
	Kazakhstan Industry and Export Center JSC (KIEC)	Support for the implementation of industrialisation strategies, the development of an export-oriented industrial policy, and the promotion of the 'economy of simple things' through the enhancement of competitive industries aimed at meeting domestic consumer demand and substituting imports of essential food products (KIEC, 2024)		*		*	*		

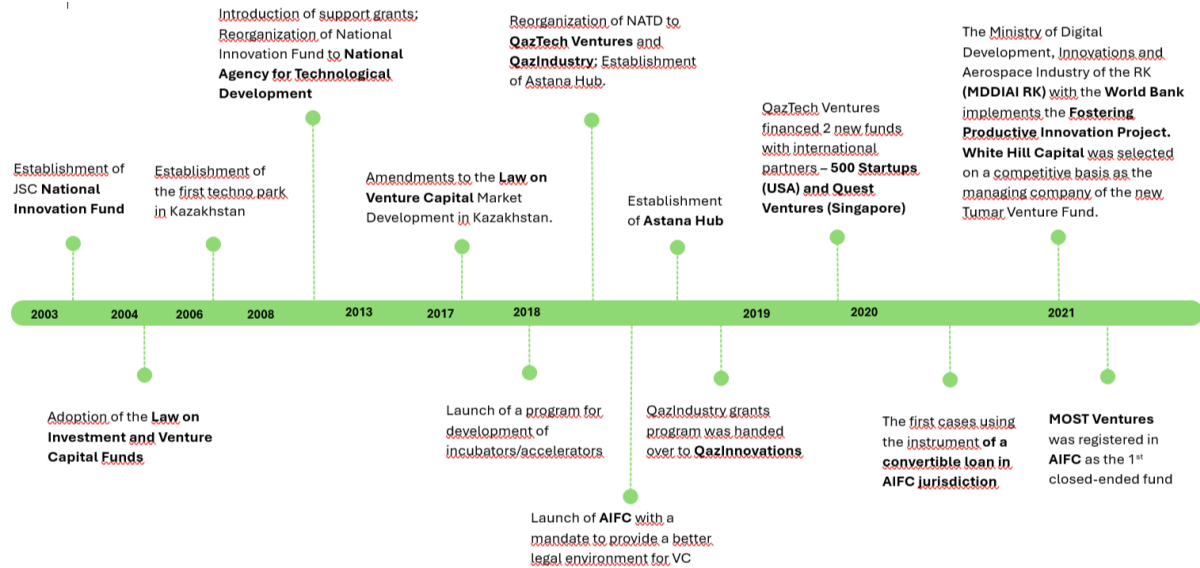
Third-sector organisations and business membership associations	The National Chamber of Entrepreneurs of the Republic of Kazakhstan "Atameken"	Ensuring the protection of entrepreneurial rights and interests, alongside fostering inclusive involvement of the wider entrepreneurial community, with a particular emphasis on youth participation, in the development of legal and institutional frameworks for business operations (Atameken, 2024).	*	*	*	*			
	Association of Legal Entities "Kazakhstan's Young Entrepreneurs Association"	Supporting the efforts of both nascent and established young entrepreneurs by cultivating an enabling environment for the advancement of their initiatives and engaging in collaborative approaches to address the concerns of its members (Association, 2024).	*		*	*			
	Kazakhstan Association of Business Incubators	Promotes the establishment of an ecosystem for innovation-centric technological entrepreneurship, the creation of a cohesive development plan, methodological frameworks, quality enhancement techniques, and the execution of transformative innovation initiatives. It also emphasises acquiring financing and implementing innovative integration models between higher education institutions and international venture capital funds (AUBIAK, 2024)		*	*				*

	Enactus Kazakhstan	An international non-profit organisation that brings together committed students, business practitioners, and academic leaders to implement entrepreneurial initiatives aimed at improving the quality of life for disadvantaged populations (Enactus, 2024).		*	*				
Innovation-driven industrial agglomeration	Innovation Cluster Tech Garden	The cluster executes acceleration and incubation initiatives, utilizing grant support, seed investments, and co-investment mechanisms. The cluster offers strategic consulting, recruitment for startup personnel, networking and investor acquisition, and public relations promotion for startups (Tech Garden, 2024)			*	*	*	*	*
	Innovation Cluster of Nazarbayev University	The Innovation Cluster of Nazarbayev University, located at the Astana Business Campus (ABC), comprises ABC Incubation, ABC Quick Start, and DC. Lab designer coworking, Fab Lab coworking, machine shop, technopark coworking, and the "Business Angels" club (NURIS, 2024).			*	*	*	*	*

Technology Parks	International IT Startup Technopark Astana Hub	<p>Astana Hub implements two programs for the development of IT startups for its residents: incubation and acceleration. The acceleration program is aimed at accelerating selected startup development.</p> <p>Incubation program provides young IT entrepreneurs with a coworking platform, assistance in finding investments, media promotion, access to expert knowledge and advice followed by acceleration in the Astana Hub Technopark.</p>			*	*	*	*	*
Business incubators	NURIS Business Incubator	The purpose of the business incubation program is to support new ideas, technological developments, and innovative business projects at an early stage.			*	*	*	*	*
	MOST Business Incubator	Assistance for startup enterprises at every step of development via business training, coaching, and mentoring; supply of facilities (MOST, 2024)			*	*	*	*	

	NFactorial Incubator	<p>This is an intensive 7-week training program</p> <p>for high end mobile developers run by Zero</p> <p>To One Labs, one of the leading mobile developers</p>			*	*	*	*	*
	SODBI Business Incubator	<p>Main purpose is to support startups and young entrepreneurs through creation and leasing of space at affordable prices, to facilitate their access to financial, material and intellectual resources on preferential terms, to help develop startups through training and consultations.</p>			*	*	*		

APPENDIX 5: The evolution of support institutions



Source: (AIFC, 2024)

APPENDIX 6: Observation checklist

Facilities	Yes	No	Comments
1. Workspace area			
2. Event venue			
3. Reception counter			
4. Display area			
5. Meeting room			
6. Mailbox and copy machine			

APPENDIX 7: Interview questions to incubator managers/staff/experts

1. Foundation of the incubator

1. When was the incubator established, and what were the underlying motivations for its creation? What core mission or strategic objectives guided its foundation, and which actors or institutions were responsible for its establishment or sponsorship? What were the key barriers and opportunities at the foundation?
2. What primary challenges and enabling conditions characterised the incubator's early development phase? Which contextual factors shaped its initial trajectory?
3. To what extent were best practices identified and applied in the design and organisation of the incubator? Were these practices derived from international models or domestic experiences? What contextual or institutional specificities within Kazakhstan distinguish its approach from global counterparts?

2. Management of the incubator

1. Is the incubator affiliated to an institution? Which one(s)? What kind of influence do the affiliates have?
2. Who are the most important sponsors of the incubators? Influence of the sponsors?
3. Is there an advisory board? Who are members? How often do you meet?
4. What is the employee structure of the incubator? What are employees' core competencies?

3. Objectives of the incubator

1. What are the core objectives of the incubator? Are they clearly defined? Are they changing over time?
2. Who / What is influencing their definition?
3. What type of entrepreneurship does the incubator intend to support (high-growth, lifestyle, government, social, etc.)? Why these?

4. Business model of the incubator

1. Is the incubator non-profit or for-profit? Why?
2. Does the incubator have a sectoral focus? Why that (or why not)? Is scope expansion in future plans?
3. Which better defines what the incubator does: acceleration or incubation? Why?
4. How does the incubator draw revenues? Does it take an equity stake? Fees?
5. Long term strategy of the incubator: revenues, objectives, others?

5. External stakeholders of the incubator

1. Does the incubator have formal partnership with some institutions?
2. Universities? Government? Investors? Private businesses? NGOs? Please describe.

3. What is the most important one? Do you have any relations to the (local, regional, national) government?
4. How (pro)active is the incubator with respect to these external stakeholders? Frequency of interaction?
5. Does the incubator belong to an incubator network or union? If so, how does it contribute to it, and what kind of benefits does it draw from it?
6. Does the incubator have any international partnerships?

6. Selection of the incubatees

1. At what stage of development of entrepreneurial ventures does the incubator accept?
2. Does the incubator have an admission cycle? If so, how often? If not, does the incubator take the incubatees on a rolling basis?
3. Main channels of recruiting? Does the incubator organise start-up competitions?
4. How does the selection / evaluation process go? Who is making the selection?
5. What is the selection criteria in terms of entrepreneurs: age, education, personal skills, others?
6. What is the selection criteria in terms of businesses: growth potential, technical feasibility, innovativeness, social value, others?

7. Services offered by the incubator

1. How were the services determined? Do they change over time?
2. What are the most important services the incubator provides? Why?
3. Finance: Does the incubator provide funding or connection to investors? Does the incubator organize a demo-day & pitch to external investors?
4. Mentors: Who are the mentors? What is their role? What are their competences? How are they motivated/compensated? How does the incubator attract them? How often do they interact with the incubatees?
5. Training: What kind of training is provided (if any)? Please explain why.
6. Networking: Does the incubator provide links to knowledge providers (e.g. universities)? Investors (e.g. venture capitalists, business angels)? Partners (e.g. strategic partners, suppliers, customers)? Does the incubator organise events?
7. Does the incubator help incubatees integrate in the (local / global) value chain?

8. Graduation of incubatees

1. How do incubatees graduate?
2. How many graduates so far?
3. How many incubatees failed to graduate? Why?
4. Does the incubator keep track of the progress of graduated incubatees? How many are still on the market / operational? How many have successfully exited (e.g. M&A, IPO)?
5. Does the incubator have an active after-graduation relationship with the incubatees? Is there an alumni network?

9. Domestic entrepreneurship ecosystem

1. What are the most prominent features of the domestic entrepreneurship ecosystem for the incubator?
2. How have these conditions influenced the incubation model?
3. How have these conditions influenced the objectives of the incubator?
4. Are incubator services designed to help entrepreneurship cope with the environment?
5. Where do incubators have the most significant role in the domestic entrepreneurship ecosystem?

APPENDIX 8: Interview questions to incubatees

1. Describe your involvement in the incubation programme of the incubator.
2. Share your experience with the incubator management team.
3. What was the initial period like in the business incubator?
4. Did you engage with other entrepreneurs?
5. How do you perceive the business ecosystem environment?
6. Do you find government policies favourable for your company's development?
7. What are your views on the incubator program?
8. Was there a learning experience from the incubation programme to graduation?
9. How do you find the process post-incubation?
10. Can you discuss the networking opportunities available during the incubation process?
11. Do you believe the incubator management team has facilitated your company's growth?
12. How would you rate the incubator facilities, such as monitoring and assistance?
13. How was the project funding arranged?

APPENDIX 9: Interview questions to incubation policymakers and government officials

1. Is it necessary for the government to have a business incubation policy?
2. How should success be measured? What are the criteria for a successful business incubation process?
3. Who are the key stakeholders of business incubators?
4. How can business incubators be financed? Who are the potential fund donors?
5. What criteria should be used to select the most suitable incubator manager?
6. What specific benefits can incubators offer to entrepreneurs and small companies?
7. Do you believe that SMEs or entrepreneurs who have participated in an incubator program are more likely to succeed in the long term?
8. Are incubator services designed to help entrepreneurs cope with their environment?
9. Can business incubators be considered as intermediary institutions between government and entrepreneurs?
10. What are the most prominent features of the domestic entrepreneurship ecosystem for the incubator?
11. What are the conditions for business incubators in Kazakhstan?
12. What are the barriers to business incubation in Kazakhstan?

APPENDIX 10: MOST incubatees' detail of interview

<i>Incubatees</i>	Industry	Nature	Team size	Age of Incubated Firms
<i>Incubatee 1</i>	Recycling	Sales	3	3 years
<i>Incubatee 2</i>	Textile	Sales	6	4 years
<i>Incubatee 3</i>	Education	Web service	4	5 years
<i>Incubatee 4</i>	Software	Sales	5	4 years
<i>Incubatee 5</i>	Software	Sales	4	3 years
<i>Incubatee 6</i>	General	Consultancy	7	4 years
<i>Incubatee 7</i>	Software	Sales	3	4 years
<i>Incubatee 8</i>	Knowledge	Consultancy	4	5 years
<i>Incubatee 9</i>	Food	Sales	5	4 years
<i>Incubatee 10</i>	General	Sales	6	4 years
<i>Incubatee 11</i>	Software	Web service	3	3 years
<i>Incubatee 12</i>	Travel	Consultancy	5	3 years
<i>Incubatee 13</i>	Agriculture	Web service	5	3 years
<i>Incubatee 14</i>	Medtech	Sales	4	5 years
<i>Incubatee 15</i>	Artificial intelligence	Web service	4	4 years
<i>Incubatee 16</i>	Internet technologies	Sales	7	5 years
<i>Incubatee 17</i>	Internet technologies	Web service	8	5 years
<i>Incubatee 18</i>	Cybersecurity	Web service	5	4 years
<i>Incubatee 19</i>	Education	Consultancy	5	5 years
<i>Incubatee 20</i>	Medtech	Sales	4	5 years
<i>Incubatee 21</i>	Internet technologies	Consultancy	7	5 years
<i>Incubatee 22</i>	E-commerce	Sales	6	5 years

APPENDIX 11: MOST - Incubator Managers

<i>Incubator managers and experts - IM</i>	Official position of IM in MOST Inc.
<i>IM1</i>	Head of Business Incubation Department
<i>IM2</i>	Senior Manager
<i>IM3</i>	Mentor
<i>IM4</i>	Business Incubation Expert
<i>IM5</i>	Community Manager
<i>IM6</i>	CEO
<i>IM7</i>	Mentor
<i>IM8</i>	Mentor
<i>IM9</i>	Project Manager
<i>IM10</i>	Mentor

APPENDIX 12: NURIS incubatees' detail of interview

<i>Incubatee</i>	Industry	Nature	Team size	Age of Incubated firm
<i>Incubatee 23</i>	Education	Sales	4	3 years
<i>Incubatee 24</i>	Textile	Sales	5	3years
<i>Incubatee 25</i>	R&D	Web service	4	3 years
<i>Incubatee 26</i>	Software	Sales	5	4 years
<i>Incubatee 27</i>	Food	Sales	6	3 years
<i>Incubatee 28</i>	General	Consultancy	7	3 years
<i>Incubatee 29</i>	General	Sales	8	4 years
<i>Incubatee 30</i>	Education	Consultancy	4	3 years
<i>Incubatee 31</i>	Food	Sales	5	4 years
<i>Incubatee 32</i>	General	Sales	2	3 years

APPENDIX 13: NURIS - Incubator Managers

<i>Incubator managers and experts - IM</i>	An official position of IM in NURIS
<i>IM11</i>	Business Incubation Manager
<i>IM12</i>	Incubation Tracker
<i>IM13</i>	CEO
<i>IM14</i>	Senior Manager
<i>IM15</i>	Community Manager
<i>IM16</i>	Investor
<i>IM17</i>	Incubation Tracker
<i>IM18</i>	Mentor
<i>IM19</i>	Project Manager
<i>IM20</i>	Incubation Tracker

APPENDIX 14: Business Incubation Policy interview details

<i>Government officials and representatives</i>	Position
<i>Policy Maker 1</i>	Head of Department for Business Incubation and Acceleration, Ministry of of Digital Development, Innovations and Aerospace Industry
<i>Policy Maker 2</i>	Vice - President of National Agency for the Development of Innovation “Qazinnovations”
<i>Policy Maker 3</i>	Department Director of Business Incubation Support at Qaztechventures JSC
<i>Policy Maker 4</i>	Vice - President of Science Fund Kazakhstan
<i>Policy Maker 5</i>	Managing Director
<i>Policy Maker 6</i>	Vice - Minister at Ministry of of Digital Development, Innovations and Aerospace Industry
<i>Policy Maker 7</i>	Managing Director SeedStars
<i>Policy Maker 8</i>	Member of the National Council for Innovation and Commercialisation of Science
<i>Policy Maker 9</i>	Head of Department at National Agency for the Development of Innovation “Qazinnovations”
<i>Policy Maker 10</i>	Senior Manager at Department of Business Incubation and Acceleration Support
<i>Policy Maker 11</i>	Senior Manager at Department of Monitoring
<i>Policy Maker 12</i>	Vce -Director Astana HUB
<i>Policy Maker 13</i>	President “Association of Business Incubators Kazakhstan”
<i>Policy Maker 14</i>	Head of Department Ministry of of Digital Development, Innovations and Aerospace Industry

APPENDIX 15: Project Consent Form

Please use the tick box after each statement to confirm it has been read and agreed to.

1. I have read and had explained to me by Daniyar Medetov the accompanying Information Sheet relating to the project on: *Business Incubators as Institutional Intermediaries in Emerging Economies. The case study of Kazakhstan.*
☐
2. I understand the purposes of the project and what will be required of me, and any questions I have had have been answered to my satisfaction. I agree to the arrangements described in the Information Sheet.
☐
3. I understand what information will be collected about me, what it will be used for, who it may be shared with, how it will be kept safe, and my rights in relation to my data.
☐
4. I understand that participation is entirely voluntary and that I have the right to withdraw from the project at any time, and that this will be without detriment.
☐

5 (a). I understand that the data collected from me in this study will be preserved and made available in anonymised form, so that they can be consulted and re-used by the research team. This includes potential publication in academic journals.

☐

6. I understand that this project has been reviewed and approved by the relevant Research Ethics Committee.
☐
7. I have received a copy of this Consent Form and of the accompanying Information Sheet to retain.
☐

Name:

Date of birth:

Signed:

Date:

I am happy to be included on a register of research participants for the purposes of being contacted about further studies by Daniyar Medetov.

Please tick ☐ (optional)

APPENDIX 16: Information sheet

Research Title: Business Incubators as Institutional Intermediaries in Emerging Economies: A Case Study of Kazakhstan

Overview of the Study:

This study is part of a PhD research initiative undertaken at Henley Business School, United Kingdom. The research examines the role of business incubators in Kazakhstan as institutional intermediaries, exploring how these entities can be adapted to enhance their effectiveness in fostering entrepreneurship and innovation. The study aims to contribute to a deeper understanding of how business incubators operate within and influence the entrepreneurial ecosystem of an emerging economy like Kazakhstan.

Research Objectives:

1. Analyse the Characteristics, Performance, and Impact of Business Incubators in Kazakhstan
2. Identify Institutional Barriers and Challenges Faced by Business Incubators in Kazakhstan
3. Propose a Tailored Guide for Business Incubators in Emerging Economies

Purpose of the Study:

Kazakhstan's innovation ecosystem has shown significant growth, yet there remains limited understanding of the role of business incubators within this ecosystem. This research seeks to address this gap by exploring how business incubators act as intermediaries between formal institutions, such as government policies, and informal entrepreneurial norms and values. It further investigates how incubators bridge gaps in resources like funding, knowledge, and networks to foster entrepreneurial success.

What Participation Involves:

1. **Interview Duration:** Approximately 40–60 minutes.
2. **Interview Language:** Russian or English (based on your preference).
3. **Interview Platform:** Microsoft Teams or another mutually agreed platform.

During the interview, you will be asked questions about your experience and perspectives on business incubators in Kazakhstan, including their challenges, strengths, and role within the entrepreneurial ecosystem.

Confidentiality and Ethical Considerations:

1. Your participation is entirely voluntary, and you have the right to withdraw at any time without providing a reason.
2. All information collected during the interview will be kept confidential and used solely for the purposes of this research.
3. The data will be anonymized and securely stored, ensuring it cannot be traced back to you.
4. The study has been reviewed and approved by the Research Ethics Committee at Henley Business School.

Benefits of Participation:

By participating in this study, you contribute to important research aimed at enhancing the effectiveness of business incubators in Kazakhstan and other emerging economies. The findings will

provide actionable insights for policymakers, incubator managers, and other stakeholders to strengthen the entrepreneurial ecosystem.

Contact Information:

If you have any questions, comments, or concerns about this research, please feel free to contact:

1. **Researcher:** Daniyar Medetov
2. **Email:** d.medetov@pgr.reading.ac.uk

Thank you for your time and consideration in participating in this study. Your input is highly valued and greatly appreciated.

APPENDIX 17: NURIS Inc., incubatee application form

1.	Details of an applicant
2.	Details of the business (such as name and legal structure)
3.	A brief description of the nature of the business
4.	Relevant qualifications/training
5.	Experience relevant to the project
6.	Who are your customers?
7.	How will you sell your product/service?
8.	Who are your main competitors?
9.	Why will customers choose to buy your product or service?

APPENDIX 18: Example of Application form NURIS

General Information

Personal Details	
Email	
Country and city of residence	
Date of Birth	
Telephone number	
Education (recent)	
Please describe your appropriate job experience, skills, or others	
What are the competences for venture creation and execution?	
Are you applying as a team or an individual?	*Individual *Team
If you are applying as a team, please describe your team members	
Have you taken part in other incubation programmes/accelerations? If yes, please indicate when?	
Occupation	<input type="checkbox"/> Nazarbayev University employee <input type="checkbox"/> Student/ graduate Nazarbayev University <input type="checkbox"/> Student of other university/ college <input type="checkbox"/> Employee <input type="checkbox"/> Entrepreneur <input type="checkbox"/> Freelancer
How did you know about us?	<input type="checkbox"/> Facebook <input type="checkbox"/> Instagram <input type="checkbox"/> Telegram/ Whatsapp groups <input type="checkbox"/> E-mails from NURIS <input type="checkbox"/> E-mail from other organisations <input type="checkbox"/> Friends <input type="checkbox"/> Google, Yandex <input type="checkbox"/> Others

Project description/background

Project/business idea title	
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Please indicate an industry focus of your start-up	<input type="checkbox"/> IT/IoT <input type="checkbox"/> E-commerce <input type="checkbox"/> IT-services for B2C <input type="checkbox"/> Agrotech <input type="checkbox"/> Medicine <input type="checkbox"/> Construction <input type="checkbox"/> Chemistry <input type="checkbox"/> Other
Problem statement	
Who are your potential clients? How do they solve existing problems? Please describe why existing solutions cannot solve a problem?	
Solution. How your product/service solve the problem? What are the benefits you're your prospective clients? Please describe a key technology.	
Competition	
Who are your major competitors? What are your competitive advantages?	
Please describe your team. Do you need to expand the team? What are the competencies that you and your team need?	
Revenue stream - model	
Stage	<input type="checkbox"/> Idea stage <input type="checkbox"/> MVP <input type="checkbox"/> Needs expertise <input type="checkbox"/> Strong MVP <input type="checkbox"/> Initial Sales
Please attach the video link	
What are your expectations?	<input type="checkbox"/> To get business education <input type="checkbox"/> To create MVP and start to sell <input type="checkbox"/> To test MVP <input type="checkbox"/> To enhance professionalism <input type="checkbox"/> International expansion <input type="checkbox"/> Funding <input type="checkbox"/> Sales <input type="checkbox"/> Marketing <input type="checkbox"/> to get access to experts
Consent form:	

APPENDIX 19: MOST Inc. application form

1.	Details of an applicant
2.	Details of the business (such as name and legal structure)
3.	A brief description of the nature of the business
4.	Relevant qualifications/training
5.	Experience relevant to the project
6.	Who are your customers?
7.	How will you sell your product/service?
8.	Who are your main competitors?
9.	Why will customers choose to buy your product or service?