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EXAMINING THE FACTORS AFFECTING THE SUCCESS OF THE BIOTECHNOLOGY FIRMS IN THE KINGDOM OF SAUDI ARABIA

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SBS-WP-2025-2

Date

ISSN (Print): xxxx-xxxx
ISSN: (Online): xxxx-xxxx

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EXAMINING THE FACTORS AFFECTING THE SUCCESS OF THE BIOTECHNOLOGY FIRMS IN THE KINGDOM OF SAUDI ARABIA

By

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Abstract

Considering the advancement of science and technology on a global scale, biotechnology is one of those rapidly expanding businesses. The main objectives of the current study are to examine the role of technological, financial, entrepreneurial competency-related, human resource, government, socio-cultural, and market-related factors in the success of biotechnology firms in the Kingdom of Saudi Arabia (KSA). Biotechnology plays a crucial role in economic growth, with firms having the potential to drive innovation, job creation, and business development. However, research on biotech firm development in less developed countries remains limited despite sustainability being a key factor in competitive advantage and value creation. Studies indicate that sustainability is not yet widely integrated into most businesses. The researcher provides the conceptual framework for the studied variables and recommends testing that diagram using quantitative methods. The findings of the research will be important for managers, as well as government and other institutions.

Keywords: Biotechnology, Biotech Firms, Saudi Arabia

Introduction

Due to prolonged commercialization periods and complex regulation systems, biotechnology stands out as one of the most complex and risky sectors for entrepreneurship. This is because extensive research, development, and time are needed to succeed in this industry

(Papadopoulou et al., 2022). While developed countries consider biotechnology an economic growth pillar, emerging economies like Saudi Arabia divert funds toward their biotechnology sector to foster innovation and knowledge-based economies (Banjer et al., 2021; Ferasso & Grenier, 2021). With all the investment in biotechnology, predicting the success of biotech firms remains challenging due to fragmentation and prolonged investment return periods, especially for innovative and economically dynamic start-ups (Tawfik et al., 2022 Lin Lekhawipat, 2023). In order to overcome these challenges, these firms must rely on funding, networking, collaboration, and various other types of innovation (Shkolnykova Kudic, 2022; Bhatt et al., 2023). To ensure success whilst remaining competitive within the industry, fresh research is urgently needed that outlines globalization, technological improvements, and increased R&D outsourcing, all of which shape the industry's competitive landscape (Marrus Blaho, 2023). Because there is a lack of prior studies regarding the performance of the biotechnology sector in Saudi Arabia, this study aims to focus on guiding policymakers and investors by outlining success factors (Tawfik et al., 2022).

The biotechnology sector is booming worldwide, and KSA is poised to become a major biotech center over the next ten years. However, national and regional systematic studies and strategic funding are needed to ensure successful biotechnology business development (Banjer et al., 2021). Understanding the economic value of biotechnology, KSA seeks to decrease its reliance on oil exports while promoting a knowledge-intensive economy as part of its Vision 2030 economic diversification policy (Adetoyinbo et al., 2020). The sector’s challenges continue to grow despite considerable funding, including a lack of skilled workforce, weak institutional frameworks, poor entrepreneurial education, and limited funding opportunities (Alsolamy, 2023).

Integrating capital, legislation, innovation, and human resources is essential to biotechnology's success (Shkolnykova & Kudic, 2022; Wei et al., 2022). While there is a solid basis established already by institutions such as The King Abdullah University of Science and Technology and some initiatives like the Saudi Human Genome Program, it is necessary to have a more focused strategy for accelerating sector growth (Martersteck, 2022). Saudi Arabia stands to gain much in the biotechnology sector by streamlining its regulatory policies, fostering research relations, and promoting entrepreneurship on a country level.

The research analyzes the factors instrumental in the success and growth of biotechnology businesses in KSA, emphasizing market characteristics, government interventions, competencies, human capital, financial resources, and socio-cultural.

Understanding these factors can be essential in making any policy or strategy aimed at the long-term growth and international competitiveness of Saudi Arabia's biotechnology industry sustainable.

Literature Review

Since the 1970s, the definition and scope of biotechnology have transformed, leading to some forms of ambiguity and inconsistency. As many researchers (Bauer, 2005; Miller & Young, 1987; Oliver, 2001; Smith, 2009) have tried to define it, biotechnology appears to be a moving target concerning constant technological changes (Kennedy, 1991). Over time, biotechnology's rampant and often inaccurate use has diminished its scientific precision and accuracy (Kennedy, 1991).

The OECD list-based attempt at definition (OECD, 2005; Friedrichs & van Beuzekom, 2018) attempts to make it more stringent by instead simplistically characterizing biotechnology as the application of science and/or technology on any living or inert matter to obtain helpful knowledge, products or services. Nonetheless, that definition fails to distinguish between conventional, modern, and emerging biotechnologies, exacerbating the analytical issue (Stockwell, 2017).

Compounding the ambiguity problem is the definition of a firm doing biotechnology, as there is no agreement on the fundamental issue of biotechnology itself or which set of technologies qualifies as biotechnology (Bhatt et al., 2023). There appears to be a consensus that biotech firms are independent entities that engage in biotechnology-focused R&D and product development (Oliver, 2001). Still, to classify a firm as truly biotechnology, one needs to understand the intricacies of its R&D activities and the processes involved (Ciao, 2020).

The purpose of biotechnology encompasses many categories, such as biofuels, medical drugs, agriculture, and industrial processes (Marrus & Blaho, 2023). Other experts argue that the concept of biotechnology meta-industry is best suited to describe the area (Pisano, 2006) since it is not limited to the boundaries of a single industry. Therefore, this attempt to define the domain using rigid borders seems to overlook the intricacies of the domain, and some argue that it is impractical to attempt to make a classification (Lin & Lekhawipat, 2023).

The biotechnology industry is often associated with high expenditure, uncertainty, risk, fierce competition, long delays in product delivery, and significant entry barriers in terms of knowledge (Kim et al.,2020). Such difficulties are especially true for small and young biotech companies that are highly undercapitalized and have high expenditures for R and D (Ferasso

& Grenier, 2021). It, for instance, takes an average of 12 years and costs millions of dollars for a new drug to reach the market (Dieken et al., 2021). Even with these funds, there is no assurance that the product will be successful (Bhatt et al., 2023).

As the industry depends on scientific innovations, staying competitive requires partnering with public and private educational institutions. A partnership is difficult to obtain because of the information gap and intellectual property concerns (Ahamat & Chong, 2014). Adopted patents of biotech products on the market can be financially beneficial in the long term and enhance human health (Adetoyinbo et al., 2022; Dieken et al., 2021).

A biotechnology company usually starts with scientific research for product development and later diversifies into manufacturing, marketing, and selling (Ferasso & Grenier, 2021). However, the long time taken to realize a return on investment (ROI) tends to dissuade investors (Kim et al., 2020). For Horvath et al. (2019), measuring the performance of biotech start-ups is extremely difficult because there is no yield on investment, and the company spends all its wealth on research in the early stages of business formation.

According to Martin et al. (2016), three important factors to success in high-tech industries are strategic positioning, managerial competencies, and competition in the targeted markets. Besides scientific research, other drivers of success include the firm's strategic partnerships, the CEO's dual competence in science and business, management, and the firm's business model (Melchner von Dydiowa et al., 2021).

Some scholars (Narayan & Hungund, 2021) have studied how biotech industry professionals judge a start-up company's success. A study of German biotech firms revealed that one of the most important key performance indicators was employment growth, accompanied by revenue expansion (Leschik et al., 2022). These insights are vital for evaluating the prospects of setting up biotech firms in the Kingdom of Saudi Arabia, and they will be discussed in greater detail concerning the sector's potential and challenges.

Biotech firms fail for many reasons, such as dismal science, undereducated management teams, lack of money, and changes in the marketplace. Even so, achieving success is not only contingent upon the founder's business or academic credentials but also on his or her practical logic and ability to address industry challenges (Adetoyinbo et al., 2022).

Biotechnology and life sciences have relations, but no accepted definition exists. The life sciences domain includes biotechnology, medical instruments and apparatus, pharmaceutical products, and businesses based on living organisms, for instance, agriculture, forestry, and fisheries (Banjer et al., 2021). Biotechnology constitutes an integral part of the

bioeconomy and refers to using biological, chemical, or physical methods to create bio-based products, biogenic energy, and services (Hofmann & Schüler, 2020). It transforms healthcare, manufacturing, agriculture, and other areas through technological advancements such as gene editing with the CRISPR-Cas9 system (Martin et al., 2016).

While the lack of economic data on its development is clearly a problem, the biotechnology sector is already showing remarkable economic potential (Papadopoulou et al., 2022). It is one of the strongest technologies of the 21st century. It aims to solve pressing issues like global warming, providing health care public services, and loss of biodiversity while stimulating innovative activity, job creation, and economic growth (Melchner von Dydiowa et al., 2021).

Biotechnology is a high-growth and research-intensive area that centers on developing innovations to enhance the quality of life and environmental sustainability (Hofmann & Schüler, 2020). Most of the firms in this industry are small entrepreneurial firms and SMEs, which encounter issues in innovation, research and development, and commercialization (Shkolnykova & Kudic, 2021). While early pioneers like the USA, UK, and Germany have well-established biotech ecosystems, latecomers such as South Korea, China, and India have gaps in infrastructure and lack purposeful policies, which doom the industry's competitiveness and survival (Ferasso & Grenier, 2021).

The FTA with the USA is futile without strengthening the weak industrial base of South Korea's biotech sector, as a biotech firm's existence relies on how capably it conducts business given the global economic uncertainty (Horvath et al., 2019). Today's uncertainty is more significant than experienced over the previous decade, making it difficult for SMEs to enhance their performance while being competitive (Elnadi & Gheith, 2021). Due to the considerable risk facing late emerging biotech sectors, these businesses are compelled to implement strategies focused on sustainable growth resulting from increased technological innovation (Banjer et al., 2021).

While the financial results of any company mark an important predictor in the endurance of the firm, achieving such endurance strategically stems from the intricate interrelationship between the structure of the firm, its processes, and its innovation activities (Nikraftar et al., 2021). In SMEs, innovation is not easily linked with performance because they have lower resources than bigger rivals (Martin et al., 2021). As the resource-based view notes, firm size matters greatly concerning performance because big firms already have better access to funds and technology (Sarwoko & Frisdiantara, 2016; Tawfik et al., 2022).

A matter of sustainable development is a very popular subject of research where financial specialists define it as an increase within the bounds of the economic capabilities of a given entity without crossing the threshold of debt overhang (Wang, 2016; Sarwoko & Frisdiantara, 2016; Yeboah, 2015). An effective strategy for sustainability encompasses the environmental, social, and financial aspects, although many SMEs do not possess sufficient resources to cover the three dimensions (Al-MSloum, 2021). The biotechnology sector must work in these three areas to achieve long-term growth and competitiveness in the shifting global landscape.

Success and Survival Factors by Biotech Firms

An analysis of internal and external components reveals that they impact structure and, in turn, success. Proprietorships are common in developing countries, especially for Biotech firms, but managerial conflicts and skill shortages often plague these (Banjer et al., 2021; Archer, 2016; Al-MSloum, 2021). Small to Medium Enterprises (SMEs) show erratic patterns in growth, with only 40-50% surviving beyond the seven-year mark due to insufficient funding and inadequate managerial capabilities (Aghmiuni et al., 2019; Smea, 2017). Development processes are influenced by internal components, including managerial and technical skills, alongside external ones, like financing and legal frameworks (Banjer et al., 2021). The lack of funding and absence of financial audit systems contribute to poor SME performance, perpetuating a cycle of unprofitability and inability to attract investment (Ayuso & Navarrete-Báez, 2017).

Individual Factors

Self-motivation is integral to overcoming challenges and cultivating the growth of SMEs (Bell, 2010; Agarwal et al., 2021). Other self-attributes include advanced resilience, readiness to learn, problem-solving capability, and communication skills. In context to Davidsson and Wiklund (2006), some of the most important features in the development of an SME are knowledge, networking, proactive attitude, and societal well-being.

Business Factors

The success of SMEs is directly proportional to their size, age, and management level (Sarwoko & Frisdiantara, 2016). The characteristics and attributes of the entrepreneur bear a more significant proportion of the revenue generated (Wang, 2016). A successful entrepreneur puts effort into devising strategies, market research, and product innovation, which requires detail,

imagination, and effective communication (Nikraftar et al., 2021). These internally owned SMEs experience difficulties due to a base level of expertise combined with rigid corporate form (Elnadi & Gheith, 2021). They are shared because they fail to formulate strategic plans over a long period (Al Rasheed, 2016). Also, market factors and other forms of competition, especially in developing areas, limit growth potential (Banjer et al., 2021).

Infrastructure Availability

SME performance is affected by Infrastructure facilities such as telecommunications, roads, and electric power. In many regions, there is a limited supply of capital and suitable locations, which increases business costs, leading SMEs to resort to personal finances and home-based businesses (Mathkur, 2019). Other problems are the position and lack of suitable infrastructure.

Management Skills

Effective management is essential for making appropriate decisions, conducting operations, and maintaining stability in SMEs (Ozdemir et al., 2014). Experienced entrepreneurs often have better growth opportunities (Spiegel, 2015). Insufficient strategic direction due to poor management skills can result in stagnation within firms and limited growth (Engidaw, 2021). Additionally, financial constraints, competition, and low levels of technological integration in remote regions also hinder the growth of SMEs (Alsolamy, 2023; Elhassan, 2019). Managerial skills are vital for sustaining and enhancing productivity and competitiveness (Kim et al., 2020; Horvath et al., 2019), while poor marketing and technological capabilities pose a threat to growth (Lin & Lekhawipat, 2023; Martersteck, 2022).

Characteristics of Owner

Education improves one’s intellectual capability alongside creativity and risk-taking; as such, younger and better-educated owners actively participate in driving the expansion and sustainability of the firm (Mullins, 2023). Business growth is supported by postgraduate education (Smith, 2022). Better-qualified business owners perform better than less-educated ones (Johnson & Wang, 2023). In addition, business owners must possess basic general business skills and specific industry skills to maximize the firm's effectiveness and success (Smith, 2022).

Business Features

As Papadopoulou et al. (2022) noted, newly established companies tend to show a greater rate of innovation than older and well-established businesses. However, it is well known that older firms have the advantage of credibility, connections, and experience (Banjer et al., 2021). In the public domain, firms that are seen as socially responsible and ethically considerate tend to receive more publicity and support (Ferasso & Grenier, 2021). According to Alsolamy (2023), how a firm was created, its structural design, and its business strategies determine its growth, development, and sustainability.

Resource Availability

The work environment is translated by market pressures, legal issues, level of technological know-how, and available finances and often determines the success of small and medium enterprises (Adetoyinbo et al., 2020). These constraints may differ from country to country and industry by industry, making it difficult to realize the full potential of small and medium enterprises (Marrus Blaho, 2023). Inadequate finances, poor marketing, bad management, and lack of infrastructure are major setbacks for small and medium enterprises, especially for biotech firms in emerging economies (Shkolnykova & Kudic, 2022).

Policies and Governance

High compliance costs and tight regulations pose problems to small and medium enterprises (Martersteck, 2022). Trade licensing is exceptionally costly for biotech firms (Jenkins, 2022). The survival and growth of SMEs are greatly hampered by government policies, tax compliance restrictions, and other regulatory burdens (Marrus & Blaho, 2023).

Marketing Techniques

SMEs must incorporate effective techniques for long-term growth to retain customers, efficiently market, and diversify products (Lin & Lekhawipat, 2023). SMEs can differentiate themselves through functional quality assurance and service delivery (Kim et al., 2020). Marketing must cater to the identified customer needs and be paired with a buildable service or product (Ferasso & Grenier, 2021).

Human Resources

Biotech SMEs have specific issues with human resources management (Dieken et al., 2021). Sustainability requires skilled and motivated employees (Bhatt et al., 2023). Most small firms

do not have adequate HR control systems and training schemes, which results in inefficiencies that threaten their survival (Ahamat & Chong, 2014).

Research and Development

Competitiveness stems from customer information and innovation (Horvath et al., 2019). Most SMEs in the region collaborate with universities and research institutions, which is beneficial for the R&D process (Kim et al., 2020). Such collaborations assist in tackling management issues and encourage innovation (Ahamat & Chong, 2014). R&D collaboration improves the innovation capabilities of biotech firms and makes them more competitive in the market (Melchner von Dydiowa et al., 2021).

Competencies concerning entrepreneurial practices

Strong passion and creativity are very important for entrepreneurship as they propel a person to exploit business opportunities and establish companies (Narayan & Hungund, 2021). A proficient business owner can locate a business opportunity, and their success is augmented through globalization and working experience (Leschik et al., 2022). Creativity fuels the need for passion and breeds entrepreneurship, a vital quality for success in any organization (Adetoyinbo et al., 2022).

Skills Associated with a Leader

This study seeks to address one issue around how leadership skills affect the growth and sustainability of SMEs, particularly in highly demanding contexts such as the biotech industry (Adetoyinbo et al., 2022).

Theoretical Underpinning

General Systems Theory

This study will utilize Mayer's General Systems Theory (GST), which posits that sustainability is a perpetually evolving phenomenon and not merely a derivative of existing conditions. GST views the system as the complexity of organized structures and the degree of coordination needed to achieve effectiveness, emphasizing stakeholder value, satisfying customer needs, and achieving satisfaction. It is congruent with General Complexity Theory (GCT) and regards organizations as living systems that need governance for efficiency (Mayer, 2013; Stošić, 2019). This theory highlights the importance of organizational integration to guarantee

effective functioning and good interaction among organizational constituents (Hofmann & Schüler, 2020).

Developed countries can now improve and establish new business contacts due to rising levels of information technology (Rauch, 2013). However, some specialists remain undecided about GST's definition (Thelen, 2009). According to Lee (2000), GST attempts to link sustainability and the complexity of systems, arguing that lessening an internal system's complexity aids in sustaining it. System theory provides the context for tackling the challenges posed by complex systems and offers suggestions on how their arrangements and activities may be enhanced (Adams et al., 2013).

Systems Theory

Systems Theory serves as a foundational principle for the analysis and behavior interpretation of open systems. This concept, put forth by Von Bertalanffy, relates to every portion of the area of Knowledge and offers an inclusive framework to explain system behavior, demonstrating versatility (Ingram & Roberts, 2000). The General Systems Theory (GST) and the Social Systems Theory (SST) examine complexity from two distinct perspectives. Von Bertalanffy's GST considers system complexity to be an analogy to the structure of systems. At the same time, SST argues for the unsustainability of many systems due to the negative impact of system complexity (Choi, Kim & Yang, 2018). Luhmann associates the issue of sustainability with the increased complexity of human civilization and assumes that increasing complexity may negatively impact ecological and social sustainability (Martin et al., 2016).

Systems Theory regards business organizations as a collection of diverse components integrated into a unified whole. The integration and interaction with the systems' environment are important determinants of the system's functionality (Khan, 2016; Szabó, 2006). Nonetheless, while systems theory helps analyze the productivity of small enterprises (SEs), it does not offer a perspective on developing sustainable business policies in small and medium enterprises (SMEs).

Resource-Based View (RBV)

RBV is a strategic management theory centered on a company's needs, aimed at allocating resources to achieve an organizational goal, competitive advantage, and progress (Barney,

1991). RBV connects the means of production to productivity and fosters strategy formulation in both micro and macro enterprises (Njoroge & Gathungu, 2013). It focuses on the management's responsibility in resource distribution and information use towards fostering growth and competitive advantage. The availability of resources significantly affects the firm's growth (Qureshi, 2016), while the lack of such resources results in stagnation. According to Barney (1991), the achievements of a firm are in some ways proportionate to the resources utilized.

RBV proposes that firms evaluate their resources regarding value, rarity, inimitability, and non-substitutability (VRIN) to maintain competition superiority (Jenssen & Koenig, 2002). Critics claim that RBV is too focused on VRIN resources to the detriment of considering resource immobility (Jenssen & Koenig, 2002). Batjargal (2007) emphasizes that distinctive and irreplaceable resources are fundamental for sustainable business success. Batjargal (2007) argues that such resources as skilled personnel, technology, capital, and informal networks are crucial for SMEs' efficiency and success in the aid market (Sullivan & Ford, 2014).

In their analysis, Davidsson and Wiklund (2006) state that resources are classified as human, organizational, technological, financial, and physical. When contrasting RBT (Resource Based Theory) and RBV, the former is a more sophisticated idea and thus has a greater breadth of coverage. These arguments emphasize the need to manage physical and non-physical resources (Cowling, 2003). Nonetheless, the attention of RBV neglects the consideration of creative direction and entrepreneurial activity as resources despite their immense impact on accomplishing objectives (Hertog, 2010).

Mayer (2013) elaborates on the list of resources to include intellectual and entrepreneurial capital and social capital, which are important for the organization's performance. Social capital is perceived as improving business effectiveness (Lin & Erickson, 2010). Some researchers argue that RBV is a helpful paradigm for developing strategies and analyzing a firm's internal capabilities (Sarwoko & Frisdiantara, 2016). It can also assist firms in responding to outside environmental changes that may impact their competitive position (Vik & McElwee, 2011). Ultimately, firm performance is a central focus of strategic management, as it involves efficiency, effectiveness, and equity in realizing market and financial objectives.

Conclusions

Biotechnology and Growth of SMEs in Saudi Arabia (KSA)

The economic impact of biotechnology is already evident, and Tawfik et al. (2022) assert that modern society can be described as a biotechnology society. These firms can potentially develop into large corporations capable of introducing innovative products to the markets, creating jobs, and stimulating business development (Wei et al., 2022). The literature on the development of firms in less developed countries is still sparse (Wei et al., 2022), and sustainability has emerged as a central theme in competitive advantage and value creation (Shkolnykova & Kudic, 2022). Several studies suggest that sustainability is not yet a feature of most businesses (Nikraftar et al., 2021).

A workable model for sustainability is necessary for guiding decisions within an organization, as most models tend to be conceptual and not practical (Martersteck, 2022). Several researchers have proposed that sustainability models be accompanied by practical approaches that make them easier to use (Nikraftar et al., 2021). Biotech SMEs are needed most because they provide employment and increase the economy's productivity (Papadopoulou et al., 2022). However, their effectiveness in achieving these goals depends on how well they manage resources (Foster & Maas, 2016).

Achieving sustainable development entails a blend of factors, including organizational structure, processes, work culture, and stakeholder relations (Simpson et al., 2004). Resource use, while efficient, does not always facilitate growth and can, at times, stifle it. Nonetheless, such resource use ensures favorable results for the business (Habib et al., 2021). There is scant research on the determinant factors for the success of biotech firms in KSA, which, however, underscores the necessity of a tangible model to aid in attaining sustainable growth in this industry (Tawfik et al., 2022).

One of the most prominent issues that face start-ups, notably in the biotech industry, is the attainment of seed financing due to the relative scarcity of funding sources. Conversely, there is evidence that the Saudi government is trying to assist SMEs, having invested 4 billion Saudi Riyals in 2019 and earmarking the 2020 government budget to aid in encouraging entrepreneurship. The KSA Vision 2030 plan identifies biotechnology as one of the principal fields to focus on for diversification, with the government actively encouraging the industry through initiatives such as the BioTech Startups Program (Banjer et al., 2021).

The biotech industry is important in KSA’s shift towards a sustainable economy because of the various investment prospects and initiatives to support biotech firms. The development of this industry is in line with the country’s strategic objectives, which include improved healthcare provision and economic diversification.

Biotechnology focuses on applying living systems and organisms in developing medicines, agriculture, and several food industries. In the context of KSA, biotechnology is nascent and used for research and commercial purposes. Within the Kingdom, there is a strong dependency on imported medical goods, including heparins, interferons, vaccines, and insulin. Nevertheless, major multinational corporations and research groups seem to be looking for new biotech products that will profoundly change specific industries. In support of these efforts, KSA intends to build a "Bio City" in Jedda and start biotechnology incubators through King Abdulaziz City for Science and Technology (KACST) (Elhassan, 2019).

Regarding biotechnology, the Saudi government plans to integrate efforts made by various entities, such as, but not limited to, the Ministry of Agriculture, KACST, KAU, and KFSHD King Khalid Hospital (Elhassan, 2019). Saudi Arabia is planning to facilitate the development of new biotech firms by creating biotechnological incubators. The construction of a biotechnology park along with King Abdullah University in Jeddah aims to support preclinical and clinical research, biogenetics, and pharmaceutical engineering, particularly insulin production (Elhassan, 2019).

The healthcare expenditure and economic healthcare development have increased with the rise in population and age-related chronic diseases in KSA. In 2018, healthcare statistics estimate that 20% of expenses were spent on pharmaceuticals. Due to the high drug production costs, there has been a shift from stable economies like the U.S. and Europe to more developing markets like Saudi Arabia (Elhassan, 2019). The country's annual growth rate (CAGR) is expected to grow to 6.7% by 2023. Local production of pharmaceuticals is also encouraged to reduce overall costs, so the government is expected to spend more on R&D for drug development (Elhassan, 2019).

Though helpful, issues such as cultural and staunch structural barriers remain that are inefficient for the industry. The lengthy and costly process of putting a new drug into the Saudi market is monitored under strict regulations. There is also a lack of an efficient translation system to turn R&D and other research activities into commercially viable pharmaceutical products.

Small and medium-sized enterprises (SMEs) are important to the economy, providing more employment opportunities than prominent companies. While SMEs have been studied in detail, no single theory explains why some of them do well while others, in similar circumstances, do not. While sustainable economic growth is a prerequisite for success in the long run, not much research has been done on the sustainability of SMEs. Several determinants

that affect SME growth are still unknown, especially in developing countries where the nature of competitive disadvantages and financing differs from that of the developed world. To foster economic development, it is important to understand biotech firms' sustainability determinants. Following the literature review, the researcher developed the following conceptual framework.

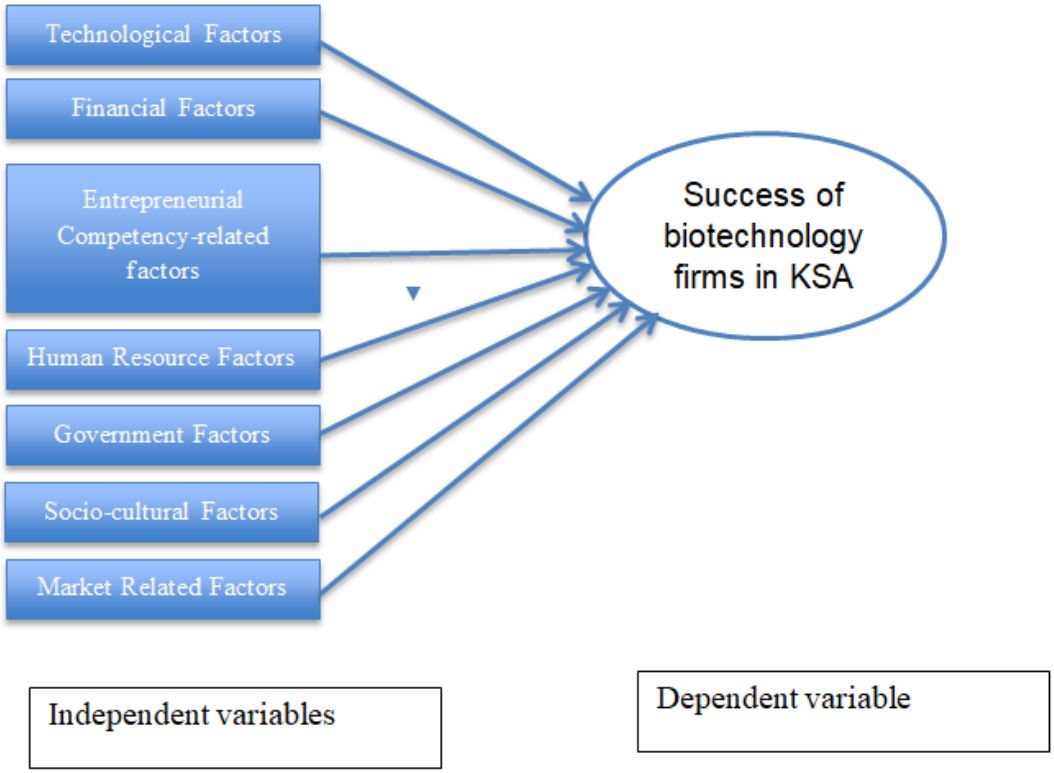

Figure 1: Conceptual Diagram

Source: Developed by Author (2023)

This study analyzes the significance and hurdles of sustaining growth in biotech firms. It analyzes contextual theories and factors and gives recommendations for future research. The analysis does not intensely discuss the theories but instead contributes towards business success strategies. Biotech firms in KSA need to implement innovative strategies that align with consumer demand and stakeholder expectations for sustainable growth in the long run.

Findings from this research add value to small business owners and event management experts in formulating strategies to achieve growth for biotech firms. Entrepreneurs struggle with maintaining their businesses, but this helps pinpoint gaps in knowledge and ways to utilize resources better. The growth of small biotech firms creates employment, lowers unemployment

rates, and increases general standards of living, which translates into broad economic and social benefits.

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