

## The Effect of Innovation on the Performance of Small and Medium-Sized Enterprises Evidence from Pakistan

Irfan Ahamd Khan<sup>1</sup>, Amir Hussain Shar<sup>2</sup>, Mumtaz Ali Junejo<sup>3</sup>

<sup>1</sup>PhD Scholar, Institute of Commerce and Management, Shah Abdul Latif University, Khairpur

<sup>2</sup>Professor, Institute of Commerce and Management, Shah Abdul Latif University, Khairpur

Crossponding Author Email: [irfanahmad1284@gmail.com](mailto:irfanahmad1284@gmail.com)

### Abstract

The purpose of this research is to analyze the innovative capacity of SMEs in Islamabad, Pakistan. A total of 6,930 small and medium-sized enterprises (SMEs) in Islamabad were selected for the study. These businesses were granted licenses by the Pakistan Ministry of Trade and Investment and the Islamabad Local Government, respectively. A random sample of 375 SMEs was taken from this larger pool. To determine innovation's effect, the study employed descriptive and regression analysis. Regression analysis in the study reveals that innovation significantly affects the performance of SMEs in Islamabad. The study found that organizational, marketing, and product innovation had statistically significant effects on these SMEs.

### Introduction

Innovation is now more important than ever for companies of all sizes to be competitive and develop in today's fast-paced business world. Particularly important to economic development, employment, and entrepreneurship in many nations, including Pakistan, are small and medium-sized enterprises (SMEs). However, owing to restricted resources, insufficient infrastructure, and fierce competition, SMEs frequently confront considerable obstacles when attempting to implement innovative techniques.

Little empirical study has examined how innovation affects the performance of small and medium-sized enterprises (SMEs) in Pakistan, despite the fact that innovation is becoming increasingly important for SMEs. By investigating the connection between innovation and the performance of small and medium-sized enterprises (SMEs) in Islamabad, Pakistan, this study hopes to fill this informational void. This research aims to provide light on the factors that influence the adoption of innovation and how it affects the performance of small and medium-sized enterprises (SMEs) in this region by studying their experiences.

Small and medium-sized businesses (SMEs) play a significant role in driving industrial and economic growth in most nations (Hanaysha et al., 2022). SMEs account for around 99.7 percent of all businesses globally. Hence, it is necessary to establish a policy tool that will facilitate their expansion. In order to maintain a competitive edge, accelerate growth, and run efficiently, SMEs must make good use of information and technology. Products made with state-of-the-art process technology, for example, tend to be of better quality and endure longer. Another way that new technology might cut costs is by reducing energy or material consumption or by using cheaper

alternatives to more expensive resources. Whether in a developed or developing country, small and medium-sized enterprises (SMEs) generate over half of a country's gross domestic product (GDP) and employ the vast majority of its citizens (Abbas et al., 2020).

When a company innovates, it introduces something new to the market or finds a new use for something old, all with the goal of increasing sales, profits, and market share. Organizational performance, sales, profitability, and market shares can be enhanced by the application of technological, institutional, human, and productive process discoveries to new practices, products, markets, and institutions. To increase their sales volume or other metrics, SMEs can innovate in several ways, such as by creating new goods, processes, or marketing techniques. It is believed that small and medium-sized firms (SMEs) are the key to a nation's economic growth and its ability to develop fairly because they embrace creative ideas. When it comes to a country's economic and social development, small and medium-sized firms are kings. Results will skyrocket for SMEs once they adopt an innovative mindset. According to Muangmee et al., (2021), the industry encourages entrepreneurship and is often propelled by innovation.

This can mean that these companies aren't doing very well as they aren't seeing a rise in revenue. People know what to expect from the quality of the many old and obsolete products that are currently available. Despite the fact that SMEs in Islamabad do not consistently and completely embrace innovation, this does not mean that innovation does not exist. These SMEs incorporate all of these advances, though to different degrees; thus, it is important to study how they affect performance.

There are many angles from which to view the effects of innovation, since it boosts the overall performance and competitiveness of the business (Ardito et al., 2021). One of them is evaluating the amount of sales made by the business. A bigger sales volume, which means more commercial activity and money, can be seen as a clear indication of a company's performance. Specifically, this research intends to look at Islamabad, Pakistan's SMEs and how innovation influences their success. Businesses' sales volume and performance are directly affected by innovations in product, process, marketing, and organizational aspects. The Horn of Africa's self-proclaimed republic of Pakistan, whose capital is Islamabad, declared independence from Somalia in 1991 but has since been officially recognized by no country.

The following is the outline of the article. Section 2 reviews the relevant literature, whereas Section 1 introduces the issue. Section three reveals the methodology, while Section four displays the study's conclusions. Section 5 concludes the study.

## **Literature Review**

### **Small and Medium Enterprises (SMEs)**

When it comes to economic development, small and medium-sized enterprises (SMEs) are crucial. They help spur growth, innovate, and create jobs. In fact, SMEs account for as much as 70% of employment and 40% of GDP in some countries. What's more, SMEs are frequently the first to market with new innovations because of how fast they can adapt to shifting consumer demands. Small and medium-sized enterprises (SMEs) confront numerous obstacles that can impede their development and growth. These include, but are not limited to, a lack of capital, poor infrastructure, and fierce competition. Regulatory hurdles, restricted access to technology, and difficulties competing with larger businesses also add insult to injury. Various policies and tactics can be employed by stakeholders and policymakers to assist SMEs in their growth and development. These include expanding access to financing, developing infrastructure, reforming regulations, adopting technology, training and capacity building, networking, and partnerships.

In order to help small and medium-sized enterprises (SMEs) connect with bigger companies, investors, and other stakeholders, governments can do things like invest in infrastructure development, simplify and streamline regulatory processes, offer training and capacity-building programs, and finance SMEs. By providing financial and other resources to small and medium-sized enterprises (SMEs), governments may boost the economy, alleviate poverty, raise living standards, and encourage innovation, entrepreneurship, and the creation of new jobs. This will lead to long-term economic growth and prosperity.

Different criteria may be used to classify small and medium-sized enterprises in different settings. So, small and medium-sized enterprises (SMEs) in Africa might not mean the same thing as they do in the US or Europe. The number of employees and total assets of the company are the main factors used to define it. So, we try to compare and contrast several definitions (De et al., 2020). Small and medium-sized enterprises (SMEs) are defined by the Nigerian National Council of Industries as enterprises with total expenditures of up to 200 million Nigerian Naira, or approximately 553,000 USD, excluding land (Adam & Alarifi, 2021). In Britain, a small firm is one that employs less than 200 people full-time and has an annual revenue of less than 2 million pounds, or approximately 2.6 million USD. Research by Bakare was conducted in 2014. The OECD provides a definition that is virtually identical but with a few minor nuanced differences. If you believe the research, "the most common upper limit designating a SME is 250 employees, as in the European Union," when it comes to payroll. Small and medium-sized enterprises (SMEs) in the US are defined as those with less than 500 employees, although in other countries the threshold is 200. Financial holdings are another way in which SMEs are characterized (Singh et al., 2022). According to the OECD (2005), medium-sized businesses (those with 50-249 employees) should have a turnover of no more than EUR 50 million (approximately 58.7 million USD), small businesses (with 10-49 employees) should have a turnover of EUR 10 million (approximately 11.7 million USD), and microbusinesses (with less than 10 employees) should have a turnover of EUR 2 million (approximately 2.3 million USD).

## **Innovation**

According to Merriam-Webster, "the introduction of something new" is the definition of innovation. In this case, it can refer to "a novel concept, technique, or apparatus." Innovation is a multi-faceted concept with numerous potential domains of application. Therefore, the concept of corporate innovation is highly relevant and important in this setting. The term "innovation" describes the process of taking a concept or new idea and turning it into a marketable good or service. When a company takes a customer's wants and needs into account and applies new ideas to satisfy them, that's innovation (businessdictionary.com). New wealth is created or current resources are improved and modified to provide new value through innovation (Gherghina et al., 2020).

Innovation is regarded as a key driver of economic growth, competitiveness, and job creation since it allows companies to differentiate themselves from others, react to changing market conditions, and seize new prospects by means of new ideas, products, and services that can help to alleviate society challenges including poverty, inequality, and climate change by means of which new solutions, goods, and services can help to mitigate these problems. Usually spanning multiple phases concept generation, idea selection, development, testing, and implementation the innovation process calls for a spectrum of talents, knowledge, and resources including creativity, technical expertise, market understanding, and financial resources. An organization's capacity to innovate can be influenced by several elements including its culture, leadership, strategy, and

structure as well as by outside elements including consumer needs, market trends, and technology developments. Among the main theories and models of innovation are the diffusion of innovations theory, which explains how new ideas and technologies travel across civilizations; the innovation adoption model, which outlines the process by which people and businesses adopt new innovations; and the open innovation model, which underlines the need of teamwork and knowledge sharing in the innovation process. Innovation also has negative effects including employment displacement, environmental damage, and social inequality; so, careful thought and management are necessary to guarantee that its advantages are distributed fairly and that its bad effects are avoided. Notwithstanding these obstacles, innovation is nevertheless very vital for economic development, competitiveness, and society advancement; its value is probably going to rise going forward as businesses and societies try to solve ever more complicated and linked problems. Effective innovation management calls for a spectrum of abilities including creativity, technical expertise, market knowledge, and project management skills as well as the capacity to coordinate and interact with many stakeholders, and negotiate difficult and uncertain surroundings. Many companies are realizing the value of innovation now and are heavily funding innovation projects including research and development, innovation incubators, corporate venture capital funds, and are also working to establish cultures that support innovation by means of experimentation, risk-taking, and ongoing education. By means of funding for research and development, tax incentives for innovation investments, and policy and regulatory creation supporting the growth of new businesses and technology, governments are also significantly fostering innovation. All things considered, innovation is a complicated and multifarious phenomena that is vital for society development, competitiveness, and economic growth and calls for careful thought and management to guarantee that its advantages are shared fairly and its negative effects are reduced (Dey et al., 2020).

### **Open Innovation Theory**

By realizing that great ideas and expertise can come from outside the company, including consumers, suppliers, partners, and even rivals, Henry Chesbrough's Open Innovation Theory questions the conventional wisdom of innovation, where businesses depend just on internal research and development efforts. From a conventional, closed approach to innovation to a more open, cooperative, and inclusive approach, this approach entails working with outside partners to create, develop, and commercialize new ideas, products, and services while sharing risks and rewards inside companies. Companies can raise their innovation capacity, hasten the development of new ideas, save costs, improve time-to-market, and raise their competitiveness by using outside sources of innovation. Open innovation does, however, also provide difficulties including intellectual property protection, organizational and cultural barrier overcoming, and management of outside alliances. Many businesses have effectively embraced open innovation strategies in spite of these obstacles, like Linux's open-source innovation model, Procter & Gamble's Connect + Develop platform, and crowdsourcing projects by corporations including LEGO, Dell, and Starbucks. These illustrations show the possibilities of open innovation to propel development, increase competitiveness, and generate fresh business prospects; they also underline the need of businesses developing sensible plans for handling outside relationships, safeguarding intellectual property, and encouraging an open innovative culture. Companies that embrace open innovation may keep ahead of the competition, react to shifting market conditions, and provide fresh value for stakeholders and consumers. In the fast-paced and quick changing corporate climate of today, open innovation ultimately has the capacity to change the way

businesses innovate and generate fresh prospects for development, cooperation, and success (Dey et al., 2020).

Open innovation theory, which is among the most popular explanations for how new ideas and products come to be, states that in order for businesses to innovate, they need to use creative strategies and methods, as well as market channels both inside and outside the company (Obradović et al., 2021). The theory states that companies should not ignore competing ideas and market trends, since these factors might be as significant as their own. In particular, open innovation allows SMEs to make complete use of management resources, scientific innovation ideas, and outside innovation tools (Zhang et al., 2022).

### **Empirical Literature**

A large body of prior research from a variety of countries has also found that innovation boosts the efficiency and productivity of small and medium-sized businesses (Chowdhury et al., 2022).

This is why a recent study by Bartolacci et al., (2020) that looks at how SMEs in Indonesian wood furniture manufacturing relate to innovation and performance finds that innovation boosts firm performance. Innovation is a critical component in the growth of SMEs, according to a study conducted Eller et al., (2020).

Innovation boosts performance, according to the study's findings. Small and medium-sized enterprises (SMEs) in the Gwagwalada neighborhood of Abuja. Specifically, it finds that marketing, process, and product innovation all have statistically significant positive impacts. Still, the research shows that SMEs in Gwagwalada-Abuja aren't exactly known for their creative practices (Gerald et al., 2020). Consequently, it recommends that these SMEs put new innovation strategies into action to boost their efficiency. In order to avoid the potential endogeneity problem, our regression model is an expansion of the one in this paper.

Research on the effects of innovation on the success of SMEs is abundant, as one would expect. We have selected a subset of them since the vast majority of them find a positive correlation between the two variables. Despite facing numerous challenges, including a dearth of innovation resources, procedures, and managerial abilities, innovation remains popular among SMEs worldwide. Innovation improved the performance of small and medium-sized enterprises (SMEs) (Maroufkhani et al., 2020).

Considering the abundance of literature on the impact of "innovation" on corporate performance and the fact that small and medium-sized firms predominate in Pakistan, it is almost unbelievable that no such research has ever been carried out there. Taking a look at the effects of innovation on SMEs in Islamabad, Pakistan, this study aims to fill that void.

### **Research Methodology**

In order to answer the research questions, it is necessary to develop a study design. It provides the general framework and objectives of the research and acts as the study's guide. This study employed a quantitative research design. Creating quantitative data that can be formally and rigorously subjected to quantitative analysis is an integral part of quantitative research. This study was conducted in Islamabad, the capital of Pakistan, and its target population consisted of 6,927 SMEs. The Pakistan Ministry of Trade and Investment has issued 279 licenses to medium-sized firms, while the Islamabad Local Government has issued 6,651 licenses to small businesses. The data was supplied by these two institutes, respectively. The survey's simple random sampling method ensured that every small and medium-sized enterprise (SME) in

Islamabad had an equal opportunity to be selected. After collecting data through surveys, 375 SMEs were selected from the target demographic using Slovin's Formula.

Where N is the population size, e is the margin error (assumed to be 5% or 0.05), and 1 is a constant number. Therefore,

$$n = 6927 / (1 + 6927 (0.05)^2) = 375$$

The study is conducted using the SPSS software, and it includes regression analyses.

## Data Analysis

### Demographic Characteristics

The demographic information of the responders is shown. Our respondents were either managers, owners, or employees of the selected SMEs. Respondents' ages, marital statuses, genders, and levels of schooling were recorded.

Table 1 Gender of Respondents

Gender	Frequency	Percentage (%)
Male	301	80.3
Female	74	19.7
Total	375	100

Small and medium-sized businesses are primarily run by men. Table 2 displays the gender breakdown of the respondents: males (80.3%) and women (19.7%).

Table 2 Age of Respondents

Age	Frequency	Percentage (%)
17-24	122	32.7
25-32	131	35.5
33-40	65	17.4
41-48	41	10.7
49 and above	14	3.7
Total	375	100

Table 2 shows that the age distribution of the respondents is as follows: 32.7% are in the 17–24 age bracket, 35.5% are in the 25–32 age bracket, 17.4% are in the 33–40 age bracket, 10.7% are in the 41–48 age bracket, and just 3.7% are 49 and up.

Table 3 Education Level of Respondents

Education	Frequency	Percentage (%)
Secondary	112	29.3
Diploma	135	36.1
Postgraduate	99	26.8
Others	29	7.8

Total	375	100
-------	-----	-----

The academic backgrounds of the respondents were found to be diverse. Most of them had at least a high school diploma. As seen in Table 3, 26.8% completed graduate-level coursework, 36.1% earned a diploma, and 29.3% completed secondary education. Since 7.8% of people didn't identify with any of the other options, they chose "others" as their response.

Table 4 Marital Status of Respondents

Marital Status	Frequency	Percentage (%)
Single	181	48.3
Married	194	51.7
Total	375	100

Table 4 indicates that around 48.3 percent of the respondents were single and 51.7 percent were married.

### Business Profile

The profiles of targeted companies are shown in this section. You can tell if a company is tiny or medium sized by looking at the first table. Following that, you will see the years of operation and the total number of employees.

Table 5 Enterprises' types

Type	Frequency	Percentage (%)
Small	237	65.2
Medium	138	34.8
Total	375	100

Small businesses accounted for 65.3% and medium-sized businesses for 34.8% of the 375 targeted SMEs.

Table 6 Number of Employees

Number of employees	Frequency	Percentage (%)
1-4	228	61.3
5-9	112	27.8
10-19	23	6.1
Above 20	12	4.8
Total	375	100

According to Table 6, the majority of the enterprises' employees fall under the age group of 1-4, accounting for the highest percentage at 61.3%. Of the remaining businesses, 4.8% have 20 or more employees, 6.2% have 10–19, and 27.8% have 5–9 workers. The majority of the workers is likely employed by small enterprises.

Table 7 OLS Regression Results

$$SV = \alpha + \beta_1 PN + \beta_2 PSI + \beta_3 MI + \beta_4 OI + \beta_5 X_1 + \beta_6 X_2 + \pi$$

n = 375

R<sup>2</sup> = 0.502

Adjusted R<sup>2</sup> = 0.487

Dependent Variable: Sales Volume

	Coefficients	Std. Error	P-value
Constant	0.873643	0.095348	0.001
Gender	0.04534	0.043288	0.231
Age	-0.04325	0.015641	0.856
Level of education	-0.07453	0.022312	0.132
Marital status	-0.034	0.025346	0.011
Enterprises' type	0.083653	0.046349	0.041
Number of employees	-0.06532	0.028534	0.234
Product innovation	0.26754	0.041213	0.001
Process innovation	0.026354	0.03645	0.432
Marketing innovation	0.296423	0.043421	0.001
Organizational innovation	0.353254	0.075646	0.002

One may observe the results of a multiple linear regression analysis in this table. This kind of study investigates the interaction among multiple independent variables and a dependent variable. It indicates that the dependent variable is much influenced by kind of business, organizational innovation, marketing innovation, and product innovation. Conversely, elements like gender, age, education level, marital status, number of employees, and process innovation do not have any bearing whatsoever. With all the independent variables zero, the constant term that is, the expected value of the dependent variable is 0.873643.

### Conclusion

Ultimately, this study provides evidence that the success of small and medium-sized businesses (SMEs) in Islamabad, Pakistan depends on innovation. Furthermore highlighting the need of embracing innovation if SMEs want to thrive in the modern, cutthroat business environment, the outcomes have significant consequences for policymakers, entrepreneurs, and managers of SMEs. The results of the study show that performance of small and medium enterprises (SME) is much indicated by creativity in organizational, marketing, and product sectors. Furthermore, creative ideas in these sectors might enable SMEs grow and flourish, therefore benefiting Pakistan's economy. In line with earlier studies on the subject, this one discovered that innovation greatly increases the competitiveness and expansion of SMEs. According to the results of the study, encouraging a culture of entrepreneurship and innovation and ensuring people have access to resources like finance, technology, and qualified labor help to ensure innovation survives. Furthermore, the findings of the study show that by creating a friendly business environment that supports entrepreneurship and new ideas and by providing subsidies, incentives, and other kinds of support, government agencies and legislators can significantly help small and medium-sized enterprise (SME) development and innovation. The results of the study also underline the need of alliances and cooperation between SMEs, large companies, and other stakeholders, including academic institutions, government agencies, and research facilities, so promoting innovation and drive of development. Taken all together, the findings of the study highlight how creativity might help Islamabad, Pakistan's small and medium-sized businesses (SMEs) flourish. It also emphasizes the need of legislators, business owners, and managers of SMEs giving innovation top attention and creating an environment where it may flourish. Apart from laying a basis for more investigation on the topic, the results of the study add to the present corpus of knowledge on innovation and SMEs. Furthermore, the study reveals that government



agencies, SMEs, and large companies all have to cooperate to increase innovation and expansion in the small and medium-sized firm (SME) sector. If innovation is given top priority and an environment fit for innovation is created, SMEs can improve performance, drive growth, and help Pakistan's economy to flourish (Nasution et al., 2020).

### **Implications**

For managers of small and medium-sized businesses (SMEs) in Islamabad, Pakistan, and worldwide as well as for entrepreneurs, legislators, this study has significant and broad ramifications. The first lesson is that since the study reveals that innovation is the key to the development and competitiveness of small and medium-sized businesses (SMEs), legislators should create an environment fit for innovation and entrepreneurship. One can help bring about efforts like increasing access to cash, technology, and educated people as well as encouraging an entrepreneurial spirit and creative thinking via training and educational programs. If small and medium-sized businesses (SMEs) wish to be successful in the fast-paced, always changing corporate environment of today, they should give innovation first priority and invest in R&D, product creation, and marketing, the research advises. Owners and managers of SMEs must shift their viewpoint from one of instantaneous survival to one of innovative long-term development and sustainability. Thirdly, the findings of the study underline the need of alliances and cooperation between SMEs, large companies, and other stakeholders, including academic institutions, government agencies, and research facilities, so promoting innovation and drive of development. SMEs must so build strong relationships and networks that enable the pooling of resources and the sharing of knowledge so that larger businesses may drive innovation and expansion from SMEs. Finally, the results of the research can guide the development of policies and initiatives supporting creativity and small and medium-sized businesses (SMEs) expansion and competitiveness maintenance. Policymakers should create legislation and initiatives that provide targeted assistance, such training and mentoring programs, access to money, technology, and qualified personnel, so helping small and medium-sized businesses (SMEs) innovate and grow. Finally, the outcomes of this study have significant ramifications for our knowledge of small and medium-sized businesses (SMEs) and innovation. More study is needed to break out the web of links among entrepreneurship, innovation, and economic growth and to provide new theoretical models to direct the development of effective innovation programs and policies.

### **Recommendations and Limitations**

Policymakers should adopt policies and programs for helping SMEs; small and medium-sized businesses (SMEs) should give innovation top priority and invest in R&D, product creation, and marketing; and SMEs should establish strong networks and information-sharing systems. Moreover, future research should look at the linked character of innovation, entrepreneurship, and economic growth so as to help shape effective innovation policies and programs. To solve these constraints and offer more thorough understanding of the link between innovation and SMEs performance, more study is required. Though it does not prove causality between the two, the study does reveal a relationship between them. Additionally, with a small sample size of 375 SMEs, the study could not be entirely reflective of Islamabad, Pakistan's SMEs overall. The study also used a quantitative method of data collecting and concentrated just on SMEs in Islamabad, Pakistan.

## References

- Abbas, J., Zhang, Q., Hussain, I., Akram, S., Afaq, A., & Shad, M. A. (2020). Sustainable innovation in small medium enterprises: the impact of knowledge management on organizational innovation through a mediation analysis by using SEM approach. *Sustainability*, 12(6), 2407.
- Adam, N. A., & Alarifi, G. (2021). Innovation practices for survival of small and medium enterprises (SMEs) in the COVID-19 times: the role of external support. *Journal of innovation and entrepreneurship*, 10(1), 15.
- Ardito, L., Raby, S., Albino, V., & Bertoldi, B. (2021). The duality of digital and environmental orientations in the context of SMEs: Implications for innovation performance. *Journal of Business Research*, 123, 44-56.
- Bartolacci, F., Caputo, A., & Soverchia, M. (2020). Sustainability and financial performance of small and medium sized enterprises: A bibliometric and systematic literature review. *Business Strategy and the Environment*, 29(3), 1297-1309.
- Chowdhury, S., Dey, P. K., Rodríguez-Espíndola, O., Parkes, G., Tuyet, N. T. A., Long, D. D., & Ha, T. P. (2022). Impact of organisational factors on the circular economy practices and sustainable performance of small and medium-sized enterprises in Vietnam. *Journal of Business Research*, 147, 362-378.
- De, D., Chowdhury, S., Dey, P. K., & Ghosh, S. K. (2020). Impact of lean and sustainability oriented innovation on sustainability performance of small and medium sized enterprises: a data envelopment analysis-based framework. *International Journal of Production Economics*, 219, 416-430.
- Dey, P. K., Malesios, C., De, D., Chowdhury, S., & Abdelaziz, F. B. (2020). The impact of lean management practices and sustainably-oriented innovation on sustainability performance of small and medium-sized enterprises: empirical evidence from the UK. *British Journal of Management*, 31(1), 141-161.
- Eller, R., Alford, P., Kallmünzer, A., & Peters, M. (2020). Antecedents, consequences, and challenges of small and medium-sized enterprise digitalization. *Journal of Business Research*, 112, 119-127.
- Gerald, E., Obianuju, A., & Chukwunonso, N. (2020). Strategic agility and performance of small and medium enterprises in the phase of Covid-19 pandemic. *International Journal of Financial, Accounting, and Management*, 2(1), 41-50.
- Gherghina, Ș. C., Botezatu, M. A., Hosszu, A., & Simionescu, L. N. (2020). Small and medium-sized enterprises (SMEs): The engine of economic growth through investments and innovation. *Sustainability*, 12(1), 347.
- Hanaysha, J. R., Al-Shaikh, M. E., Joghee, S., & Alzoubi, H. M. (2022). Impact of innovation capabilities on business sustainability in small and medium enterprises. *FIIB Business Review*, 11(1), 67-78.
- Maroufkhani, P., Tseng, M.-L., Iranmanesh, M., Ismail, W. K. W., & Khalid, H. (2020). Big data analytics adoption: Determinants and performances among small to medium-sized enterprises. *International journal of information management*, 54, 102190.
- Muangmee, C., Dacko-Pikiewicz, Z., Meekaewkunchorn, N., Kassakorn, N., & Khalid, B. (2021). Green entrepreneurial orientation and green innovation in small and medium-sized enterprises (SMEs). *Social Sciences*, 10(4), 136.
- Nasution, M. I., Fahmi, M., & Prayogi, M. A. (2020). The quality of small and medium enterprises performance using the structural equation model-part least square (SEM-PLS). Paper presented at the *Journal of Physics: Conference Series*.

- Obradović, T., Vlačić, B., & Dabić, M. (2021). Open innovation in the manufacturing industry: A review and research agenda. *Technovation*, 102, 102221.
- Singh, S. K., Del Giudice, M., Chiappetta Jabbour, C. J., Latan, H., & Sohal, A. S. (2022). Stakeholder pressure, green innovation, and performance in small and medium-sized enterprises: The role of green dynamic capabilities. *Business Strategy and the Environment*, 31(1), 500-514.
- Zhang, Y., Xi, W., & Xu, F. Z. (2022). Determinants of employee innovation: An open innovation perspective. *Journal of Hospitality Marketing & Management*, 31(1), 97-124.