Educational Administration: Theory and Practice
2024, 30(7), 400-411
ISSN: 2148-2403
https://kuey.net/

Research Article

Measuring The Impact Of Innovation On Performance Of Small And Medium Enterprises SME Evidence From Iraq - Duhok Province Enterprises

Gohdar Haji Mohammed Hasan[1*]

[1*]Technical College of Administration, Duhok Polytechnic University (DPU), gohdar.hagi@dpu.edu.krd

Citation: Gohdar Haji Mohammed Hasan, (2024), Measuring The Impact Of Innovation On Performance Of Small And Medium Enterprises SME Evidence From Iraq - Duhok Province Enterprises, *Educational Administration: Theory and Practice*. *30*(7), 400-411
Doi: 10.53555/kuey.v30i7.6689

ARTICLE INFO

ABSTRACT

The study examined the relationship between innovation and performance in (316) small and medium sized enterprises in Duhok province enterprises. The research employed a quantitative approach related to impact of various innovation's dimensions on performance metrics, the questionnaire will use Likert scale items. Data collected at the first quarter of 2024. The findings concluded the hypotheses that dimensions of marketing, operational, organizational innovation have significant impact on dimensions performance through performance's dimensions (Financial Performance, Market Performance and Employment Performance) of SMEs in Duhok province. In contrast, the product innovation dimension had no significant effect on performance). In addition, the findings inform SMEs and policy makers that innovation is a critical factor in today's entrepreneurial activities. The study recommends that SMEs should allocate resources towards building their marketing, operational, organizational innovation to improve performance of their firms. Further studies should explore methods for how SMEs could assess cost-benefit ratio of innovation and how they determine whether to select internal or external sources of innovation prior to initiating actual innovation.

Keywords: Small and Medium sized enterprises SMEs, Performance, market innovation, Organizational innovation, Product innovation, Process innovation

1. Introduction

In search for constitutive elements of small and medium enterprise (SME) innovation, performance and growth, various scholars contend that innovation serves as key distinguishing characteristic vis-à-vis business administration and other discipline.

There is only a relatively small proportion of SMEs that have experienced high-growth and continued success, and innovation is central to their success. The dominant view is that the ability of SMEs to bring innovative ideas and adopt new processes in businesses and entrepreneurship increases knowledge spillover in a locality or a specific geographical region (Acs & Armington, 2006; Delmar, Karl Wennberg, & Hellerstedt, 2011). However, it is only when SMEs exploit innovation and adopt new practices, that local development and growth can be promoted (Romanelli & Khessina, 2005). To this end, several programmes have been developed to encourage innovation and growth of small and medium enterprises (Hounkonnou et al., 2012).

Over the years, Iraq including Duhok province has struggled with socio-economic challenges characterized by low economic performance, sluggish industry growth, heavy depending on natural resources, high unemployment rate, rising poverty, poor and inconvenient service delivery by public sector. Consequently, SMEs are regarded as vital contributors to the region's economic future.

Therefore, this research tries to examine the factors that are responsible for innovation and performance of an SME, would seek to answer the main research question:

Is there a relationship between innovation and performance among SMEs in Duhok province enterprises?

Moreover, there are several sub-main questions to explore such as:

What are the most important factors for growth and success of the SME?

Is specific innovation having role in enterprise performance?

The purpose of this research is to explore the confluence of entrepreneurial characteristics within a firm and the efforts or strategies in shaping an SME's approaches to innovation, performance, and success.

The objective of this research is to contribute empirical evidence categorizing the SME innovation and performance into effects of micro-meso-macro level factors for different types of innovation success (e.g. product innovation and process innovation, market innovation etc.) and consequently would generate interesting theoretical insights, business related recommendations and policy implications.

This study will be presented with an appropriate justification or rationale as there are currently very few research papers that studies the impact of innovation on firm performance in small and medium enterprises especially in Duhok province.

2. Background and Literature Review

Cherrafi, Garza-Reyes, Kumar, Mishra, Ghobadian, and Elfezazi (2018) argue that rapid change in the global and business setting have compelled firms to adopt innovation to stay ahead of the competition against rival firms, consequently making innovation essential for the survival and progress of businesses.
According to Hilman and Kaliappen (2015), innovation include emerging markets, new products, and services, restructuring organizations, the generation supply chains, and innovative production techniques. Organizations' ability to introduce new products, foster organizational growth, and use opportunities to enhance competitiveness as indicative of innovation.

In order to explain the concept of innovation with more clarity, The existing literature suggests whereas companies introduce diverse kinds of innovation, although they might differ substantially in how they impact performance of business and to their success. However, various forms of innovation might be complementary each other.

Donbesuur, Oppong, Ampong, Owusu-Yirenky, and Chu (2020) analysed that technological and organizational innovation must align to enhance performance of any SME. To expand the concept of innovation that SMEs could use, Bodlaj, Kadic-Maglajlic and Vida (2020) claimed that SME growth depends not just on successful technological innovations, but also on product, processes, organizational and marketing innovations.

However, Bodlaj, Povše & Vida, (2017) argued that there is only scant empirical evidence in the context of small and medium SME firms. According to the findings of Makanyeza and Dzvuke (2015), organizational and product innovations were the only factors that exhibited a positive impact on a firm's performance, whereas process innovation did not demonstrate significant influences on firm performance.

Moreover, Ferraris, Giachino, Ciampi, Couturier (2021) examined the relationship between the R&D and innovation of SMEs and their performance and outcomes. They found a positive linear relationship between R&D and innovation of SMEs and their performance. Knowledge management also played a role and amplified the integration of internal and external knowledge processes in SMEs.
Denicolai, Zucchella,Magnani (2020) suggested that internationalization (or expansion through globalization), digitalization, and sustainability are the three key growth paths for all firms. Digital transformation is the central driver of innovation and can help renew businesses for all new and established SMEs. The authors suggested that digitalisation and sustainability are positively related, which means digitalisation increases sustainability of enterprises.

Another study by Raposo, Ferreira, and Fernandes (2014) investigated the effects of innovation on performance in small and medium sized enterprises (SMEs). The authors noted that cooperation positively impacts company performance and innovation, although there would be other factors such as how the firm perceives the cooperation, and cooperation with suppliers, and human resources are the determining factors. Through cooperation, SMEs leverage increasing returns or good profits when able to combine innovation and cooperation.

Khraishi, Huq, and Paulraj (2020) agreed that complementary capabilities in different firms would help forge successful collaborations. They argued that small and medium-sized enterprises (SMEs) manage their collaborative innovation through offshoring, although there is very little knowledge on how SMEs can manage collaborative innovation through this process of offshoring. In some cases, supplier joint actions with SMEs would be necessary for enhancing offshoring innovation (OI) performance.
The organizational innovation tends to improve performance of a company and there are significant benefits that can be derived from organizational innovation and organizational environmental factors. This is where a company leadership is relevant.

Colovic (2021) argued that the leadership style in a company can be related to or determines the business innovation model. Colovic suggested that a large-scale business innovation model can help increase sales and impact performance.
Bagheri, Mitchelmore, Bamiatzi and Nikolopoulos (2019) emphasized that technological innovation positively mediates or changes the effects of internationalization, or the orientation of international firm performance, so managers can improve firm performance by combining performance and innovation.
Taking all the above into account, we, therefore, propose that:

Hypothesis Model
Main Hypothesis
Process innovation does not have statistically significant impact and correlation with enterprise performance.

Sub-hypotheses
Hypothesis 1: Product innovation does not have statistically significant impact and correlation with enterprise performance.
Hypothesis 2: Process innovation does not have statistically significant impact and correlation with enterprise performance.
Hypothesis 3: Market innovation does not have statistically significant impact and correlation with enterprise performance.
Hypothesis 4: Process innovation does not have statistically significant impact and correlation with enterprise performance.

3. Methodology Research approach and study design :

This paper will adopt a quantitative approach. Structured questionnaires will be employed to obtain primary data from SME owners or managers, In order to gather quantitative information on innovation and performance metrics, the questionnaire will use Likert scale items. Data collected at the first quarter of 2024.The selection criteria for these companies is that all these companies must be small or medium sized, not large companies(Creswell, 2014).
The questionnaire will include (316) small and medium-sized enterprises and draw a comparative analysis between companies with statistical tools using linear and nonlinear regression and other measures. Moreover, this paper used specific software or tools such as SPSS (Muijs, 2004).
The data would be analyzed using all available quantitative measures and statistical tools.

3.1 Structural Model :
Based on theorementioned hypotheses, the conceptual framework of the study is illustrates in Figure (1).

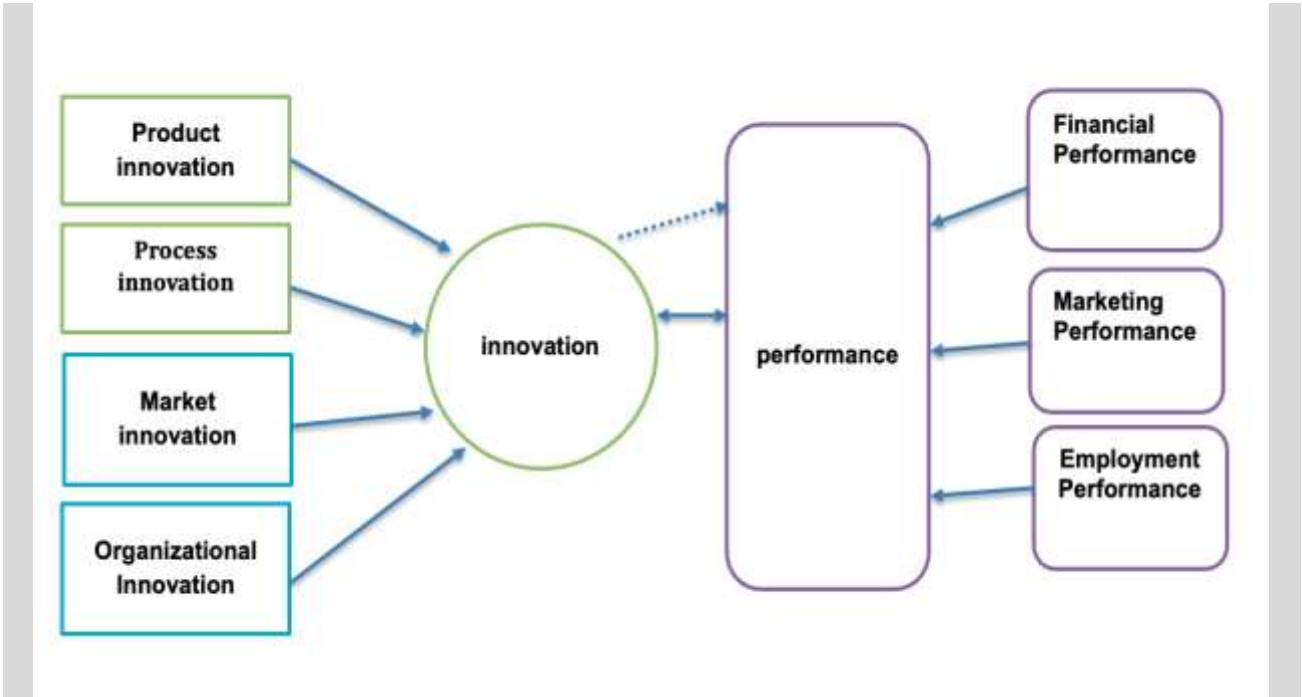

Figure 1 : conceptual framework of the study

3.2 Variables and measures:

3.2.1 Dependent variable: innovation variables and dimensions

The available data from (316) small and medium sized companies will be tabulated to identify the innovations in these firms along with the performance of these firms.

For innovation variables and dimensions can be classified into:

3.2.1.1 Product innovation:

Product innovation involves introducing of new product or service that demonstrates significant improved in terms of features, performance, and quality. Product innovation represents the input process adopted in order to improve the production. Recent studies indicates that 156 innovation in products and services encompassing Growth, expansion and attainment of a competitive advantage (Alexe & Alexe, 2016).

3.2.1.2 Process innovation.

involves introducing entirely new production and improving method of production or approach of service delivery by an company that incorporating significant changes in techniques, equipment, tool, machinery etc. Process innovation should deliver significant outcome in terms of output of production. This could encompass such as enhancing quality of product, declining cost of production and distribution or increasing efficiency. moreover, it is considrated stands as a cornerstone in innovation management due to firm's innovation goals are inherently shaped by process innovation, which in turn defines the sequential actions in the process. (Union, 2013)

3.2.1.3 Organizational innovation

refers to the degree to which a enterprise adopt change in structure. As described by Rajapathirana and Hui (2018), it involves introducing new organizational methods within a firm's business practices, structure, or external interactions.While organizational innovation can increase firm performance by reducing administrative expenses and transaction cost, its primary aim is to improve satisfaction of employee within the workplace.The organization innovation is a transformative process of organizational that have immediate impacts in both technical and social structures of an organization.

3.2.1.4 Marketing Innovation

Innovation and marketing are two interdependent elements that supplement each other, and the success of one reckon on the success of the other. Marketing Innovation takes into account integrating marketing strategies within the process of innovation such as the marketing of novel products that tailored the needs of customers. Marketing innovation involves all activities associated with innovation management that aimed to develop and promote market success of new products and services. (Casidy, Nyadzayo, & Mohan, 2019).

3.3 Independent variable: the firms performance

Firm performance refers to the results achieved by the firm in respect to its internal and external set objectives, firm performance variables and indicators used in this paper were divided in to three dimensions and indicators as shown in table below (2)

Firm Performance Variables

	Indicators or variables	References
1	Financial Performance	Dess, G.G. and Berd, D.W, (1984)
2	Market Performance	Kellermanns et al., 2010
3	Employment Performance	Rybárová ,Stetka,Sagatova 2019

4. Results and Discussion:

4.1 Distribution of the Surveyed managers and owners according to their Personal characteristics

4.1.1 Position in the organization or in company :

Table (1) Position in the organization or in company

Position	Frequency	Percent
Owner	115	36.4%
Manager	201	63.6%
Total	**316**	**100.0%**

Regarding roles within the SMEs, 36.4% of respondents were headed by owners. 63.6% as managers of enterprises.

4.1.2 Gender

Table (2) Gender disparity

Gender	Frequency	Percent
Male	202	63.9
female	114	36.1
Total	**316**	**100%**

The results indicate gender disparity in the leadership in SMEs enterprices, where majority headed by males (63.9%) and Only (36.1%) of females.

4.1.3 Education:

Table (3) Education level

Education level	Frequency	Percent
Primary	18	5.7%
Secondary	30	9.5%
Undergraduate	188	59.5%
Postgraduate	80	25.3%
Total	**316**	**100.0%**

Data on the educational backgrounds shows that undergraduate were the most significant group accounted for 59.5% of the sample as a whole. whereas (25.3%) were Postgraduate, (9.5%), (5.7%) were Secondary school and Primaryschool respectively.

4.1.4 Firm's age:

Table (4) Firm's age

Firm's age	Frequency	Percent
1 to 5 years	108	34.2%
6 to 10 years	133	42.1%
11 and over	75	23.7%
Total	**316**	**100.0**

The age of the enterprises distribution shows that 34.2% are between 1 year to 5 years old (42.1%) are in the 6–10-year range, and 23.7% are (11) years old or over.

4.1.5 Number of employees :

Table (5) Number of employees

Number of employees	Frequency	Percent
1 – 50 employees	92	29.1%
51 – 100 employees	168	53.2%
101 – 150 employees	56	17.7%
Total	**316**	**100.0%**

This table presents the distribution of companies based on number of employees. The majorly of enterprises with 51–100 employees, which comprises 168 businesses were represents 53.2% of the entire population, while (29.1%) were (1– 50 employees), and (17.7%) were (101 – 150 employees).

4.2 Testing study hypothesis:

This section focuses on presenting and interpreting the results of testing the study hypotheses, including those related to correlation, direct and indirect influence, as well as variance, according to the following:

4.2.1 The first section: testing and interpreting correlation hypotheses

Correlation analysis was conducted between the study variables and their dimensions at the micro and macro levels , in order to test the main correlation hypothesis, which states that (there is no significant correlation between the study variables, innovation and performance) and their dimensions, both individually and collectively), by applying the simple and multiple correlation coefficient test and the Spearman method by using the (SPSS V.26) program, The findings were as follows:

4.2.1.1 First: Testing the initial Sub-Hypothesis:

This hypothesis states that (there exists no significant correlation between innovation and performance in the small and medium enterprises investigated. This hypothesis was tested, and its results were analyzed as follows:

Micro level: Table (6) illustrates findings from testing the correlation between dimensions of innovation variables and dimensions of performance variables, The analysis revealed a noteworthy significant and positive correlation between the dimensions of the innovation variables and the dimensions of the performance variables, as detailed below:

A. The analysis unveiled that the values of correlation coefficient between innovation dimensions variables, represented by (product, operations, marketing, and organization) and performance variables, yielding values of (0.657), (0.686), (0.708), and (0.681), respectively, and at a significance level of (0.01). Which indicates the presence of significant levels of positive correlation between the dimensions of the innovation variables, represented by (product, operations, marketing, and organization) and the performance variable in the small and medium enterprises studied. Consequently, the observed correlations indicate that as small and medium enterprise management embraces innovation across product, operations, marketing, and organizational, there is a corresponding enhancement in performance metrics. and vice versa. Therefore, promoting an innovation within these enterprises may lead to optimal performance levels.

b. The analysis revealed that the correlation coefficient between the variables of innovation's dimensions and the dimensions of the performance variables, represented by (financial performance, marketing performance, and employment performance) reached (0.671), (0.685), (0.772), respectively, and at a significance level of (0.01). These results indicate that there are significant levels of positive correlation between the variables dimensions of innovation and the dimensions of the performance variables, in response, these correlations propose that as small and medium enterprise management prioritizes innovation across diverse dimensions, encompass financial, marketing, and employment aspects, there is a corresponding progress in performance metrics.
On the other hand, neglecting innovation may hinder performance optimization. therefore, encouraging innovation within these enterprises may result in improved financial, marketing, and employment performance, which will increase their overall success.

c. The analysis revealed varying correlation coefficients between the dimensions of innovation variables and performance variables. the highest value of the correlation coefficient was found between the (marketing innovation) dimension and the (employment performance) dimension, yielding a value of (0.720) and at a significant level (0.01), on other hand, the lowest value of the correlation coefficient was between the dimensions of the innovation variables and The dimensions of the performance variables were between the (marketing innovation) dimension and the (financial performance) dimension, which was (0.542) and at a significance level (0.01), and The correlation values for the other dimensions and variables fell within the range delineated by these two value.

4.2.1.1.2 At the Macro level:

A significant and positive correlation exists between the innovation variables and the performance variables, where the value of the correlation coefficient between them reached (0.795) at a significant level (0.01), This finding indicates that when small and medium enterprises adopt innovative practices, they achieve higher performance levels, and vice versa.

Table (6) Correlation between innovation and performance dimensions

Overall indicator	Employment Performance	Market Performance	Financial Performance	Performance / innovation
.657**	.649**	.547**	.565**	**Product innovation**
.686**	.659**	.611**	.566**	**Process innovation**
.708**	.720**	.632**	.542**	**Market innovation**
.681**	.625**	.570**	.629**	**Organizational Innovation**
.795**	.772**	.685**	.671**	**Overall indicator**

Source: Prepared by the researcher from the results of statistical analysis

To sum up, it is obvious from correlation test results for the initial hypothesis regarding the relationship between innovation dimensions and performance dimensions, at both micro and macro levels, it is evident that the initial hypothesis is rejected (H_0). In contrast, the alternative hypothesis is accepted (H_1). which posits that

there exists a significant correlation between the dimensions of innovation and performance within the small and medium enterprises investigated. this aligns with a study (Hilman and Kaliappen (2015) and Makanyeza and Dzvuke (2015)

4.2.2 The second section: Testing and Interpreting Direct Impact Hypotheses:

Both simple and multiple regression were applied to test the direct effect hypothesis, where the main hypothesis states that there is no direct, statistically significant effect of the variables (dimensions of innovation) and their dimensions, individually and collectively, on the performance dimensions of the small and medium enterprises investigated. The results obtained from the outcomes were (SPSS V.26) pursuant to the following paragraphs:

4.2.2.1 The first sub-hypothesis:

According to hypothesis (there is no statistically significant effect of innovation's dimensions individually and combination on the dimensions of performance in the small and medium enterprises investigated). The results of the analysis, as presented in Table (2), indicate the following:

4.2.2.1 The findings of the analysis indicate that a significant effect of the independent variable (innovation dimensions), on the dependent variable, (performance dimensions), based on computing (F) value of (538.03), which was greater than its tabulated value of (3.871) with degrees of freedom (1, 314). In addition, a significance effect is confirmed by the value of the calculated level of significance (Sig.) (0.000), which is less than the study's predetermined level of significance of the study (0.05).

4.2.2.1.2 The value of the constant (B0) indicates that the performance dimensions have a value of up to (0.547) when the value of innovation and its dimensions is equal to zero, This suggests that the performance dimensions variable derives part of the direct effects through innovation and its associated dimensions as considered in the this study.

4.2.2.1.3 The marginal slope coefficient (B_1) was equal to (0.795). which indicates that a one-unit change in innovation's dimensions consequence in a change in the performance's dimensions approximately 79.5%. In other words, this significant percentage change delivers reliable insight into the important link between performance and innovation dimensions.

4.2.2.1.4 The R-squared value reached (0.631), indicates that a percentage of (63.1%) of the variation in performance occurring in the performance dimensions can be attributed to dimensions of innovation. The remaining percentage (36.9%) of the change in the dimensions of performance likely effected by other variables not considered in this study or other unaccounted factors. This emphasizes how crucial it is for small- and medium-sized enterprises executives to embrace innovative facets if they intend to be successful in raising performance levels.

Table (2) The direct effect innovation dimensions on performance dimensions

performance's dimensions						model
Sig.	F Tabulated	F calculated	R^2	B_1	B_0	
0.000	3.871	538.03	0.631	0.795	0.547	innovation's dimensions
N=316		P ≤ 0.05		*freedom degree F(314 ، 1) value		

Source: Prepared by the researcher from the results of statistical analysis

4.2.3. Multiple regression analysis was conducted using the (stepwise approach) to assess the direct impact of innovation dimensions on performance dimensions. The test results in table (3) revealed the development of the following significant models:

4.2.3.1 First Model:

This model identified marketing innovation as the single dimension with a direct impact on performance dimensions,other innovation dimensions were excluded during the stepwise analysis.

The results indicated that the marketing innovation dimension a had significant impact on the performance dimensions than the other dimensions of innovation, as indicated by the value of (t) calculated (17.757), which is greater than its tabulated value of (1.649) and with a degree of freedom (314). Moreover, Significance level (p-value): 0.000 (much lower than the chosen significance level of 0.05).

The R-squared value of 0.501 suggests that marketing innovation explains 50.1% of the variation in performance dimensions. That is, the marketing innovation dimension alone explains (50.1%) of the change that occurs in the performance dimensions, and that (49.9%) is due to the other dimensions of the innovation dimensions variables or to other explanatory factors that are not included in this model. These findings suggest,

For small and medium-sized enterprises aiming to achieve and maintain performance, this suggests prioritizing innovation marketing. The analysis reveals innovation markting as a critical dimensions with a greater impcat than others.

4.2.3.2 The second model

incorporated two dimensions, namely marketing innovation and operational innovation, after organizational innovation and product innovation were excluded. Analysis results illustrated that these two dimensions, when combined, had a greater impact on performance dimensions compared to the excluded dimensions as indicated by the calculated (t) values, which amounted to (8.824) and (7.461), respectively, which are greater than its tabulated value of (1.649) and with a degree of freedom (313). The significance of this effect is confirmed by the calculated (Sig.) values. Which are (0.000), (0.000) and respectively, which are much lower than the hypothetical significance level of the study, which is (0.05). The R-squared value (R^2) for combined dimensions (marketing and operational innovation) is (0.576), This means that the two dimensions (marketing and operational innovation) collectively explain (57.6%) of the change that occurs in the performance dimensions. The remaining (42.4%) is due to other explanatory factors that are not considered in this model. The study suggests that small and medium-sized enterprises striving for sustain performance should prioritize both marketing and operational innovation. These dimensions stand out as essential components of innovation and have a greater effect than the others.

4.2.3.2 The third model:

This model encompass dimensions (marketing, operational, and organizational) of innovation excluding product innovation dimension, results of the analysis indicated that the dimensions (marketing, operational, and organizational innovation) combined have a greater impact on the performance dimensions , as indicated by the calculated (t) values (4.635), (7.048), and (7.000), respectively, which are greater than its tabulated value of (1.649) and with a degree of freedom (312), The significance of this effect is confirmed by the calculated (Sig.) values, (0.000), (0.000), and (0.000), respectively, which are values that are much lower than the hypothetical significance level of the study, which is (0.05). Furthermore, the combined R-squared (R^2) for the dimensions (marketing, operational, and organizational innovation) was 0.634, which indicates that the dimensions (marketing, operational, and organizational innovation) collectively explain 63.4 percent of the observed change in dimensions of performance. The residual 36.6% of the variance is likely due to other factors that weren't considered in this model. These results imply that marketing, operational, and organizational innovation should be prioritized by small and medium-sized businesses that want to attain and sustain performance dimensions. These dimensions stand out as essential components of creativity, bearing more weight than others.

Table (3) Direct effect of innovation dimensions on dimensions of performance

Sig.	Degree of freedom	calculated T value	value R^2	B_1	B_0	dimensions included in the model	model
0.000	314	17.757	0.501	0.708	1.161	Marketing innovation	First
0.000	313	8.824	0.576	0.447	0.679	Marketing innovation	Second
0.000		7.461		0.378		Operational innovation	
0.000	312	4.635	0.634	0.254	0.513	Marketing innovation	Third
0.000		7.048		0.336		Operational innovation	
0.000		**7.000**		**0.329**		organizational innovation	
N = 316		**Tabular T value with degrees of freedom 314, 313, and 312 = (1.649)**					

Source: Prepared by the researcher from the results of statistical analysis

Based on the results of the regression analysis at both macro and micro levels the impact innovation dimensions on the dimensions of performance, as depicted in tables (2) and (3), It is possible to draw the conclusion from the evidence,

on a macro level, innovation's dimensions significantly impact performance dimensions.

simultaneously, at the micro level the dimensions of marketing, operational, organizational innovation together significant impact on performance. In contrast, the product innovation dimension had no significant effect on performance dimensions. Therefore, this reflects the invalidity of the first sub-hypothesis, which is branching from the third main hypothesis, and the acceptance of the alternative hypothesis, which states that (there is a statistically significant effect of innovation and its dimensions, individually and together, on the performance dimensions of the small and medium enterprises investigated, except for the product innovation dimension).

5 .Conclusions and avenues for future research:

This study contributes to the literature via investigating and examining the relationship between innovation and performance in small and medium sized enterprises in Duhok province.
The findings concluded the hypotheses that dimensions of marketing, operational, organizational innovation have significant impact on dimensions performance through performance's dimensions (Financial Performance, Market Performance and Employment Performance) of SMEs in Duhok province.
In contrast, the product innovation dimension had no significant effect on performance). In addition, the findings inform SMEs and policy makers that innovation is a critical factor in today's entrepreneurial activities. These results align with another researches, including Makanyeza and Dzvuke (2015), Raposo, Ferreira, and Fernandes (2014), Rajapathirana and Hui (2018) ...etc.
In order to enhance the performance of SMEs via innovation, it's crucial caution must be considerate when it is related to investment decisions. SMEs are encouraged invest only in areas that yield favorable outcomes, in this situation, the study recommends that SMEs should allocate resources towards building their marketing, operational, organizational innovation to improve performance of their firms.

It's interesting to note. However, this research was limited to a single province (Duhok). This presents difficulties for the findings' generalizability. To address generalization concerns, it is suggested that future study be conducted in another Iraqi cities. Also, if the study was conducted in different industries.

In addition, Further studies should explore methods for how SMEs could assess cost-benefit ratio of innovation and how they determine whether to select internal or external sources of innovation prior to initiating actual innovation.

References:

5 Alexe, C.-G., & Alexe, C.-M. (2016). The Importance of the Dimensions of the Innovation Management in Evaluating the Innovation Capability of the Firms in the Machine Building Industry in Romania. *Procedia Technology, 22*, 999-1005. doi: https://doi.org/10.1016/j.protcy.2016.01.12

6 Bagheri, M., Mitchelmore, S., Bamiatzi, V., Nikolopoulos, K. 2019. Internationalization Orientation in SMEs: The Mediating Role of Technological Innovation,

7 *Journal of International Management*, 25(1), pp. 121-139. doi: https://doi.org/10.1016/j.intman.2018.08.002.

8 Bodlaj, M., Povše, H., & Vida, I. (2017). Cross-Border Relational Exchange in SMEs: The Impact of Flexibility-Based Trust on Export Performance. *Journal of East European Management Studies*, 22(2), 199-220. doi: 10.5771/0949-6181-2017-2-199

9 Bodlaj, M., S. Kadic-Maglajlic, and I. Vida. 2018. "Disentangling the Impact of Different Innovation Types, Financial Constraints and Geographic Diversification on SMEs' Export Growth." Journal of Business Research. doi: http://doi.org/10.1016/j.jbusres.2018.10.043.

10 Bodlaj, M., Kadic-Maglajlic, S.,Vida, I. 2020. Disentangling the impact of different innovation types, financial constraints and geographic diversification on SMEs' export growth. *Journal of Business Research,* 108, pp.466-475, doi: https://doi.org/10.1016/j.jbusres.2018.10.043

11 Casidy, R., Nyadzayo, M., & Mohan, M. (2019). Service innovation and adoption in industrial markets: An SME perspective. *Industrial Marketing Management*. doi: https://doi.org/10.1016/j.indmarman.2019.06.008

12 Cherrafi, A., Garza-Reyes, J. A., Kumar, V., Mishra, N., Ghobadian, A., & Elfezazi, S. (2018). Lean, green practices and process innovation: A model for green supply chain performance. International Journal of Production Economics, 206, 79–92. doi: https://doi.org/10.1016/j. ijpe.2018.09.031.

13 Colovic, A. 2021. Leadership and business model innovation in late internationalizing SMEs, *Long Range Planning,*102083 doi: https://doi.org/10.1016/j.lrp.2021.102083

14 Creswell, J. W. (2014). Research design : qualitative, quantitative, and mixed methods approaches (4th ed.). Thousand Oaks: SAGE Publications.

15 Dess, G.G. and Berd, D.W. 1984. *Dimensions of Organizational Task Environment, Administrative Science Quaerterly*. doi https://doi.org/10.2307/2393080

16 Delmar, F., Wennberg, K. and Hellerstedt, K., 2011. Endogenous growth through knowledge spillovers in entrepreneurship: an empirical test. *Strategic Entrepreneurship Journal*, 5(3), pp.199-226. Doi : https://doi.org/10.1002/sej.114

17 Denicolai, S., Zucchella, A., Magnani, G.. 2020. Internationalization, digitalization, and sustainability: Are SMEs ready? A survey on synergies and substituting effects among growth paths. *Technological Forecasting and Social Change*.166,120650, DOI: 10.1016/j.techfore.2021.120650

18 Donbesuur, F., Oppong, G., Ampong, A., Owusu-Yirenkyi,D.,Chu, I. 2020. Technological innovation, organizational innovation and international performance of SMEs: The moderating role of domestic institutional environment, *Technological Forecasting and Social Change*,161,120252, http://hdl.handle.net/10454/18173 .

19 Ferraris, A., Giachino, C., Ciampi, F., Couturier, J. 2021.R&D internationalization in medium-sized firms: The moderating role of knowledge management in enhancing innovation performances. *Journal of Business Research,*128, pp 711-718.
20 Hilman, H., & Kaliappen, N. (2015). Innovation strategies and performance: Are they truly linked? World Journal of Entrepreneurship, Management and Sustainable Development, 11(1), 48–63. doi: https://doi.org/10.1108/WJEMSD-04-2014-0010.
21 Khraishi, A., Huq, F., Paulraj. A. 2020. Offshoring innovation: An empirical investigation of dyadic complementarity within SMEs. *Journal of Business Research,* 118, pp. 86-97. DOI: https://doi.org/10.1016/j.jbusres.2020.06.045
22 Kellermanns, F. W., Eddleston, K. A., Sarathy, R. & Murphy, F. (2010). 'Innovativeness in Family Firms: A Family Influence Perspective,' Small Business Economics. DOI: 10.1007/s11187-010-9268-5
23 Makanyeza, C., & Dzvuke, G. (2015). The influence of innovation on the performance of small and medium enterprises in Zimbabwe. Journal of African Business, 16(1-2), 198-214. DOI: 10.1080/15228916.2015.1061406
24 Muijs, D. (2004). *Doing quantitative research in education with SPSS* (2nd ed.). Los Angeles.
25 Raposo, M. L., Ferreira, J. M., Fernandes, C. I. 2014. Local and cross-border SME cooperation: Effects on innovation and performance. *Revista Europea de Dirección y Economía de la Empresa*, 23(4), pp.157-165. https://redaedem.org/EJMBE/num_anteriores/Vol.%2023.%20Num.%204.%202014.pdf
26 Rajapathirana, R., & Hui, Y. (2018). Relationship between innovation capability, innovation type, and firm performance. *Journal of Innovation & Knowledge, 3*, 44-55. doi: https://doi.org/10.1016/j.jik.2017.06.002.
27 Romanelli, E. and Khessina, O.M., 2005. Regional industrial identity: Cluster configurations and economic development. *Organization Science,* 16(4), pp.344-358. DOI: 10.1287/orsc.1050.0131
28 Rybárová, D., Štetka, P., & Šagátová, S. (2019). Relationship between innovation and business performance. *Megatrend Revija*, Vol. *16*, No. 3, pp. 83–93. https:// 10.5937/MegRev1903083R
29 Tobi, H., Kampen, J. K. (2018). "Research design: the methodology for interdisciplinary research framework". *Quality & Quantity*. 52 (3): 1209–122. https://link.springer.com/article/10.1007/s11135-017-0513-8
30 Union, E. (2013). Science, technology and innovation in Europe. *OOPEC Luxembourg* 4-23.

Appendix 1: research questionnaire

Position in the organization or in company

☐ Owner ☐ Manager

Gender of Owner or Manager

☐ Male ☐ Female

Owner or Manager's level of education

☐ Primary ☐ Secondary ☐ Undergraduate ☐ Postgraduate

Firm's age

☐ 1 to 5 years ☐ 6 to 10 years ☐ 11 to 15 years ☐ 16 and over

Number of employees

☐ 1 – 50 ☐ 51 – 100 ☐ 101 – 150

innovation

Dimensions		Strongly agree	Agree	Neither agree	Disagree	Strongly disagree
Product innovation	The company frequently introduce new or improved products/services to the market					
	The company try to discover new methods for adding value to our existing products/services to make our business different from competitors.					
	The company is frequently the pioneer in introducing up to date products and services to the market					
Process innovation	The company continuously upgrade technology to optimize production processes.					
	The company implemented new processes or technologies in order to improve efficiency or reduce costs.					
	We have initiated new production process within our firm					

Market innovation	The company apply new method or approach for product delivery					
	The company employ the application of online transaction in marketing					
	The company constantly explore new markets for our products					
Organizational Innovation	The company has modified its organizational structure to foster collaborative (culture) teamwork.					
	The company has modified its supply chain management processes.					
	The company has made important changes in production and management systems.					

Performance:

Dimensions		Strongly agree	Agree	Neither agree	Disagree	Strongly disagree
Financial Performance	The company experienced a growth in its net profit margin.					
	The company consistently achieves its "Cost Effectiveness" objective.					
	The company acquired additional physical assets					
Market Performance	The company increased its share of market position compared to its competitors.					
	The company consistently achieves its "On-time Delivery" goal.					
	The company has experienced a significant rise in customer satisfaction.					
Employment Performance	The company has experienced a growth in the number of permanent employees hired.					
	The company experienced a growth in labor productivity for employees					
	The company employees' morale is high.					