

The Impact of Innovation on Small and Medium Enterprises Performance: Empirical Evidence from Hargeisa, Somaliland

Mohamed Hussein Abdilahi¹, Abdikarim Adan Hassan²

^{1,2}Undergraduate Students, Hargeisa School of Economics, University of Hargeisa, Hargeisa, Somaliland.

Muhumed Mohamed Muhumed^{3*}

^{3*}Lecturer, Hargeisa School of Economics, University of Hargeisa, Hargeisa, Somaliland, and Graduate Student, Department of Political Science and International Relations, Istanbul Aydin University, Istanbul, Turkey.

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Abstract

This study examines the impact of innovation on the performance of Small and Medium Enterprises (SMEs) in Hargeisa, Somaliland. Target population of the study was 6930 SMEs in Hargeisa; a number provided by Hargeisa Local Government, and Somaliland Ministry of Trade and Investment as the two institutions issue business licenses to the small enterprises and medium enterprises respectively. A sample of 378 SMEs has been drawn from this population. The study adopted both descriptive and regression analyses to estimate the impact of innovation. Regression results of the study reveal that innovation significantly affects the performance of SMEs in Hargeisa. The study finds that the effects of product innovation, marketing innovation and organizational innovation are statistically significant among these SMEs.

Keywords: Small and Medium Enterprises (SMEs), Innovation, Performance, Hargeisa.

1. Introduction

The fact that Small and Medium Enterprises (SMEs) constitute around 99.7 percent of the enterprises globally (Martin and Namusonge, 2014) proves their significance in contributing to the economic and industrial development in most countries. It is, therefore, necessary to put in place a policy mechanism that will assist their growth. In order to remain competitive, grow faster and function effectively and efficiently, SMEs need to utilize knowledge and technology efficiently. Employing advanced process technology, for example, generally leads to a better product quality and durability. Moreover, adopting a new technology results reduced costs by saving materials, energy or through replacement of conventional materials with cheaper alternative materials. SMEs play a major role in both developed and developing countries,

encompassing more than 90 percent of business operations in Africa, and also contributing over 50 percent of GDP and employment of their economies (Martin & Namusonge, 2014).

Innovation (in business) means novelty, new things being done, or old things being done in new ways to increase the performance in terms of sales, profitability and market shares in an organization. It is an application of technological, institutional, human resources and discoveries of productive processes, resulting in new practices, products, markets, institutions and organizations that need organizational improvement or performance in terms of sales, profitability and market shares. Innovation in SMEs can be a product, process or marketing innovation adopted in order to increase performance of enterprises in terms of sales volume or otherwise. Small and medium enterprises are considered as the machine of economic growth that drives and promotes equitable development of nations, which is achieved by adopting innovation principles. The role of Small and Medium Enterprises in the economic and social development of countries is well established when the concept of innovation is applied on the SMEs, and as a result, performance will be improving substantially. The sector is a nursery of entrepreneurship, often motivated by innovation (Twaliwi & Isaac, 2017).

SMEs in Hargeisa have not frequently applied the concept of innovation in their businesses. There are less new products in the market, less adoption of marketing innovation strategies and poor business innovation processes. As a result, these enterprises may not likely experience growing sales volume which in turn means poor performance. The market is full of old and previously existing products which the consumers already have knowledge about their quality. However, although SMEs in Hargeisa do not adopt innovation (product, process, marketing or organizational) fully and frequently, this does not mean there is a complete absence of innovation. Though in different degrees, all these innovations are present in these SMEs, and hence, their performance effect needs to be examined.

As innovation enhances the overall performance and competitiveness of the business, its effect can be probed from different angles. One of them is to evaluate the sales volume of the enterprise. Increased sales volume means increased business activities and revenue, and thus, it can be a clear measure of business performance. The purpose of this study is to investigate the effect of innovation on SMEs performance in Hargeisa, Somaliland. It specifically examines the impact of product innovation, process innovation, marketing innovation and organizational innovation on enterprises' sales volume, and in turn, performance. Hargeisa is the capital of Somaliland, a self-declared republic in the Horn of Africa that broke away from Somalia in 1991 but has not obtained official recognition from any country since then.

The paper is organized as follows. Section one introduces the study while section two reviews the relevant literature. Section three is the methodology and section four presents the findings of the study. Section five concludes the study.

2. Literature Review

In this section, both theoretical and empirical related literatures of this study are reviewed. Firstly, the two main concepts of the study – small and medium enterprises and innovation – are presented. Then related theories are demonstrated. Finally, empirical researches on SMEs and innovation, conducted in different parts of the world, are reviewed.

2.1 Theoretical Literature

2.1.1 Small and Medium Enterprises (SMEs)

Small and medium enterprises may have different definitions in different areas. For instance, what is categorized as SMEs in Europe or America, may not be similar to that of Africa. Definitions are mainly based on the number of employees as well as the total assets of the enterprise. We, thus, attempt to compare and contrast various definitions. According to Nigerian National Council of Industries, SMEs are those enterprises whose total costs (excluding land) are 200 million Nigerian Naira (equivalently, around 553,000 USD) maximum (Onugu, 2005). In Britain, small scale business is considered as that industry with annual turnover of not more than 2 million pound (equivalently, around 2.6 million USD) with fewer than 200 paid employees (Bakare, 2014). Organization for Economic Cooperation and Development (OECD) provides a slightly different but close definition. As far as the number of employees is concerned, “[t]he most frequent upper limit designating an SME is 250 employees, as in the European Union. However, some countries set the limit at 200 employees, while the United States considers SMEs to include firms with fewer than 500 employees...Financial assets are also used to define SMEs...[T]he turnover of medium-sized enterprises (50-249 employees) should not exceed EUR 50 million [equivalently, around 58.7 million USD]; that of small enterprises (10-49 employees) should not exceed EUR 10 million [equivalently, around 11.7 million USD] while that of micro firms (less than 10 employees) should not exceed EUR 2 million [equivalently, around 2.3 million USD]” (OECD, 2005:17).

2.1.2 Innovation

According to Merriam-Webster English Dictionary, innovation is “the introduction of something new”. This could be “a new idea, method or device”. Innovation is a general concept that can be applied in diverse areas. The definition of business innovation, hence, has specific importance and relevance here. Innovation is “[t]he process of translating an idea or invention into a good or service that created value or for which customers will pay...In business, innovation often results when ideas are applied by the company in order to further satisfy the needs and expectations of the customers” (businessdictionary.com). In short, the concept of innovation is always associated with the term ‘new’; it is the process of adopting new ideas, methods or means. As Kuratko and Hodgetts (2004) maintain, innovation is the creation of new wealth or the change and enhancement of prevailing resources to generate new wealth.

OECD classifies innovation into four types: product innovation, process innovation, marketing innovation and organizational innovation. According to OECD (2009), a product

innovation is “the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses” (p. 11). A process innovation is “the implementation of a new or significantly improved production or delivery method” (p. 12). A marketing innovation is “the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing” (p. 12). And finally, an organizational innovation is “the implementation of a new organizational business practices, firm organization or external relations” (p. 12). Due to their relevance and significance, the study employs these four types of innovations as independent variables during the analysis, and they are incorporated into the regression model.

2.1.3 Open Innovation Theory

Open innovation theory, one of the popular theories of innovation, argues that firms, in order to adopt innovative strategies and enhance their technology, must use internal and external ideas of innovation, and also, internal and external market channels (Chesbrough, 2006). The theory implies that firms should not be limited to internal ideas and market pathways, but consider external ones that could be equally crucial. To adopt innovation, SMEs face a number of barriers including absence of innovation resources, methods and managerial capabilities. Yet, these type of enterprises demonstrate strong abilities to improve their innovation constantly. Above all, open innovation offers an opportunity to SMEs, that they can extensively exploit external innovation resources as well as scientific innovation ideas and managerial means (Chesbrough, 2006).

2.2 Empirical Literature

In an appraisal on the effect of several innovation dimensions on SMEs performances, a study conducted in 2013 targeted 284 SMEs in the food and beverage, textiles and clothing and wood-based sub-industries across Malaysia. Using a hierarchical regression analysis, the study finds that product innovation and process innovation affect firm performance significantly; impact of the former being stronger (Rosli & Sidek, 2013). A number of studies prior to this study, conducted in different countries, also conclude that innovation affects SMEs/firms performances positively. Geroski & Van Reenen, (1993); Han & Srivastava (1998); Raymond & St-Pierre, (2010) and Salim & Sulaiman, (2011) are among these studies.

Accordingly, a recent study by Terziovski, (2010) which investigates the relationship between innovation and performance of wooden furniture manufacturing SMEs in Indonesia finds that innovation has a positive effect on firm`s performance. Moreover, a research conducted in Kenya by Ndalira, Ngugi & Chepkulei, (2013) went on to affirm that innovation plays a significant role in the growth of SMEs.

Twaliwi & Isaac (2017) probe the effect of innovation on SMEs performance in Gwagwalada-Abuja. Data was collected from 348 SMEs in five consecutive years (2010 to 2015), and then carried out regression analysis by using Ordinary Least Squares (OLS) Method to estimate the effect. The study reveals that innovation has a positive effect on the performance

of SMEs in Gwagwalada-Abuja. It specifically finds that the (positive) effects of product innovation, process innovation and marketing innovation are statistically significant. In spite of this, the study uncovers that SMEs in Gwagwalada-Abuja do not frequently adopt innovation, and thus, recommends for these SMEs to adopt new innovation methods in order to improve their performances. Our study adopts the regression model from this study, and expands the model to avoid likely endogeneity problem.

Obviously, there is a huge literature regarding the effect of innovation on SMEs performance. Since the majority of them conclude that there is a positive relationship between the two variables, we have selected few of them. Although SMEs face a number of barriers including absence of innovation resources, methods and managerial capabilities, it is apparent that innovation is, nonetheless, popular among SMEs worldwide. Innovation improved the performance of SMEs in Malaysia, Indonesia, Kenya and Nigeria as revealed by Rosli & Sidek, (2013), Terziowski, (2010), Ndalira, Ngugi & Chepkulei, (2013) and Twaliwi & Isaac (2017) respectively.

Given the popularity of the concept ‘innovation’ and the abundance of the literature concerning its impact on business performance, it is hardly acceptable fact that a study like this has never been carried out in Somaliland, where small and medium enterprises outnumber other enterprises. This study, therefore, aims to fill this gap and hence, examines the effect of innovation on SMEs in Hargeisa, Somaliland.

3. Research Methodology

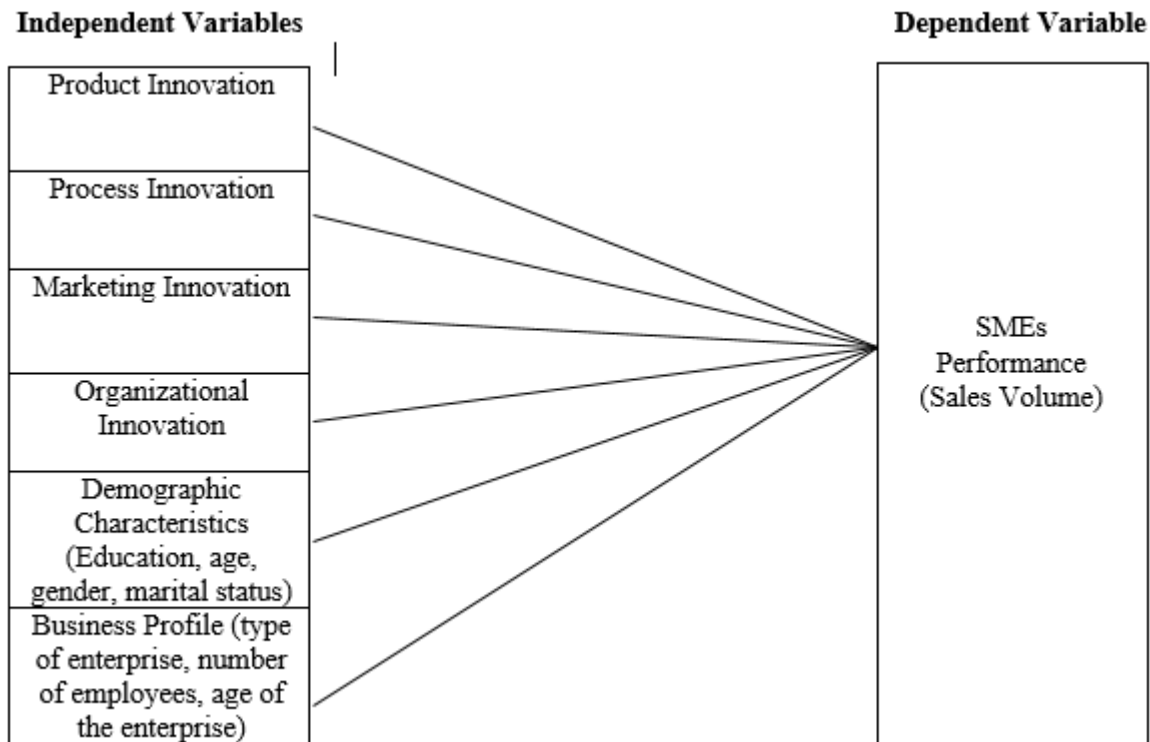
3.1 Research Design

A research design is the general plan of how one goes about answering the research questions. It is the blue print of the study and provides the outline and direction of the research. This study adopts a quantitative research design. A quantitative research involves the generation of data in quantitative form, which can be subjected to rigorous quantitative analysis in a formal and rigid fashion.

3.2 Conceptual Framework

Figure 1 provides the conceptual framework and how our variables are related. Innovation is the independent variable, broken down into four different variables – product innovation, process innovation, marketing innovation and organizational innovation – while SMEs performance is the dependent variable. We use sales volume as proxy variable to performance. Since the model has been expanded, new independent variables have been added. Demographic characteristics comprise age, education, marital status and gender of respondent, while business profile consist of type of the enterprise, age of the enterprise and the number of employees in the enterprise.

Figure 1 Conceptual Framework



3.3 Model Specification

To estimate the impact of innovation on enterprise performance, the study adopts a multiple linear regression model from Twaliwi & Isaac (2017) shown below.

$$SV = \alpha + \beta_1 PN + \beta_2 MI + \beta_3 PSI + OI + \pi \quad (1)$$

Where SV = Sales Volume (Performance measured), PN = product innovation, MI = marketing innovation, PSI = process innovation, OI = organizational innovation, α = constant, β = coefficient and π = error term.

However, the model has been expanded to avoid omitted variables problem and other likely forms of endogeneity. For instance, education level of the managers, owners or employees, number of employees in the enterprise and age of the enterprise could all positively affect the sales volume, and therefore, performance of the enterprise. We, thus, added all those variables that we had their data, and could possibly be correlated with the variables in the regression equation. Here is the new regression equation:

$$SV = \alpha + \beta_1 PN + \beta_2 PSI + \beta_3 MI + \beta_4 OI + \beta_5 X_1 + \beta_6 X_2 + \pi \quad (2)$$

X_1 is a vector of variables of demographic characteristics of respondents including age, gender, marital status and education level. X_2 is a vector of variables of business profile namely type of the enterprise, number of employees and age of the enterprise.

Innovation as an independent variable in this study was divided into product innovation, process innovation, marketing innovation and organizational innovation. As OECD (2009) defines them, a product innovation is “the introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses” (p. 11). A process innovation is “the implementation of a new or significantly improved production or delivery method” (p. 12). A marketing innovation is “the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing” (p. 12). And finally, an organizational innovation is “the implementation of a new organizational business practices, firm organization or external relations” (p. 12). On the contrary, SMEs are enterprises owned and managed by individual owner, and they usually have less than 250 employees (Carland et al., 1984).

3.4 Data

This study, conducted in Hargeisa (the capital of Somaliland), targeted a population of 6930 SMEs. 6651 of them are small enterprises licenses by Hargeisa Local Government while 279 are medium enterprises licenses by Somaliland Ministry of Trade and Investment. The data was obtained from these two institutions respectively. The study adopted simple random sampling technique, whereby all SMEs in Hargeisa had equal chance to be selected. Questionnaires were used to collect the data and eventually, a sample of 378 SMEs was selected from the target population through Slovin’s Formula.

$$n = \frac{N}{1+N(e)}$$

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,

$$n = \frac{6930}{1+6930(0.05)} = 378$$

Both descriptive and regression analyses are employed while Statistical Package for Social Scientist (SPSS) is adopted for the analysis.

Table 1 Summary Statistics

Variables	N	Mean	Std. Deviation
Sales volume	378	1.336	0.47858973
Gender of respondents	378	1.28266667	0.4508973
Age of respondents	378	2.17333333	1.11111705
Education level	378	2.13333333	0.93267102
Marital status	378	1.66666667	0.77964295
Type of enterprise	378	1.34933333	0.47739638
Number of employees	378	1.54666667	0.82236995
Age of the enterprise	378	1.96266667	0.909659
Product innovation	378	0.70133333	0.4582848
Process innovation	378	0.40266667	0.49108995
Marketing innovation	378	0.664	0.47296991
Organizational innovation	378	0.64266667	0.4798544

This table demonstrates the summary statistics – number of observations, mean and standard deviation – of all variables in our regression equation. The dependent variable that our model attempts to estimate is the sales volume which is proxy to the performance of the enterprise. The other eleven variables are independent variables and here is their list with their components: gender (male, female), age, education level (secondary, diploma, postgraduate, others), marital status (single, married, widowed, and divorced), type of enterprise (small, medium), number of employees, age of the enterprise, product innovation, process innovation, marketing innovation and organizational innovation.

4. Empirical Findings

4.1 Introduction

This section presents analysis, results and major findings of the collected data. The results are mainly demonstrated in descriptive and regression analysis, accompanied by their interpretations.

4.2 Data Analysis

4.2.1 Demographic Characteristics (Employees and Managers/Owners of SMEs)

In this section, demographic characteristics of respondents are demonstrated. Our respondents were either managers/owners or employees of the selected SMEs. Respondents' gender, education level, age and marital status were recorded.

Table 2 Gender of Respondents

Gender	Frequency	Percentage (%)
Male	271	71.7
Female	107	28.3
Total	378	100

Small and Medium Enterprises are a male dominated business. According to Table 2, 71.7 percent of the respondents are male, while 28.3 percent are female.

Table 3 Age of Respondents

Age	Frequency	Percentage (%)
18-25	124	32.8
26-33	134	35.4
34-41	66	17.5
42-49	40	10.6
50 and above	14	3.7
Total	378	100

Table 3 shows that 32.8 percent of the respondents belong to the age group of 18-25 years; 35.4 percent belong to the age group of 26-33; 17.5 percent belong to the age group of 34-41; 10.6 percent of the respondents belong to the age group of 42-49, and only 3.7 percent are 50 above.

Table 4 Education Level of Respondents

Education	Frequency	Percentage (%)
Secondary	111	29.4
Diploma	136	36
Postgraduate	101	26.7
Others	30	7.9
Total	378	100

Respondents were found to be of a different academic background. Most of them attained high school or above. As table 4 reveals, 29.4 percent completed secondary school, 36 percent were holding diploma, and 26.7 percent completed postgraduate studies. 5 percent of the respondents did not belong to any of this group, and filled others option.

Table 5 Marital Status of Respondents

Marital Status	Frequency	Percentage (%)
Single	183	48.4
Married	153	40.5
Widowed	27	7.1
Divorced	15	4.0
Total	378	100

Table 5 indicates that around 90 percent of the respondents were either single or married. 48.4 percent of them were single while 40.5 were married. The rest were as follows: 7.1 percent were widowed and 4 percent were divorced. Since job opportunities are very low in Somaliland, and youth unemployment is particularly very high, numerous educated (or possibly school dropouts) youngsters end up in the market establishing their own businesses, working at family businesses or alike. It is, thus, plausible that majority of the respondents are single.

4.2.2 Business Profile

Profiles of the targeted enterprises are presented in this section. First table shows the type of the enterprise – small or medium. Then, the number of employees in the enterprise and the number of years the business existed follow.

Table 6 Type of the Enterprise

Type	Frequency	Percentage (%)
Small	246	65.1
Medium	132	34.9
Total	378	100

Of the 378 targeted SMEs, 65 percent were small enterprises while 34.9 percent were medium enterprises (table 6).

Table 7 Number of Employees in the Enterprise

Number of employees	Frequency	Percentage (%)
1-5	232	61.4
6-10	103	27.2
11-20	24	6.3
Above 20	19	5.0
Total	378	100

The result from table 7 shows that majority of the enterprises' employees are 1-5 as they have the highest percentage (61.4 percent). 27 percent have 6-10 employees; 6.3 percent have 11-20 employees and the remaining 5 percent have above 20 employees. This implies that majority of the employees work at small enterprises.

Table 8 Age of the Enterprise

Age category	Frequency	Percentage (%)
0-2	133	35.2
3-5	157	41.5
6-8	58	15.3
Above 9	30	7.9
Total	378	100

Table 8 illustrates that majority of these SMEs existed five years or less. 35.2 percent of them operated two years or less while 41.5 percent existed three to five years. The remaining SMEs existed six years or more.

Table 9 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 = 378 R² = 0.502 Adjusted R² = 0.487

Dependent Variable: Sales Volume

	Coefficients	Std. Error	P-value
Constant	0.827733	0.091438	0.000
Gender	0.04796	0.041208	0.245
Age	-0.00028	0.017811	0.988
Education level	-0.03111	0.020422	0.129
Marital status	-0.066	0.025096	0.009
Type of enterprise	0.083449	0.040099	0.038
Number of employees	-0.02917	0.024041	0.226
Age the business	0.022705	0.021129	0.283
Product innovation	0.28139	0.041272	0.000
Process innovation	0.023145	0.03638	0.525
Marketing innovation	0.298692	0.040643	0.000
Organizational innovation	0.358907	0.039786	0.000

This table illustrates the regression results of our model. With number of observations of 378, the coefficients of significant variables are interpreted here. Both marital status and type of the enterprise are significant variables in our equation. This could mean that performance of the enterprises varies due to the marital status of the owners/employees as well as type of the enterprise (small or medium). However, we are interested in the coefficients of the four variables representing the innovations in our model, to estimate their effect on the sales volume of the enterprises. The four innovations are product innovation (PN), process innovation (PSI), marketing innovation (MI) and organizational innovation (OI). As can be seen from the regression results, three of the innovation variables – PN, MI and OI – are significant variables. Innovation coefficient for product innovation (PN) is positive and significant in achieving SMEs performance in terms of sales volume in Hargeisa. The $SV = 0.83 + 0.28PN$ indicates that sales volume will increase by 28 percent for every 1 percent increase in product innovation (PI). Innovation coefficient for marketing innovation (MI) is positive and significant in achieving SMEs performance in terms of sales volume in Hargeisa. The $SV = 0.83 + 0.299MI$ indicates that sales volume will increase by 29 percent for every 1 percent increase in marketing innovation (MI). Innovation coefficient for organizational innovation (OI) is positive and significant in achieving SMEs performance in terms of sales volume in Hargeisa. The $SV =$

0.83 + 0.36OI indicates that sales volume will increase by 36 percent for every 1 percent increase in organizational innovation (OI). It is obvious from our findings that innovation significantly affects sales volume, and in turn, performance of small and medium enterprises in Hargeisa.

5. Conclusion

In this study, the effect of innovation on Small and Medium Enterprises performance is examined. Sales volume was adopted as a proxy variable to the performance of the enterprises. Target population of the study was 6930 SMEs in Hargeisa, Somaliland. This number was provided by Hargeisa Local Government and Somaliland Ministry of Commerce and Investment. A sample of 378 SMEs has been drawn from this population. Furthermore, the study adopted both descriptive and regression analyses to estimate the impact of innovation.

In the previous section, analysis has been conducted, and then results have been presented. The study investigates the SMEs in Hargeisa and finds that these SMEs are male dominated businesses. Majority of the employees/owners are youth, single, and attained diploma level of education. On the contrary, majority of the targeted SMEs were small enterprises, with one to five employees and existed five years or less. Our regression results reveal that innovation significantly affects the performance of SMEs in Hargeisa. The effects of product innovation, marketing innovation and organizational innovation are statistically significant among these SMEs. The study, hence, concludes that innovation has a positive effect on business performance. The findings of this study are in line with those of Rosli & Sidek, (2013), Terziovski, (2010), Ndalira, Ngugi & Chepkulei, (2013) and Twaliwi & Isaac (2017). The findings are also consistent with those theories that underscore the significance of innovation in business performance. Given the importance of innovation in business performance unveiled in this study, the study recommends for SMEs in Hargeisa to adopt all kinds of innovations, and at the same time, improve the existing innovation practices.

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*Corresponding author: Muhumed Mohamed Muhumed