**The Effect of Technology on the Development of Small and Medium-sized Enterprises (SMEs) in Herat, Afghanistan**

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The main goal of this paper is to discuss the effect of technology on the development of SMEs in Herat city of Afghanistan. The data was collected from 340 out of 2,969 SMEs which are using technology in Herat, Afghanistan.The results show that; there is a positive or direct relationship between the development of SMEs and technology usages by the SMEs which proves that technology and SMEs grow simultaneously. While using technology by the SMEs is depended to some other factors such as availability of financial means, infrastructures, technological infrastructures/bandwidth, reliable power and government support that enable the SMEs to have access to technology consequently. The Model Summary revealed that R = 0.793 is a very strong relationship. The findings reveal that the model is reasonably a very good predictor of the outcome. Also, according to the model, R2 = 0.629 which indicated that almost 63% of the variance in the data can be explained by the independent variables. According to the findings, the value of adjusted R squared was 0.624 a hint that there was a variation of 0.624 on SME’s development due to changes in Financial, Organizational, Technological, and Infrastructural factors at a 95% confidence level.

Keywords: Development, Growth, Small and Medium-sized Enterprises (SMEs), Technology

# Introduction

SMEs are the backbone of a country’s economy (Robu, 2013). Technology as a key prerequisite for prosperity of the country play significant role on the development of SMEs. In most of the countries, policymakers pay attention on the growth of SMEs and support them by all means. SMEs are targeted by government as an instrument for eliminating youth unemployment rate. Therefore, SMEs increase economic productivities and help businesses to compete in the local, national and international markets.

SMEs generate societal development in terms of establishing income generation sources by creating job opportunities and revenues. SMEs create innovations, and they form flexible production networks (Pasanen, 2003). In fact, the research community largely shares the view that SMEs’ development has special importance in the economy. Okkonen & Pasanen (2017) indicate that changes in the production volume of large companies may often cause significant repercussion in the SME sector. Though, some firms have performed positively in avoiding threats, and few numbers of SMEs face significant problems in the long run (Philip, 2010).

Nowadays, SME’s development is exceedingly being influenced by technology changes in the market. There are many factors that face SMEs difficulties and a high proportion of new firms are closed down during their first years of activities. Closing down of the SMEs indicates that such new firms are not able to maintain and adjust with their environment. SMEs play essential role in industrial development of Afghanistan because it create more job opportunities, require less investment, reduce internal migration and use indigenous raw materials and technology.

According to the Herat Enterprises Union 2019; Small enterprises mostly comprise shoemaking, mobile repairing clinics, tailors, bakery, carpets, caps, general stores, mattresses and other shops. Most of the employees of these enterprises are men. There less women leading small shops in rural areas or they are busy with some homemade products. As this research intends to observe and find out the impact of new technologies in SME development; the focus is on exploring the opportunities that new technologies present to SME and how it can help SMEs’ development. As well as, it will discuss the role of technology in the development of SMEs in Herat from different angles and properly will explain how positively technology has affected the development process of SMEs. In fact SMEs have limited resources, capabilities and technology, therefore, small changes in their structure will allow them to be more flexible (Al-Qirim, 2004). SMEs play key role in diversification of economic activities and create job opportunities. In addition, SMEs’ activities impact on export earning and manufacturing value addition which are valuable sources for sustainable development.

## Research Objectives

The main purpose of this study was to find out the effect of technology usage on the development of SMEs in Herat, Afghanistan.

## Research Hypothesis

The main hypothesis is that technology usage has a positive and significant role in SMEs’ development.

# Research Design

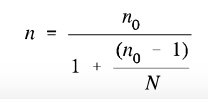
A research design is a detailed blueprint used to guide a research study towards its objectives (Kumar, Leone & Day, 2013). According to Mouton (1996) the main function of a research design is to enable the researcher to anticipate what the appropriate research decisions are likely to be, and to maximise the validity of the eventual results. Precisely, the purpose of the research design is to address and answer the research objectives (McDaniel & Gates, 2010). This study is descriptive in nature and employs explanatory research method which is aimed at establishing the cause and effect relationship between variables. The study was carried out using structured questionnaire. The questionnaire was designed based on the research questions and research objectives. This research was proposed quantitative approach research because the relationship to be identifying between technology usage by the SMEs and the SMEs’ development.

## Target Populations

A population is defined by Salkind (2012) as a group of entities with a common set of characteristics. The target population of this research was 15 business communities of SMEs containing 2,969 SMEs that are using technology (National Union of Business Community of Herat province).

## Sample Size

The sample size refers to the elements to be included in a research study (Gupta, 2011). In this research, the sample size is determined from the Cochran Formula by using stratified random sampling. The research is designed to collect data from 340 out of 2,969 SMEs which are using technology in the Herat province of Afghanistan.

  
n = 340

Where:

n = Sample size

N = Population (2,969)

P = Success Probability (50%)

Z = 1.96 (Confidence Interval 95%)

e = 0.05

So, based on the above formula and calculation, the sample size was determined 340 from 15 units of SMEs that are using technology in Herat province of Afghanistan.

**Table 1. Sample Breakdown**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Respondents** | **Total # of SMEs** | **Percentage (%)** | **# of questionnaires proposed to be distribute** |
| 1 | Carpenters | 285 | 9.6 | 33 |
| 2 | Metalwork | 491 | 16.5 | 56 |
| 3 | Aluminium Producers | 58 | 2.0 | 7 |
| 4 | Upholstery | 251 | 8.5 | 29 |
| 5 | Equipment and Furniture | 66 | 2.2 | 8 |
| 6 | Shoemakers | 24 | 0.8 | 3 |
| 7 | Embroideries | 65 | 2.2 | 7 |
| 8 | Computer Repairing | 125 | 4.2 | 14 |
| 9 | Mobile Clinics | 488 | 16.4 | 56 |
| 10 | Audio Visuals | 292 | 9.8 | 33 |
| 11 | Tailoring Centres | 192 | 6.5 | 22 |
| 12 | Electrics | 291 | 9.8 | 33 |
| 13 | Plumber/piping | 182 | 6.1 | 21 |
| 14 | Locksmiths | 54 | 1.8 | 6 |
| 15 | Refrigerator | 105 | 3.5 | 12 |
| **Total** | | **2,969** | **100 %** | **340** |

Source: Authors

# Regression Analysis and Model

Regression analysis is a more sophisticated extension of correlation used to explore the predictive ability of a set of independent variables on one continuous dependent measure (Pallant 2010). Regression analysis is used for this paper for finding cause and effect of technology usage on SMEs’ development. SPSS software was used for data analysis, therefore, different statistical techniques were adapted for data analyzing including descriptive, correlation and reliability. A multiple regression analysis was used for hypotheses testing. Following regression model present the research variables.

X1= Financial

X2= Organizational

X3= Technological

X4= Infrastructural

Y = β0 + β1X1 + β2X2 + β3X3 + β4X4 + ε

Where:

β0 is the intercept

β1…. Β4 are coefficients/parameters associated with X1, X2… X4

Y–Response variable

X1 X2… X4 are known constants/explanatory variables

e –is random error.

# Research Findings

## Demographic Information

Demographic information of the informants is categorized in terms of gender, age and level of education which are summarized in different tables.

### Table 2. Gender of the Respondents

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Gender of Informants** | | | | |
| Gender | Frequency | Percent | Valid Percent | Cumulative Percent |
| Male | 315 | 94.0 | 94.0 | 94.0 |
| Female | 20 | 6.0 | 6.0 | 100.0 |
| Total | 335 | 100.0 | 100.0 |  |

Source: Authors

Table 2 shows that the majority of the respondents were males, 94% (315 of the respondents) were males while only 6% (20 of the respondents) were females. However, the SME’s context in terms of gender equity is somehow problematic and the number of women involving in this sector is very low but the findings indicate that both genders were involved in this study and thus the results did not suffer from gender biases.

### **Table 3. Age Categories of the Respondents**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 20 and below | 2 | .6 | .6 | .6 |
| 21 to 30 | 119 | 35.5 | 35.5 | 36.1 |
| 31 to 40 | 189 | 56.4 | 56.4 | 92.5 |
| 41 to 50 | 25 | 7.5 | 7.5 | 100.0 |
| Total | 335 | 100.0 | 100.0 |  |

Source: Authors

Table 3 presents that respondents were requested to indicate their age category. Majority of the respondents as shown by 56.4% indicated that they were aged between 31 to 40 years, 35.5% indicated that they were 21 to 30 years, 7.5 % the 41-50 years’ category, while 0.6% indicated that they were aged 20 and below years.

### **Table 4. Education Level of Respondents**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Level of Education** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 12 Grade | 40 | 12.0 | 12.0 | 12.0 |
| 14 Grade | 87 | 26.0 | 26.0 | 26.0 |
| Bachelor | 198 | 59.0 | 59.0 | 59.0 |
| Master and Above | 10 | 3.0 | 3.0 | 3.0 |
| Total | 335 | 100.0 | 100.0 |  |

### Source: author, 2021

Table 4 shows the respondents were requested to indicate their highest level of education that they possess. Only 3% of the respondents indicated that they had a Master degree or above, 59% of the respondents indicated that they had a Bachelor degree as the highest education, 26% indicated that they had a 14 grade Degree while 12 % indicated that they had 12 grades or high school degree. The findings show that most of the respondents who participated in this study had attained the university education to understand the questions and thus would provide credible information.

### **Table 5. Work Experience of Respondents**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Experience Level of the Respondents** | | | | | |
|  | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 1 to 5 yrs. | 91 | 27.2 | 27.2 | 27.2 |
| 6 to 10 yrs. | 155 | 46.3 | 46.3 | 73.4 |
| 11 to 15 yrs. | 81 | 24.2 | 24.2 | 97.6 |
| 16 to 20 yrs. | 8 | 2.4 | 2.4 | 100.0 |
| Total | 335 | 100.0 | 100.0 |  |

Source: Authors

Table 5 presents the respondents were requested to indicate their highest level of experiences. As already shown on above table; 46.3% of respondents indicated that they have 6 to 10 years working experiences, 27.2% of respondents selected 1 to 5years, 24.2% selected 11 to 15 years while only 2.4% of the respondents have 16 to 20 years of working experiences. Totally, the findings show that majority of the respondents have 1 to 15 years of working experiences with SMEs which is an excellent level.

## Descriptive Analysis of the Independent Variables

To collect the target sample inputs; about 3 to 5 sub-questions (attributes and features) were developed for each independent variable in order to make sure that the respondent understand the concept and indicators of each variable and provide the most appropriate response based on their knowledge, education, and experiences rating from 1 to 5 thru considering their level of agreement with the aspects of variables, level of variables’ importance indicated by respondents and the extend level of effects of the indicator on the independent variable and to the dependent variable, accordingly. After completion of the data entry, the aspects/attributes of each variable are computed through mean formula to measure the variable and its effect on the sustainability.

### Descriptive Statistic of Financial Factors (Access to Credit)

The respondents were requested to indicate their level of agreement within the below aspects:

* Technology usage by SMEs requires always huge funding for the development of SMEs.
* Technology usage reduces the operational cost of SMEs through employees’ replacement.
* Procedures of financial institutions for receiving and refunding loans are complicated.
* The enterprise is aware of sources of information for taking loans

related to the Financial Factors that empower SMEs in terms of using technologieswhich can affect the development of SMEs in Afghanistan.

The 5 Likert scales (*Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree*) were used for this purpose and the statistics of their response are depicted in the below table.

**Table 6. Descriptive Statistics of Financial Factors**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptive Statistics** | | | | | | | | |
|  | N | Range | Minimum | Maximum | Mean | | Std. Deviation | Variance |
| Statistic | Statistic | Statistic | Statistic | Statistic | Std. Error | Statistic | Statistic |
| Financial | 335 | 2.80 | 1.20 | 4.00 | 2.4448 | .02880 | .52713 | .278 |
| Valid N (list wise) | 335 |  |  |  |  |  |  |  |

Source: Authors

According to table 6, the range statistic was 2.80 with a tendency to the maximum positive response which is 4, mean statistic was 2.4448 that reveal high closeness to the highest level of agreement “strongly agree” with the effect of financial factors (access to credit) on the ability of the SMEs to use technology and finally effect on the SME’s development, Meanwhile, the mean standard error was 0.02880 which is very small and represents the big difference between the sample mean and population mean, standard deviation statistic was 0.52713 that shows the amount of diffusion from mean and the variance from mean was 0.278 that indicate the average degree of each point differ from the mean.

### Descriptive Statistic of Organizational Factors (Availability of trained/skilled manpower)

The respondents were requested to indicate their level of agreement within the below aspects:

* Employees need training about new installed technology in SMEs.
* Employees may face trouble to use new technology in SMEs.
* High qualified staff will be needed for SMEs to run technology.

related to the organizational factors that empower SMEs in terms of using technologieswhich can affect the development of SMEs in Afghanistan.

The 5 Likert scales (*Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree*) were used for this purpose as well and the statistics of their response are depicted in the below table.

**Table 7. Descriptive Statistic of Organizational Factors**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptive Statistics** | | | | | | | | |
|  | N  Statistic | Range  Statistic | Minimum  Statistic | Maximum  Statistic | Mean | | Std. Deviation  Statistic | Variance  Statistic |
| Statistic | Std. Error |
| Organizational | 335 | 3.33 | 1.00 | 4.33 | 2.0915 | .03227 | .59066 | .349 |
| Valid N (list wise) | 335 |  |  |  |  |  |  |  |

Source: Authors

According to table 7, the range statistic was 3.33 with a tendency to the maximum positive response which is 4.33, mean statistic was 2.0915 that reveal high closeness to the highest level of agreement “strongly agree” with the effect of organizational factors on the ability of the SMEs to use technology and finally effect on the SME’s development, Meanwhile, the mean standard error was 0.03227 which is very small and represents the big difference between the sample mean and population mean, standard deviation statistic was 0.59066 that shows the amount of diffusion from mean and the variance from mean was 0.349 that indicate the average degree of each point differ from the mean.

**Descriptive Statistic of Technological Factors (Innovation, Evolution of Technology without adequate training)**

The respondents were requested to indicate their level of agreement within the below aspects:

* Technology can bring positive changes in the development of SMEs.
* Technology can increase efficiency in development of SMEs.
* Technology can bring innovation in the development of SMEs.
* Without technology SMEs cannot survive.
* Technology Installation can badly affect the development of SMEs for short period of time.

related to the Technological Factors that empower SMEs in terms of using technologieswhich can affect the development of SMEs in Afghanistan.

The 5 Likert scales (*Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree*) were used for this purpose as well and the statistics of their response are depicted in the below table.

**Table 8. Descriptive Statistic of Technological Factors**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptive Statistics** | | | | | | | | |
|  | N  Statistic | Range  Statistic | Minimum  Statistic | Maximum  Statistic | Mean | | Std. Deviation  Statistic | Variance  Statistic |
| Statistic | Std. Error |
| Technological | 335 | 3.00 | 1.00 | 4.00 | 2.2066 | .02684 | .49120 | .241 |
| Valid N (list wise) | 335 |  |  |  |  |  |  |  |

Source: Authors

According to table 8, the range statistic was 3.00 with a tendency to the maximum positive response which is 4.00, mean statistic was 2.2066 that reveal high closeness to the highest level of agreement “strongly agree” with the effect of organizational factors on the ability of the SMEs to use technology and finally effect on the SME’s development, Meanwhile, the mean standard error was 0.02684 which is very small and represents the big difference between the sample mean and population mean, standard deviation statistic was 0.49120 that shows the amount of diffusion from mean and the variance from mean was 0.241 that indicate the average degree of each point differ from the mean.

**Descriptive Statistic of Infrastructural Factors (Power, bandwidth, reliable internet connection, and government support)**

The respondents were requested to indicate their level of agreement within the below aspects:

* SME has access to a sustainable power source.
* SME has access to a suitable bandwidth.
* SME has access to a reliable internet connection.
* Afghan Government provides any kind of support upon needed.
* SME’s access to technological infrastructures has affected the growth of the SMEs.

related to the Infrastructural Factors that empower SMEs in terms of using technologieswhich can affect the development of SMEs in Afghanistan.

The 5 Likert scales (*Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree*) were used for this purpose as well and the statistics of their response are depicted in the below table.

**Table 9.** **Descriptive Statistic of Infrastructural Factors**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptive Statistics** | | | | | | | | |
|  | N  Statistic | Range  Statistic | Minimum  Statistic | Maximum  Statistic | Mean | | Std. Deviation  Statistic | Variance  Statistic |
| Statistic | Std. Error |
| Infrastructural | 335 | 2.60 | 1.60 | 4.20 | 2.7451 | .02988 | .54682 | .299 |
| Valid N (list wise) | 335 |  |  |  |  |  |  |  |

Source: Authors

According to table 9, the range statistic was 2.60 with a tendency to the maximum positive response which is 4.20, mean statistic was 2.7451 that reveal high closeness to the highest level of agreement “strongly agree” with the effect of infrastructural factors on the ability of the SMEs to use technology and finally effect on the SME’s development, Meanwhile, the mean standard error was 0.02988 which is very small and represents the big difference between the sample mean and population mean, standard deviation statistic was 0.54682 that shows the amount of diffusion from mean and the variance from mean was 0.299 that indicate the average degree of each point differ from the mean.

## Descriptive Analysis of the Dependent Variable

The respondents were requested to indicate their level of agreement, extend level and importance level regarding the technology usage, financial, organizational, technological, and infrastructural factors effects on the SME’s development in Afghanistan. The 5 Likert scales were used for this purpose and the statistics of their response are depicted in the below table.

**Table 10. Descriptive Statistics of SMEs’ Development**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Descriptive Statistics** | | | | | | | | |
|  | N  Statistic | Range  Statistic | Minimum  Statistic | Maximum  Statistic | Mean | | Std. Deviation  Statistic | Variance  Statistic |
| Statistic | Std. Error |
| SME Development | 335 | 3.00 | 1.00 | 4.00 | 2.2336 | .02635 | .48220 | .233 |
| Valid N (list wise) | 335 |  |  |  |  |  |  |  |

Source: Authors

As shown on above table, the range statistic was 3.00 with a tendency to the maximum positive response, mean statistic was 2.2336 that reveal closeness to the highest level of agreement, and mean standard error was 0.02635 which is very small and depict the big difference between the sample mean and population mean, standard deviation statistic was 0.48220 that shows the amount of dispersion from mean and the variance from mean was 0.233that indicate the average degree of each point differ from the mean.

# Correlation of Variables

Kalla (2011) noted that it is important to determine the relationship between variables and reach to the right conclusion. Correlation is the most proper technique to find the relationship between two or more quantitative variables. For instance, the Pearson correlation coefficient is useful statistical formula to measure the coefficient between variables. The relationship between two variables is measured on the bases of coefficient value which range between -1.00 and 1.00.

## Correlation of SME’s Development and independent variables

The correlation between the dependent variable of SMEs’ Development and the independent variables including financial, organizational, technological and infrastructural factors investigated via Pearson correlation coefficient.

### Correlation of SMEs’ development and Financial Factor

A Pearson correlation coefficient was computed via SPSS to assess the relationship between the SME’s Development and the Financial Factors (Access to Credit). As shown on Table 11 the results depict that there was a positive correlation between the two variables, r =0.558, n = 335, p = 0.000

**Table 11. Correlation of SMEs’ Development and Financial Factor**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlations** | | | |
|  | | SME Development | Financial |
| SME Development | Pearson Correlation | 1 | .558\*\* |
| Sig. (2-tailed) |  | .000 |
| N | 335 | 335 |
| Financial | Pearson Correlation | .558\*\* | 1 |
| Sig. (2-tailed) | .000 |  |
| N | 335 | 335 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | |

Source: Authors

### Correlation of SMEs’ development and Organizational Factor

A Pearson correlation coefficient was computed thru SPSS to assess the relationship between the SMEs’ development and the Organizational factors. The result in Table 12 confirms that there was a positive correlation between the two variables, r =0.473, n = 335, p = 0.000.

**Table 12. Correlation of SMEs’ Development and Organizational Factor**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlations** | | | |
|  | | SME Development | Organizational |
| SME Development | Pearson Correlation | 1 | .473\*\* |
| Sig. (2-tailed) |  | .000 |
| N | 335 | 335 |
| Organizational | Pearson Correlation | .473\*\* | 1 |
| Sig. (2-tailed) | .000 |  |
| N | 335 | 335 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | |

Source: Authors

### Correlation of SMEs’ development and Technological Factor

A Pearson correlation coefficient was computed via SPSS to assess the relationship between the sustainability of local NGOs and the fund development. The result in the below table depict that there was a positive correlation between the two variables, r =0.310, n = 335, p = 0.000.

**Table 13. Correlation of SMEs’ Development and Technological Factor**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlations** | | | |
|  | | SME Development | Technological |
| SME Development | Pearson Correlation | 1 | .310\*\* |
| Sig. (2-tailed) |  | .000 |
| N | 335 | 335 |
| Technological | Pearson Correlation | .310\*\* | 1 |
| Sig. (2-tailed) | .000 |  |
| N | 335 | 335 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | |

Source: Authors

### Correlation of SMEs’ development and infrastructural Factor

A Pearson correlation coefficient was computed via SPSS to assess the relationship between the sustainability of local NGOs and the fund development. The result in the below table depict that there was a positive correlation between the two variables, r =0.501, n = 335, p = 0.000

**Table 14. Correlation of SME’s Development and Infrastructural Factor**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlations** | | | |
|  | | SME Development | Infrastructure |
| SME Development | Pearson Correlation | 1 | .501\*\* |
| Sig. (2-tailed) |  | .000 |
| N | 335 | 335 |
| Infrastructure | Pearson Correlation | .501\*\* | 1 |
| Sig. (2-tailed) | .000 |  |
| N | 335 | 335 |
| \*\*. Correlation is significant at the 0.01 level (2-tailed). | | | |

Source: Authors

## Model Summary

The model summary provides information regarding the variables which have relations to each other. The model is made up of the independent variables such as Financial (high initial investment and difficulty in the access to credit), Organizational (lack of skilled staff and coherent/clear strategy), Technological (evolution of technology without adequate training), and Infrastructural (power, bandwidth, and reliable internet connection) which are used to predict the dependent variable technology usage by SMEs and SMEs’ Development, consequently.

**Table 15. Model Summary**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Model Summary** | | | | |
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .793a | .629 | .624 | .29551 |
| a. Predictors: (Constant), Financial, Organizational, Technological, Infrastructural | | | | |
| b. Dependent Variable: SME Development | | | | |

Source: Authors

As shown on Table 15 the Model Summary revealed that R = 0.793 is a very strong relationship. The findings reveal that the model is reasonably a very good predictor of the outcome. Also, according to the model, R2 = 0.629 which indicated that almost 63% of the variance in the data can be explained by the independent variables. According to the findings, the value of adjusted R squared was 0.624 a hint that there was a variation of 0.624 on SME’s development due to changes in Financial, Organizational, Technological, and Infrastructural factors at a 95% confidence level. The findings show that almost 64% of the changes on SME’s Development in Herat, Afghanistan could be transpired by fluctuations in financial, organizational, technological, and infrastructural factors as independent variables.

## Coefficients

A single linear regression was calculated to predict the effect of technology usage, financial, technological, organizational and infrastructural factors on SMEs’ development to understand the significance level to draw out a result of acceptance and or rejection of the independent variables on the dependent variable.

**Table 16. Coefficients**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Coefficientsa** | | | | | | |
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| B | Std. Error | Beta |
| 1 | (Constant) | -.515 | .122 |  | -4.224 | .000 |
| Financial | .320 | .033 | .350 | 9.559 | .000 |
| Organizational | .344 | .028 | .422 | 12.412 | .000 |
| Technological | .169 | .034 | .172 | 5.041 | .000 |
| Infrastructural | .318 | .032 | .361 | 9.959 | .000 |
| a. Dependent Variable: SME Development | | | | | | |

Source: Authors

Ordinary Least Squares (OLS) method was used for finding linear relationship between independent and dependent variables. The multiple regression equation of this research was:

Y = β0 + β1X1 + β2X2 + β3X3 + β4X4 + ε

Where Y = SMEs’ Development, X1 = Financial Factors, X2 = Organizational, X3 = Technological Factors, X4 = Infrastructural Factors, β0 = Y-intercept as a coefficient, β1- β4 = coefficient representing change on Y, and ε= the error terms.

Thus, the regression equation was drawn as following:

Y = -0.515 + 0.320X1 + 0.344X2 + 0.169X3 + 0.318X4 + ε

From the above regression equation, it was revealed that holding financial, organizational, technological and infrastructural aspects to a constant zero, SMEs development would be at -0.515. A unit increase in financial factor (Access to credit) would lead to increase in SMEs’ development by 0.320, a unit increase in organizational factors would lead to increase in SMEs’ development by 0.344, a unit increase in technological factors would lead to increase in SMEs’ development by 0.169, and finally a unit increase in infrastructural factors would lead to increase in SMEs’ development by 0.318. All the factors were found to significantly affect SMEs’ development as the p-value for all the variables is below 0.05.

# Hypothesis Analysis

According to the analyzed data and findings in this chapter, the research pursued to analyze the papers’ hypothesis as below which directly indicates that all hypothesize are approved and accepted.

1. Financial resources have a positive effect on SMEs’ ability to use technology in Herat province of Afghanistan by standardized coefficient of 0.350 and significance level of below 0.05 (p=0.000) and the t coefficient is (t=9.559) and facilitate SMEs’ development, accordingly.
2. Organizational capabilities can foster the SMEs’ ability to use technology in Herat province of Afghanistan by standardized coefficient of 0.422 and significance level of below 0.05 (p=0.000) and the t coefficient is (t=12.412) and facilitate SMEs’ development, as a result.
3. Technological factors have a positive impact on SMEs’ ability to use technology in Herat province of Afghanistan by standardized coefficient of 0.172 and significance level of below 0.05 (p=0.000) and the t coefficient is (t=5.041) and facilitate SMEs’ development, successively.
4. Infrastructural factors play a significant role in SMEs’ ability to use technology in Herat province of Afghanistan by standardized coefficient of 0.361 and significance level of below 0.05 (p=0.000) and the t coefficient is (t=9.959) and facilitate SMEs’ development, as a result.

# Conclusion

Research findings illustrate that there is direct and positive relationship between technology usage and SMEs development in Afghanistan. SMEs did not experience rapid growth in the past because of using traditional method of business activities. Changing the method of running the business has some challenges for new startups because of lacking high skilled forces. Using the updated technology requires skilled staff that unfortunately Afghanistan was lacking it but with passage of time Afghans made familiar themselves with the contemporary technology and will adjust themselves accordingly which finally will lead them toward a well-developed country in SMEs sector. In short, updated technology will lead Afghanistan’s SMEs sector to prospers, independent and strong business sector.

The descriptive findings reveal the positive effect of the independent variables (financial, organizational, technological and infrastructural factors) on the dependent variable (SMEs’ development) with the mean of close to the high level of agreement, greatly extend and important. The findings also indicate a positive correlation between the dependent and independent variables and the coefficient analysis presents the significant of below 0.05 that verify that technology usage has a positive and significant effect on SMEs’ Development in Afghanistan.

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