

## Product Diversification in Algerian Enterprises: The Need for Cost Controlling and the Effect on Product Quality

تنوع المنتجات في المؤسسات الجزائرية: الحاجة إلى التحكم في التكاليف والتأثير على جودة المنتج

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### Abstract:

Product diversification is one of the important topics in companies as well as Product quality and cost control. In this context, this study aims to show its effective role on product quality and cost control.

To do so, author gathered information by questionnaire in a group of companies and analyzed data that obtained using the SPSS. This study found that there is an effective role of product diversity, customer diversity and geographic diversity on product quality and cost control.

**Keywords:** Product Diversification, Customer Diversity, Product Quality, Cost Control.

**Jel Classification Codes:** D24, E23, L15, L25, M11

ملخص:

تهدف هذه الدراسة إلى توضيح الدور الفعال لتنوع المنتجات على جودة المنتجات وفي التحكم في التكاليف، حيث أن موضوع تنوع المنتجات من المواضيع المهمة في المؤسسات الاقتصادية، كما ويمكن اعتبار كل من جودة المنتجات والتحكم في التكاليف من بين العناصر المهمة.

لتوضيح ذلك قام الباحث بجمع المعلومات المتعلقة بموضوع الدراسة على مستوى مجموعة من المؤسسات وتم تحليل البيانات باستعمال برنامج الـ SPSS، وتوصلت الدراسة إلى أن هناك دور فعال لتنوع المنتجات وتنوع الزبائن وحتى التنوع الجغرافي على جودة المنتجات والتحكم في التكاليف.

**كلمات مفتاحية:** تنوع المنتجات، تنوع الزبائن، جودة المنتجات، مراقبة التكاليف.

تصنيفات JEL: D24, E23, L15, L25, M11

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## **1. INTRODUCTION**

Over the past decades, there is a significant change in the business environment which leads the companies to improve their level of management and their strategic vision. Meanwhile, the companies have started to understand that there is a difficult way to stay in the market competition and to control the market share by presenting the best products in the deep meaning. Products became more complex from the past because the requirement of customer takes up the high curve and there is changing in requirements.

The complexities have been found in customer taste. This leads the companies to make more studies about the manner that they will confront to create value in parallel with customer satisfaction. Accordingly, If the companies stay without studying the right requirement of customers that they will not gain profits because of the insufficiency and lack of the understanding of the real of customers' business (Tuli, Kohli, & Bharadwaj, 2007).

Furthermore, the customers will satisfy by the high quality of production and the lowest cost. The cost must be decreased and controlled. (Kaynak, 2013). Subsequently, the customer knows the best product and the real cost in order to get satisfaction throughout the value of product especially when the company offers more than one product in the area of diversification. So, the companies take into account that in the process of production by using high technologies. The real understanding of the value in companies is so important such as in high-tech companies have better quality than low-tech companies (Brah & Ying Lim, 2006).

In fact, customers need to product quality and diversification. So, the extent of area customers and diversification and also the product diversification considered as important factors that decisively affected the success of the companies' growth (Stopford & Wells Jr, 1972). Moreover, product diversification has been a tool of escaping the companies that have bad profitability (Christensen & Montgomery, 1981). So, the author saw the importance of the product diversification in the management of the production process in the companies.

Product diversification considers as a factor which might have an

influence on product quality and on cost controlling and maybe on customer satisfaction. This indicates that these variables create an important topic in companies. Accordingly, this raises the following problem:

**What is the effective role of product diversification in improving product quality and cost control in Algerian Enterprises?**

The author divided this problem into sub-questions as follows:

Does the product diversification have a strong influence on product quality?

Does the product diversification have a strong influence on cost controlling?

Does the product diversification have a strong influence on customer diversity?

➤ **Main hypothesis:**

The author depends on the following hypothesis in order to give a previous answer to our problem study:

**There is an effective role of product diversification in improving product quality and cost control.**

In this study there are partial hypotheses as follows:

**H1:** greater effectiveness in product diversification, greater product quality.

H1.a: greater effectiveness in product diversity, greater product quality.

H1.b: greater effectiveness in customer diversity, greater product quality.

H1.c: greater effectiveness in geographic diversity, greater product quality.

**H2:** greater effectiveness in product diversification, greater cost control.

H2.a: greater effectiveness in product diversity, greater cost control.

H2.b: greater effectiveness in customer diversity, greater cost control.

H2.c: greater effectiveness in geographic diversity, greater cost control.

➤ **The importance of the study:**

Accordingly, the author considered that this study as an important topic in the companies because of the necessity of studying the product diversification as an essential process in parallel with customers as an important element over all companies in the world. Furthermore, if the companies need to satisfy their customers they should have the best quality of products in order to get also the profits. Especially, the actual information in the market illustrates that product diversification is an important process that managers must take into account. In addition, the

cost controlling must be present in all the process of production in order to achieve the selling price advantage.

➤ **Objectives of the study:**

Over this study, the researcher tends to achieve a set of objectives:

- Show the reality of product diversification in our companies in Algeria.
- Illustrating the relationship between product quality and controlling costs.
- Highlighting the critical importance of customers' diversity.
- Clarify the manner of satisfied customers and keeping their loyalty.
- Raise the results of companies to the best level by adopting the great quality product compatible with the diversity of customers.
- Focusing on the influence of diversification on product quality and cost control.
- Illustrate the relationship between product diversification and customer diversity.

➤ **Methodology of the study:**

In order to understand the most important elements that presented in this study and in order to answer the questions that have been raised and to give a demonstration of the truth or existence or rejection concerning the validity of the hypotheses, the author will take these parts of the study. Firstly, in this study, the author will rely on the descriptive analytical method through the study of a sample of Algerian companies using the questionnaire tool. Secondly, the author will study the amount of data obtained throughout the using of the SPSS program. Thirdly, the results that obtained allow us to circulate the results to Algerian companies.

➤ **Previous studies:**

Hashai and Delios (2012). In this study, there is theorizing that firms seek to balance their growth across both the geographic and product diversification domains. So, it's important to adopt a strategy of expanding an under-diversified direction at the expense of an over-diversified one. Therefore, implying a positive correlation between geographic and product diversification.

Ramadan and ElMaraghy (2014). This study indicates that the automotive market is competing to increase market shares. the focus on product diversification to satisfy customer demands, reduce design and

manufacturing cost and understanding of current and future customer expectations. This research focused on identifying the ultimate number of product platforms of existing and prospective products of an enterprise and evaluating current products diversification and a degree of diversification.

Xhema, Metin, and Groumpos (2018). In this study, the searchers indicate that customers relationships and retention them are the essential focus of global companies in order to stay in competitive markets and to have profit sustainability. This research is a country case study investigates the effect of switching-costs, product quality and corporate image on customer loyalty in the retail market. This study suggests that companies should focus on the store location, products' price, quality, and corporate image if they want to have lower costs, create competitive advantage.

By presenting the previous studies it is clear to us that our study is characterized by the following:

- This study demonstrates the importance of product diversification and its necessity for customers.
- This study is tended to illustrating the relations of the companies with customers and their diversity by the consolidation with them.
- This study shows the manner of the influencing of product diversification on production diversity and the position customer diversity.
- This study shows the manner of the influencing of product diversification on cost controlling.

## **2. THEORETICAL FRAMEWORK and RESEARCH HYPOTHESES**

### **2.1 Product Diversification**

Accordingly, there is a study on the management of companies which clarified the extent of area diversification and product diversification as critical determinants of the success of the companies' growth (Stopford & Wells Jr, 1972). Furthermore, increasing the using of production capacity can supplementary improve the manufacturer's cost position and decrease it in the highly competitive business (Hsu & Liu, 2008).

Subsequently, there is an explanation of the relationship between product diversification, market power, and firm performance (Scherer & Ross, 1990). In diversification, it must provide customers' demand (Claver,

Tari, & Molina, 2003). Furthermore, diversification was a tool for escaping the bad profitability of the companies' (Christensen & Montgomery, 1981). In slow growth rates in competitive industries, the author found that the diversification of the product may be the only prospect for improving the profitability of the companies (Rumelt, 1974). In this explanation, authors could say that there is low level of diversification which are high and low (Delios & Beamish, 1999).

The higher levels of product diversification in companies means that they are more likely to face difficulties of resource and managerial constraints that can limit and decrease their ability to improve global competitive advantages (Wan & Hoskisson, 2003).

Authors found an investigation which evaluates the performance consequences of product diversification. Particularly, emphasizing on the relationship between product diversity, customer diversity, and geographic diversity with firm performance. Accordingly, companies could improve performance, while leveraging current competencies via product diversification into new business stays within the extent of the area of the companies' strategic resources and capabilities. (Hsu & Liu, 2008).

There is a direct influence of product diversification on international diversification strategy. Especially, the higher levels of product diversification need higher levels of managerial coordination and control. Authors found also that the product diversification imposes constraints on the amount of managerial attention and resources available to the companies to expand geographically. So, product diversification can constrain a company's ability to pursue geographic expansion (Wiersema & Bowen, 2008).

## **2.2 Product quality**

Over the past decades, it has been many types of research about product quality. there is a study on the consumer in the auto industry gave a confirmed written on product quality as the second important element affecting the purchasing decision of consumers after product price. Accordingly, consumers are considerably more likely to choose the best and highest quality product (Macdonald & Sharp, 2000). A very great degree of quality gives a defensible market situation as loyal customers willingly give

more payment for this likable feature (Reitsperger, Daniel, Tallman, & Chismar, 1993), and there is another meaning of product quality in the literature considering it is as the likelihood of producing a non-defective unit from either the manufacturer's or the supplier's process (Reyniers & Tapiero, 1995).

The importance of quality is to develop products and services in companies and in order to encourage sustained achievement (Boateng-Okrah & Appiah Fening, 2012), and its predictable degree reliability (Demirbag, Lenny Koh, Tatoglu, & Zaim, 2006). Reliability, performance, durability, and suitability of product standardization are noteworthy as measures of quality performance (Ahire & Golhar, 1996). The serviceability of products must be added.

When the company has produced quality, then it has the ability to meet the expectations of customers (Hellier, Geursen, Carr, & Rickard, 2003). Furthermore, high-tech companies have better quality performance than low-tech companies (Brah & Ying Lim, 2006). The variability of products quality can affect the relationship with customers, so the companies make the customers as a vulnerable element to offers that the competitor offered (Chandrashekar et al., 2007).

At its essence, the quality movement states that enhanced product quality and the decrease of production costs have a positive relation, that being the case improved quality reduces costs (Phillips, Chang, & Buzzell, 1983). Companies have been strengthened the quality movement and the important role of the electronics industry (Reitsperger & Daniel, 1990). If customers do actually show a priority for quality, and if this quality is obtainable in the lowest cost product, then the company which exceptionally good at Total Quality Management should have the best performance than the less committed company (Reitsperger et al., 1993).

According to the framework about product diversification and product quality, this leads us to the following hypothesis: H1: Greater effectiveness in product diversification, greater product quality. The author divided this hypothesis into other sub-hypotheses: H1.a: greater effectiveness in product diversity, greater product quality. H1.b: greater effectiveness in customer

diversity, greater product quality. H1.c: greater effectiveness in geographic diversity, greater product quality.

### **2.3 Customer satisfaction**

It's time to understand the customer and rethink about solutions. If the companies stay like that, the companies can't gain profits because of the lack of understanding of customers' business (Tuli et al., 2007). It must be the companies have a real investment on databases about the place of customers. So, the managers of companies can understand which customers are profitable and important (Chandrashekar, Rotte, Tax, & Grewal, 2007). Customer loyalty is an attitudinal or behavioral commitment to a brand (Zhang, Dixit, & Friedmann, 2010). Companies helped by customer loyalty to achieve a competitive advantage in the market. The managers tend to look for the ability to have loyal customers. Accordingly, companies will have increased profits (Mokhtar, Maiyaki, & Mohd Noor, 2011). Specifically, the synergistic impacts obtained from leveraging actual competence to serve multiple customers can be achieved with several benefits (Hsu & Liu, 2008).

At the same time, customers purchase products and they have an effect on the quality and they show their satisfaction on the best products by evaluating the quality and comparing their expectations and what is their buying (Salihu & Metin, 2017). The companies must attract the customer as they can in order to get a higher satisfaction for suppliers. Therefore, this leads to reduce the sensitivity of customers to competition (Fornell, 1992).

It's highly likely, managers in many global companies focus on looking for new customers but this trend of search is costing a lot of time and money. This looking for new customers makes managers need to find information on customer preferences, forecast and maybe create databases in order to find solutions. This means a lot of costs because of the lengthy processes but we don't forget that the focusing on loyal customers may be a difficult and hard subject but it truly decreases costs and increases profitability to the companies (Homburg, Müller, & Klarmann, 2011).

Companies pay attention to their customers' feedback and must examine this feedback to deliver a higher quality product to those customers and maybe others (Xavier, 2005). Therefore, a contract

manufacturer may be capable to deal with the feedback of product information for buyers, and this, in turn, may enhance the companies' competence (Hsu & Liu, 2008).

## **2.4 Cost Controlling**

In fact, there is a goal from all companies in the calculating of the cost which is taking real management accounting. The company uses new technologies in creating new products with good quality and low costs (Vieira Junior, Cezar Lucato, Maria Vanalle, & Jagoda, 2014), and it's important to have low costs (Demirbag et al., 2006). The cost of reproduction must be decreased and controlled (Kaynak, 2013). Companies must think to choose the suggestion of total quality movement in order to decrease costs and take the surveillance of costs throughout of the investment in the appropriate management of quality through continuous improvement, training, worker involvement, etc (Reitsperger et al., 1993).

The talking about quality is the indicating of the term of value, and if companies can control the quality can add value. Customers and the value that the companies perceived by them. The customers consider that the value is in the equation of cost less than the benefits of product (Valenzuela, Mulki, & Jaramillo, 2010). In fact, the leadership of quality and cost are acting jointly to provide high levels of performance for certain companies (Phillips et al., 1983).

However, from the perspective of total quality, there is a possibility of providing both improved quality and lower costs exist. Accordingly, must highlight that quality is not free but can be offered both a better product and a better price (Reitsperger et al., 1993). While from or in the beginning, the domination of Japanese in the industries was built on low labor cost, it was thereafter supplemented by the automated assembly which allowed cost lowering and enhances quality improvements (Hamel & Prahalad, 1985). Accordingly, the price must be suited to the market (Demirbag et al., 2006).

According to the framework about product diversification and, cost control, this leads us to the following hypothesis: H2: Greater effectiveness in product diversification, greater cost control. The author divided this hypothesis into other sub-hypotheses: H2.a: greater effectiveness in product

diversity, greater cost control. H2.b: greater effectiveness in customer diversity, greater cost control. H2.c: greater effectiveness in geographic diversity, greater cost control.

### **3. RESEACH METHODS DESIGN**

#### **3.1 Population and sample of the study**

The author has targeted the population of the study consists of companies active in Algeria. Then, the sample of the study was determined by the random stratified sample of the study population.

#### **3.2 Study tool**

After looking at the theoretical side, the author designed a questionnaire to answer the questions. The author used Alpha Kronbach in order to know the sincerity and consistency of the paragraphs and items among themselves in order to determine the validity of this study. The author found Alpha Kronbach %87.6 which means that the author used these data to answer for problems of the study. 57 questionnaires were distributed then the study recovered 52 and finally, we accepted 48. Accordingly, the author said that these numbers of acceptance are representing the approximate rate of 84 % of the total questionnaires.

#### **3.3 Statistical Methods**

After the collection of the data and revise it and confirm that it's appropriate to analyze. The author used methods to obtain general indicators about the characteristics of the study sample and to describe the variables of the study, including Frequency Distribution, Mean and, Standard Deviation.

##### **3.3.1 Alpha Kronbach**

The value of alpha Kronbach of this study is 88.2%. Accordingly, it is a good percentage which gives confirmation and validity of this tool for this study.

##### **3.3.2 Coefficient of correlation**

Accordingly, to answer the question it must use the correlation to find out the relevance of the paragraphs, and to find the significance of variables of the study.

### **4. RESULTS AND DISCUSSION**

#### **4. 1. Discuss the results of product diversification**

In the following part, table 1 includes the independent variable which is product diversification.

**Table 1. Results of correlation**

Variables	Mean	Standard deviation	Product Diversity	Customer Diversity	Geographic Diversity
<b>Product Diversity</b>	3,8750	,85209	1	,654**	,597**
<b>Customer Diversity</b>	3,5938	,82775	,654**	1	,752**
<b>Geographic Diversity</b>	3,4427	,89061	,597**	,752**	1
** P<0.01					

**Source:** Prepared by researcher based on the SPSS 22 outputs.

The mean of product diversity was 3.87, the mean of customer diversity was 3.59 and the mean of geographic diversity was 3, 44. The standard deviation was between 0.82 and 0.89. The geographic diversity was ranked first because of its importance. As well as, we found the values of correlation, which were all statistically significant at  $\alpha$  (0.01). Thus, the independent variable which is product diversification has been achieved.

#### **4. 2. Discuss the results of product quality:**

In the following segment, the author illustrated the results of the dependent variable which is product quality. The mean values of the study sample for the questionnaire paragraphs were set in the axis of product quality as follows:

**Table 2. Results of Descriptive Tests**

Paragraphs	Mean	Standard deviation
<b>Product Quality</b>		
P1	4,1042	1,15297
P2	3,5417	1,23699
P3	3,4583	1,09074
P4	4,3542	1,08156
P5	3,2708	1,10588
P6	3,9792	1,15758
P7	3,2917	1,09074
P8	3,1875	1,08483

**Source:** Prepared by researcher based on the SPSS 22 outputs.

The first paragraph with a mean of 4.10, the second paragraph with a

mean of 3.54, the third paragraph with a mean of 3, 45, while the fourth paragraph was a mean of 4.35, the fifth paragraph with a mean 3.27, the sixth paragraph with a mean of 3.97, the seventh paragraph with a mean of 3, 29, while the fourth paragraph was a mean of 3.18. The author noted that the means are limited between 3.18 and 4.35 and with a standard deviation between 1.08 and 1.23. The second paragraph was ranked first because of its importance to the respondents entitled with "Your company has durable products". Table 2 also shows that the means were higher and greater than the assumed average of (3). The author calculated it as follows:  $(1+2+3+4+5)/5=3$

**Table 3. Results of correlation**

Pargrphs	P1	P2	P3	P4	P5	P6	P7	P8
P1	1	,213	,333*	,260	,178	,289*	,466**	,188
P2	,213	1	,537**	,235	,435**	,394**	,558**	,351*
P3	,333*	,537**	1	,148	,477**	,395**	,547**	,609**
P4	,260	,235	,148	1	,185	-,147	,398**	,178
P5	,178	,435**	,477**	,185	1	,287*	,498**	,436**
P6	,289*	,394**	,395**	-,147	,287*	1	,494**	,427**
P7	,466**	,558**	,547**	,398**	,498**	,494**	1	,654**
P8	,188	,351*	,609**	,178	,436**	,427**	,654**	1
** P<0.01								
* P<0.05								

**Source:** Prepared by researcher based on the SPSS 22 outputs.

The values of correlation in table 3, which 15 were statistically significant at  $\alpha$  (0.01) and 4 were statistically significant at  $\alpha$  (0.05). Thus, the dependent variable which is product quality has been confirmed.

### **4. 3. Discuss the results of cost controlling**

In the following segment, the author illustrated the results of the dependent variable which is product quality. The mean values of the study sample for the questionnaire paragraphs were set in the axis of cost controlling as follows:

**Table 4. Results of Descriptive Tests**

Pargrphs	Mean	Standard deviation
<b>Cost Controlling</b>		
<b>P1</b>	3,4583	1,07106
<b>P2</b>	3,5833	1,04847
<b>P3</b>	3,9167	1,28549
<b>P4</b>	4,3750	,76144
<b>P5</b>	3,9792	,99978

**Source:** Prepared by researcher based on the SPSS 22 outputs.

The first paragraph with a mean of 3.45, the second paragraph with a mean of 3.58, the third paragraph with a mean of 3, 91, while the fourth paragraph was a mean of 4.37, the fifth paragraph with a mean 3.97. The author noted that the means are limited between 3.45 and 4.37 and with a standard deviation between 0.76 and 1.28. The third paragraph was ranked first because of its importance to the respondents entitled with "Your Company's qualifications affect on cost tracking ". Table 4 also shows that the means were higher and greater than the assumed average of (3). The author calculated it as follows:  $(1+2+3+4+5)/5=3$

**Table 5. Results of correlation**

Paragraphs	P1	P2	P3	P4	P5
<b>P1</b>	1	,602**	,368*	,206	,581**
<b>P2</b>	,602**	1	,427**	,178	,609**
<b>P3</b>	,368*	,427**	1	-,147	,395**
<b>P4</b>	,206	,178	-,147	1	,148
<b>P5</b>	,581**	,609**	,395**	,148	1
** P<0.01					
* P<0.05					

**Source:** Prepared by researcher based on the SPSS 22 outputs.

According the values of correlation in table 5, which 5 were statistically significant at  $\alpha$  (0.01) and one was statistically significant at  $\alpha$  (0.05). Thus, the dependent variable which is cost controlling has been achieved.

#### **4. 4. Hypothesis discussion**

According to table 6, the author concluded the all the hypotheses are

confirmed but in different degrees as follows:

H1.a: greater effectiveness in product diversity, greater product quality.

As we see in the table that the value of the correlation between product diversity and product quality is 0.55 were statistically significant at  $\alpha$  (0.01). So the author said that the greater effectiveness in product diversity influence on product quality by 55%. So, the author tended to confirm that it's an acceptable percentage for illustrating this effect.

H1.b: greater effectiveness in customer diversity, greater product quality.

The table shows that the value of the correlation between customer diversity and product quality is 0.74 were statistically significant at  $\alpha$  (0.01). Furthermore, it's a good correlation and the author could say that the greater effectiveness in customer diversity influence on product quality by 74%. So, the author emphasized that it's good percentage for illustrating this effect.

H1.c: greater effectiveness in geographic diversity, greater product quality.

Based on the value found in table 6 the author proved that the value of the correlation between geographic diversity and product quality is 0.82 were statistically significant at  $\alpha$  (0.01). Subsequently, it's a very good correlation. Meanwhile, it's the best value and the author said that the greater effectiveness in geographic diversity influence on product quality by 74%. So, the author strengthened our study by this best percentage in the illustrating of the effect.

H2.a: greater effectiveness in product diversity, greater cost control.

In table 6, the author found that the value of the correlation between product diversity and cost control is 0.31 were statistically significant at  $\alpha$  (0.01). Moreover, it's an acceptable correlation. As well as, it's the worst value but in the meanwhile, author can use it to say that the greater effectiveness in geographic diversity influence on cost control by 31%. So, the author used this percentage to illustrate this effect.

H2.b: greater effectiveness in customer diversity, greater cost control.

Thought-out table 6 the author illustrated to the value of the correlation between customer diversity and cost control which is 0.47 were statistically significant at  $\alpha$  (0.01). Furthermore, it's an acceptable correlation. In addition, the author could use it to say that the greater

effectiveness in geographic diversity influence on cost control by 47%. So, we use this percentage to clarify this effect.

H2.c: greater effectiveness in geographic diversity, greater cost control.

Finely, in table 6, the author stated the value of the correlation between geographic diversity and cost control which is 0.59 was statistically significant at  $\alpha$  (0.01). Subsequently, it's an acceptable correlation. Furthermore, the author could use it to say that the greater effectiveness in geographic diversity influence on cost control by 59%. So, the author used this percentage to explain this effect.

**Table 6. Results of correlation**

<b>Variables</b>	<b>Product Diversity</b>	<b>Customer Diversity</b>	<b>Geografic Diversity</b>	<b>Product Quality</b>	<b>Cost Control</b>
<b>Product Diversity</b>	1	,654**	,597**	,551**	,310*
<b>Customer Diversity</b>	,654**	1	,752**	,743**	,478**
<b>Geografic Diversity</b>	,597**	,752**	1	,825**	,491**
<b>Product Quality</b>	,551**	,743**	,825**	1	,598**
<b>Cost Control</b>	,310*	,478**	,491**	,598**	1
** P<0.01 * P<0.05					

**Source:** Prepared by researcher based on the SPSS 22 outputs.

The author concluded throughout the table above that all hypotheses have been achieved and they are valid. Accordingly, the author could say that there is an effective role of product diversification in improving product quality and cost control. The results showed the influence of product diversification on both product quality and controlling cost.

## **5. CONCLUSION**

Product diversification is one of the important topics in the management as well as the product quality and cost controlling. The companies need to understand the real management of product

diversification in order to have an effective role especially on product quality and cost controlling.

The author used a questionnaire as a tool to examine the effect of product diversification on product quality and cost controlling. The author gathered data from companies in order to analyze it.

Thus, the author found results about the dependent and the independent variables. Subsequently, the product diversification as an independent variable has achieved and confirmed in our study. In addition, the product quality as a dependent variable is also achieved. Furthermore, the cost controlling as a dependent variable has confirmed.

In fact, the author found greater effectiveness in product diversity leads to greater product quality as we show the real acceptable percentage which gave evidence effect. The author found also that the greater effectiveness in customer diversity has a real impact to give a greater product quality, that confirmed by the emphasized percentage which achieves the effect. Moreover, the greater effectiveness in geographic diversity leads to greater product quality. As the results show the best value which let us strengthens our study by it and the author confirmed the effect.

The author found also that the greater effectiveness in product diversity give greater cost control and the results show this effect. Furthermore, the greater effectiveness in customer diversity tends the company to have greater cost control and thought-out the results the author confirmed this impact. The author used this percentage to clarify this effect. Finally, greater effectiveness in geographic diversity leads to greater cost control.

This study suggests that the impact of product diversification on companies performance as a perspective for future searches in one hand, and on the other hand the author chooses the variables of product diversification, customer loyalty, decrease costs and improve quality as the point of other searches in the future.

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## **7. Appendices**

### **Appendix 1. Axes and number of paragraphs of the questionnaire**

<b>section</b>	<b>Statement</b>	<b>What is included in the axis</b>	<b>Number of paragraphs (P)</b>
<b>1</b>	<b>The first axis</b>	Product Diversification	<b>9</b>
<b>2</b>	<b>The second axis</b>	Product Quality	<b>8</b>
<b>3</b>	<b>The third axis</b>	Cost Controlling	<b>5</b>

**Source:** Prepared by researcher

### **Appendix 2. The Five Likert Scale**

<b>Category</b>	<b>Not strongly agree</b>	<b>not agree</b>	<b>neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
<b>Class</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

**Source:** Prepared by researchers