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Abstract

This study sought to examine how process innovation affects customer satisfaction. Participants in this study included 385 mobilis customers in el-eulma city (Algeria). The relationship between process innovation and customer satisfaction was tested using regression analysis. Results demonstrated that process innovation has significant positive impact on customer satisfaction.

Key words: process innovation; customer satisfaction; mobilis mobile operator; Algeria.

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INTRODUCTION

A process-oriented organization with the customer as the center of a company's activities is necessary in a changing environment characterized by developments like the deregulation of competition, the globalization of markets, increasing customer requirements, and potentials in the field of technology. Modern life is becoming digitized, and company administration is no exception. The application of digitization and the adoption of process innovations expand a wide range of industries, and process-oriented businesses stand to gain long-term advantages;

Process innovation is used to assist businesses in aligning their processes with the needs of the customer to help assure long-term business success. To provide a comprehensive picture, the redesign of processes is supported by implications connected to the market (market-pull) and technology (technology-push), with company specific fields of action;

It is also necessary to focus a special emphasis on the technology that makes change feasible in the first place, in addition to redesigning processes and strategies. This strategy seeks to anticipate customer's wants through the use of leading market technology, and new technologies are essential to the creation of new services. (Belgur, 2020)

Using process innovation, a business can reevaluate and rethink its processes to be more flexible to the needs and wants of its customers, and develop new methods for creating and placing products as well as providing customer service. Process innovation, in turn, can increase productivity and engagement by optimizing a workforce and combining humans and robots. Process innovation can help a business stand out for exceptional and superior customer engagement, service, and experience, which can be a competitive differentiator. (Process Innovation)

Actually, there aren't many studies in the marketing literature today that examine how process innovation could boost customer satisfaction. By investigating the relationship between process innovation and customer satisfaction at the mobilis mobile operator in Algeria, this study aims to add to the body of knowledge.

Literature review

A. Innovation

Innovation is imperative in this current and uncertain environment for the survival of an organisation. It provides the organisation with the knowledge for better utilisation of resources, capabilities and technology. (Daiana-Maria Tont, 2016, p. 58) Innovation aids in adapting to change and discovering new possibilities, this can provide businesses with a competitive advantage by helping them generate better goods and services for their customers than the competitors. (Shiyong Zheng, 2022, p. 01)

Definitions of innovation have been studied and analyzed by various researchers as indicated in Table 1.

Table 1 Definitions of innovation

Researchers	Definitions of innovation
Dosi (1982)	A problem-solving process
Kline & Rosenberg (1986)	An interactive process involving relationships among companies and various actors
Cohen & Levinthal (1990) Dogson (1991)	A diversified learning process. Learning may arise from learning-by-using, learning-by-

	doing, learning-by-sharing internal or external sources of knowledge and absorption capacity of companies
Patel & Pavitt (1994)	A process involving exchange of codified and tacit knowledge
Edquist (1997)	An interactive process of learning and exchange where interdependence between actors generates an innovative system or an innovation cluster
Narvekar & Jain (2006)	The process of taking an original idea and converting it into measurable business value
Sánchez et al. (2011)	Set of activities which offer competitive advantages to a company

Source: (A. Nur Ersun, 2013, p. 77)

Within competitive markets, different firms may develop varied resources and employ diverse strategies in the search for profit. As a result, firms may attempt to adopt new or significantly improved products and services through process innovation.

B. process Innovation

The least alluring type of innovation is certainly process innovation. The collection of resources, personnel, and tools used to create, deliver, and support a good or offer a service is called a process. There are numerous ways process might be enhanced within these broad categories. Changes to the tools and technology used in manufacturing, such as the software used in product design and development, the supply chain and delivery system, improvements to the tools, techniques, and software solutions used to aid in these systems, changes to the tools used to sell and maintain the goods, as well as techniques used for accounting and customer service, are all examples of process innovation. (Differential, 2020)

According to OECD (Organisation for Economic Co-Operation and Development), a process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. (oecd, 2005). Process innovations may be made to improve quality, create or provide new or significantly improved products and services, or reduce unit costs of manufacturing or delivery. (oecd, 2005)

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Process innovation is the introduction of new activities into a company's production or service operations in order to reduce costs and/or produce products of higher quality. (trott, 2017, p. 168)

Process innovation is the prime objective of managers, which helps them to boost organizational effectiveness by increasing product performance and lowering costs as well as coping with market competition. (Lin Yi, 2022, p. 03)

Hatmann (2006) brings up four types of benefits of effective process development efforts: (Kowo Solomon Akpoviroro, 2019, p. 118)

- First, advantages of market position, i.e., ability to establish industry standards that act as barriers to competitors;
- The second advantage is using new technology, which help the business get over its past flaws and maximize its potential. Resource utilization is a concise way to put it. Organization renewal and transformation;
- Organizational benefits are highlighted in the third benefit. Positive outcomes connected to the process capture the commitment, creativity, and innovation of the entire organization. Additionally, it encourages innovative thinking and improves an organization's capacity to attract talented employees;
- The fourth benefit is the option to either accelerate time to market, which gives a competitive edge, or postpone development in order to gather better data and bring to market items that are more suited for the target market.

By supporting methods that lower manufacturing or operating costs, process innovations seek to establish competitive advantages.

This kind of innovation is distinguished by its internal organizational focus and efforts to boost the effectiveness and efficiency of administrative and operational procedures. (Isabel Cristina Scafut, 2018, p. 19). According to prior research, process innovation originating from an organization's routine may give it a competitive advantage because it is tacit knowledge that is challenging for rivals to imitate. The complexity of human and technology systems is the cause, making it challenging to pinpoint the factors that influence an organization's success or failure. (Thuy Minh Thu Phung, 2021, p. 28)

C. Customer satisfaction

Customer satisfaction has become the main goal that all organizations seek to achieve due to its extreme importance. Achieving high quality and excellent service is of no use, in the event that the organization is not working to achieve customer satisfaction.

Customer satisfaction is the feeling or attitude toward a product or service after its use. (Shahram Gilaninia, 2022, p. 2). Customer satisfaction is the evaluation a customer makes of a brand, a product, or a service after using any products or services offered by that company or brand. (Muhammad Irshad, 2022, p. 65). When consumers' expectations for a product or service match or surpass their actual consumption experience, they are said to be in a state of customer satisfaction. Customer satisfaction is assessed before, during, and after the process of purchasing a good or receiving a service in order to determine how satisfied customers are.

Typically, consumers analyze if their interactions with the service or product have been positive or satisfying before deciding whether to purchase or continue purchasing. (Mohammed Majeed, 2022, p. 04)

Basically, there are four methods to measure customer satisfaction: (Sekolah Tinggi Ilmu Ekonomi Riau, 2022, p. 41)

a. Complaint and suggestion system

Every business that prioritizes its consumers must offer them the means to voice their complaints, recommendations, and critiques in a simple and convenient manner. The media used can include specific toll-free telephone lines, comment cards, suggestion boxes located in key areas, and others.

b. Ghost Shopping

Employing a number of "ghost shoppers" to pose as possible consumers of the company's goods and rivals. They are required to engage with service provider employees and make use of the business's goods and services. They are then required to report their findings regarding the advantages and disadvantages of the company's and its competitors' goods. Typically, ghost shoppers are tasked with carefully observing and evaluating how the company's rivals respond to specific customer inquiries, address customer concerns, and handle any complaints.

c. Lost Customer Analysis

In an effort to learn more about why a customer stopped buying from them or switched suppliers, the company makes as many attempts as it can to get in touch with them. However, the challenge in putting this strategy into practice is finding former clients who are willing to offer feedback and assess performance.

d. Customer satisfaction survey

The majority of customer satisfaction research is done using survey methods, such as mail, phone, e-mail, websites, or in-person interviews. Through surveys, the business will obtain comments and input from clients directly and create a favorable image that the business values its customers.

On the basis of the discussion above, the following hypothesis is developed:

H0: there is no significant impact of process innovation on customer satisfaction.

H1: there is a significant impact of process innovation on customer satisfaction.

Methodology

This study's objective is to find out how process innovation affects customer satisfaction of mobilis mobile operator in Algeria. This study was carried out using a quantitative methodology. Therefore, For the purpose of gathering information on process innovation and customer satisfaction, a structured questionnaire was developed. Using the convenience sampling technique, 385 questionnaires were given out to various mobilis customers in El Eulma city, Algeria.

The construct measurements were taken from prior studies. For instance, twelve items that were translated from Arabic to English and adapted from numerous researches were used to measure process innovation and customer satisfaction. All items were measured on a five-point Likert scale starting from 1= strongly disagree to 5= strongly agree. In regards to data analysis, the valid data were analyzed using Spss 18.

Analyses of results

A total of 385 valid questionnaires- representing a 100% response rate- were used for data analysis. Cronbach's alpha was used to determine the reliability of the chosen scales using spss 18. The findings demonstrated that all constructs were greater than the Cronbach's alpha level for acceptable reliability. Customer satisfaction (0.821), process innovation (0.903)

In order to evaluate the strength of a linear relationship between process innovation and customer satisfaction, a Pearson product-moment correlation coefficient was calculated. The results indicates that customer satisfaction is positively and significantly correlated with process innovation, $R = 0.905$, $n = 385$, $p = 0.000$. Thus, as the level of process innovation increases customer satisfaction also increases.

Regression analysis was utilized to examine the effect of process innovation on customer satisfaction in order to test the presented hypothesis.

Table 01: model summary of process innovation and customer satisfaction

Model 1	R	R square	Adjusted R square	Std. error of the estimate
	0.905	0.931	0.945	0.16433

a. Predictor: (constant), process innovation.

The findings show a strong relationship between process innovation and customer satisfaction ($R=0.905$) as well as a significant amount of variance in customer satisfaction that can be explained by process innovation ($R^2 = 0.931$ in this instance). As a result, customer satisfaction rises along with process innovation levels.

Table02: Anova of process innovation and customer satisfaction

model	Sum of squares	df	Mean square	F	sig
1 regression	17.863	1	17.663	580.489	0.000
residual	0.943	380	0.31		
total	18.855	382			

- Dependent variable: customer satisfaction
- Predictors: (constant), process innovation.

The analysis of variance results show that the regression model significantly and accurately predicts the dependent variable, with a significance value (sig) of 0.000, which is less than 0.05. This demonstrates the regression model's statistical significance.

Table 03: Coefficients of process innovation and customer satisfaction

model	unstandardized Coefficients		standardized Coefficients	t	Sig
	A	Std. error	beta		
1 (constant)	0.237	0.111		2.111	0.017
process innovation	0.851	0.029	0.952	23.326	0.000

- Dependent variable: customer satisfaction

The results indicate that the process innovation predicts customer satisfaction ($\text{sig}=0.000$) which is less than 0.05. Besides, process innovation contributes statistically significantly to the model.

The regression equation is presented as:

$$Y = (0.237) + (0.952) X$$

Where: y represents customer satisfaction and X represents process innovation.

Based on the regression analysis that was used above, the statistical analysis shows that the significance level is below 0.05, we reject the null hypothesis H_0 and accept the alternative hypothesis H_1 .

Discussion and conclusion

The purpose of this study was to determine the relationship between process innovation and customer satisfaction at mobilis mobile operator in Algeria. Our research revealed a strong correlation between process innovation and customer innovation. According to the findings, businesses that frequently provide customers novel processes are more likely to keep them satisfied. Customers' needs are changing rapidly. Thus, businesses must adapt by creating new procedures that could increase customer satisfaction.

In summary, this study brought attention to the relationship between process innovation and customer satisfaction. Additionally, it supported the relationship between process innovation and customer satisfaction. Activities such as developing new processes, making The procedures for dealing with customers simple and easy, shortening The time the customer spends to obtain services within companies, Shortening the waiting time for customers on the phone, taking care of customers' suggestions and complaints, making all information about companies offers available on their websites may play a crucial role in customer satisfaction. Thus it is suggested that mobile phone operators must continuously innovate in their processes in order to affect the evaluation of customers and ultimately boost their satisfaction.

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