

Organizational Change and Organizational Innovation: Impacts on Technological Innovation -Case Study: Algerian Telecom Laghouat

التغيير التنظيمي والإبداع التنظيمي وأثرهما على الإبداع التكنولوجي-دراسة حالة اتصالات الجزائر-الأغواط

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Abstract: This study aims to show the impact of the organizational (change of the organizational structure, change of technology and change of individuals) and organizational innovation on the technological innovation of Algerian Telecom Company in Laghouat. We took a sample of 57 individuals who are distributed on different professional categories. After treating data using (SPSS V24.0) and using convenient statistical methods, the results show when the significance level is 5 % that there is a positive impact of the organizational change on the technological innovation of the company, Moreover, there is a positive impact of organizational innovation on the technological innovation of the company. Finally, there is a positive impact of the both organizational change and organizational innovation on the technological innovation of the company.

Keys words: change, technological innovation, organizational innovation, organizational change

JEL classification codes: M00 ؛ O31؛ Q55

ملخص: يهدف هذا البحث إلى إبراز تأثير كل من التغيير التنظيمي بأبعاده المتمثلة في (التغيير في الأفراد، التغيير في التكنولوجيا، التغيير في الهيكل) والإبداع التنظيمي في تنمية الإبداع التكنولوجي لمؤسسة اتصالات الجزائر بالأغواط، حيث تم اختيار عينة تمثلت في 57 فرد موزعة على مختلف المستويات المهنية. وبعد معالجة البيانات باستخدام برنامج (SPSS V24.0) وباستخدام عدة أساليب إحصائية مناسبة، تم التوصل إلى مجموعة من النتائج المتمثلة في: وجود تأثير للتغيير التنظيمي في تنمية الإبداع التكنولوجي لمؤسسة اتصالات الجزائر عند مستوى الدلالة 5%. وجود تأثير للإبداع التنظيمي في تنمية الإبداع التكنولوجي لمؤسسة اتصالات الجزائر عند مستوى الدلالة 5%. كما يوجد تأثير للتغيير والابداع التنظيميين في تنمية الإبداع التكنولوجي لمؤسسة اتصالات الجزائر عند مستوى الدلالة 5%.

الكلمات المفتاحية: التغيير، الإبداع التكنولوجي؛ الإبداع التنظيمي؛ التغيير التنظيمي

تصنيف JEL: M00 ؛ O31 ؛ Q55

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1-Introduction

Companies in general and the small and medium enterprises in particular always strive to maintain a market position, or gain a competitive advantage. Therefore, they are obliged to pursue what is new whether in their production methods, or by providing new ideas in the form of products or services (Ren, 2015), but the continuous change in the surrounding environment internally and externally force these companies to adopt an organizational change to adapt these changes in the internal and external environment in a consistent manner with their goals and in line with their strategies. The accelerating development in technology plays a key role in innovation within the companies, whether its outputs of goods or services or operation processes. The telecommunications companies as technological institutions continuously are required to improve their services, and accordingly, Algerian Telecom of Laghouat Company was chosen to study the role of both organizational innovation and organizational change in the development of technological innovation, which calls for answering the following research question:

What is the extent of the impact of organizational innovation and organizational change on the development of technological innovation in Algeria Telecom, Laghouat?

In the light of the research question, it is necessary to ask the following sub-questions:

-Is there an impact of the structure change on enhancing the technological innovation of the Algerian Telecom -Laghouat Company?

-Is there an impact of the change in technology on enhancing the technological innovation of Algerian Telecom -Laghouat?

-Is there an impact of the change in individuals on enhancing the technological innovation of Algerian Telecom -Laghouat Company?

-Is there an impact of organizational innovation on enhancing of technological innovation of Algerian Telecom -Laghouat Company?

-Is there an impact of organizational change and organizational innovation on the development of technological innovation of Algerian Telecom -Laghouat Company?

Study Hypotheses:

In order to answer the research questions, we hypothesize:

H1: There is an impact of organizational change on the development of technological innovation of Algerian Telecom Laghouat at the level of significance of 5%.

H1a: There is an impact of a change in the organizational structure on the development of technological innovation of Algerian Telecom Laghouat at the level of significance of 5%.

H1b: There is an impact of a change in technology on developing the technological innovation of Algerian Telecom Laghouat at the level of significance of 5%.

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H1c: There is an impact of a change in individuals on the development of the organizational change of Algerian Telecom Laghouat at the level of significance of 5%.

H2: There is an impact of organizational creativity on the development of technological innovation of Algerian Telecom Laghouat at the level of significance of 5%.

H3: There is an impact of organizational change and organizational innovation on the development of technological innovation of Algerian Telecom Laghouat at the level of significance of 5%

The Importance of study:

This research derives its importance from the technological innovation in the information and communication technology sector in Algeria that is characterized by technological acceleration, and seeks to transfer individuals or institutions from an information to a knowledge society through providing services to customers. The importance also lies in adopting administrative innovation that could help to make an organizational change that ensures an easy adaptation with the external and internal environment variables at Algerian Telecom.

Objective of the study:

The aim of this study is to highlight the effect of both organizational change (change in individuals, change in technology and change in structure) and organizational innovation on technological innovation.

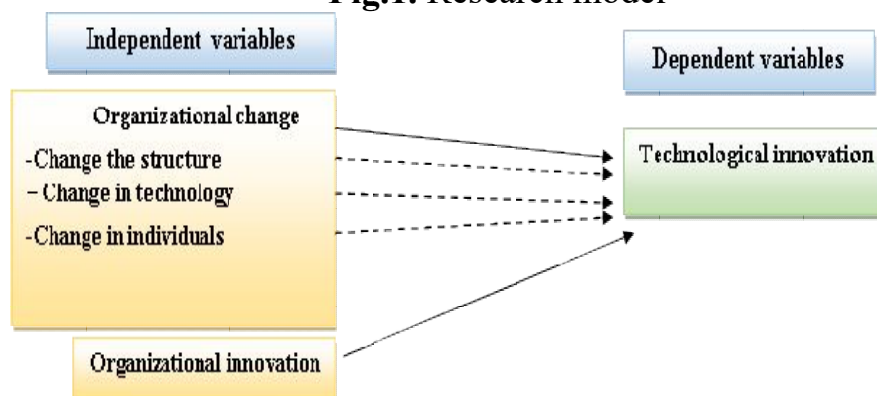
Research Method:

In order to reach the research objective, we have used a descriptive and analytical approach to clarify the various concepts and variables under study in addition to the survey method represented by questionnaire whose results were analyzed by using the Statistical Package for the Social Sciences (SPSS 24.0).

Research Model:

The answer to the problem and the questions necessitated the construction of a study model based on previous studies, as shown in Fig.1.

Fig.1. Research model



Source: by researcher based on theoretical framework and previous studies.

Independent Variables: The first independent variable is the organizational change in its dimensions represented in (the change in individuals, the change in

technology, the change in the structure), while the second independent variable is the organizational innovation.

Dependent Variable: technological innovation

Previous Studies:

- (Al-Azzawi, 2011) titled (Creativity and organizational change in modern organizations, a study and analysis of national and international experiences): The study aimed to identify the importance level of administrative creativity in Jordanian commercial banks and to indicate the importance of improving the human resources performance in Jordanian commercial banks. In addition to determining the impact of administrative creativity on improving the performance of human resources in Jordanian commercial banks. The study found a statistical significance impact of the independent variable (administrative creativity) on the dependent variable (improving human resource performance), and there is a positive relationship between material and moral incentives on the one hand, and between creativity among workers on the other hand.

- (Paula Anzola-Román, 2018) (Organizational innovation, internal R&D and externally sourced innovation practices: Effects on technological innovation outcomes)

This study focuses on determining influences of organizational innovation and innovation activities (internal and externally sourced innovation practices) on the probability of obtaining product and process innovations, the methodology used are based on panel data; random effects Bivariate and Univariate Probit models are estimated, the causal effects was examined by average marginal effects (AMEs). The results show an existence of both positive effects of internal R&D and externally sourced innovation practices, as well as a positive influence of organizational innovation on the realization of technological innovations.

- (PavelKrál, 2016) (Approaches to changing organizational structure: The effect of drivers and communication) this study aims to examine the relationship between the process steps of changing organizational structure, with special focus on drivers, components, communication, and outcomes. To study a change in organizational structure, the researchers employed for the analysis a multiple case study research design, are:

- An emphasis on external focusing on four organizations. The results derive approaches to changing organizational structure. Those approaches' characteristics or internal drivers of the change.

- The prevalence of formal or non-formal communication on the change.

- A mutual combination of these characteristics leads to four possible outcomes, pictured in a 2×2 matrix as approaches to changing organizational structure. The matrix helps to understand how changing the content or form of communication facilitates changes in different components of organizational change.

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- (Delbecq, 1977)The researchers gave a series of propositions and three predictive models are derived and presented as directions for future research and theory construction by highlighting organization context, structure, and member attitudes that enhance innovation. They concluded that the discussion of innovation is incomplete without recognizing that organization structure does not determine innovation, but merely sends signals to organizational actors. The human component of organizations is characterized by members having attitudes and values. These attributes will sometimes dominate and sometimes mediate structural variables. The conditions under which membership attributes moderate and/or intervene in the organization innovation relationship is poorly understood, and may account for much of the variance in organizational innovation reported under what would seem to be parallel structural conditions.

This study distinguished from the previous studies, as it combines them in terms of the influence relationship between the dependent variable Technological Innovation, and both independent variables Organizational Innovation and Organizational Change. It also contributes at confirming the impact of organizational innovation with technological innovation on the one hand and organizational change with technological innovation on the other hand.

2- Theoretical Framework:

2-1- Organizational Innovation:

Many researchers addressed the concept of organizational innovation. Most of them agreed that the process results in the emergence of a more effective idea or practice or a new service that can be adopted by workers in the organization, or imposed on them by decision-makers. As a result, it has to bring about a kind of change in an environment, processes, or organizational outputs. Organizational innovation also defined as the outputs resulting from the interaction that occurs between the strategic plan and organizational structure on the one hand, and organizational culture and climate on the other hand as intermediate or influencing factors in the creative process. This definition includes the following points (Khabir, 2008):

- 1- Organizational creativity can be seen as a process that is carried out by the organization, whether this process is at the level of the individual or the group or the organization itself.
- 2- This process leads to a product and that could be an idea, behavior, production or service provided that this product is tested.
- 3- The product resulting from the creative process can be adopted by the organization or imposed on its employees by decision-makers.
- 4- The creative product must entail a kind of change in the organization's environment, processes and outputs, otherwise it cannot be considered innovation and benefit for the organization or environment in which it operates.

2-2- Technological Innovation:

What distinguishes the major institutions in the current time is their interest in technological innovation to give them a competitive advantage

(Wadhwa, 2017). But this requires to take care of the individual within the organization and encourage them in a way that enables him/her to give its creative capabilities, and that the Foundation's neglect of this factor pushes creativity to fade and collapse, and therefore small and medium enterprises must pay close attention to technological innovation to ensure its growth. Technological innovation is defined as "practical and technical steps that aim to adopt the introduction or improvement of products or processes to the market in a way that guarantees them the lead in introducing the new product in the industry" (Hadjaj , 2015).

From the previous definition of technological innovation, it is clear to us that there are two main types, namely process innovation and product innovation.

•**Process Innovation:** One of the most important forms of technological innovation is its dependence on developing existing processes or creating new processes in order to meet the customer's desires. It also means the technological innovation of production methods, which is the creation or development of new technology in the enterprise or the introduction of improvements to production methods (Cacomo, 2008).

•**Product Innovation:** is the type that is no less important than process Innovation, as product Innovation takes two forms, the first is to introduce a new product and the second is to improve an old or an existing product (Redouane, 2016).

2-3- Organizational Change:

Usually, Institutions affected by the surrounding circumstances, from the external environment to the internal environment, which affect their strengths in using the available resources for value creation. The main goal of the organizational change is to move from an existing position to a better situation (Lozano, 2012). Dalziel & Schoonover define organizational change as a planned or unplanned change that comes in response to pressures exerted from a variety of sources from inside or outside the organization (Al-Dulaimi, 2016). Bechard also defines change as a planned effort that urges the entire organization that have to be managed from the top to increase the effectiveness of the organization using the behavioral theories (Dudin, 2014).

Organizational change management means the planned change that aims to improve the effectiveness of management, and strengthen the possibility of facing problems. It is also considered as a long-term plan to improve the performance of the administration in the way it solves problems, renew, and change their management practices. This plan is based on a collaborative effort between administrators, taking into account the environment that works. It includes management, interference from an external party, and scientific application of behavioral sciences (Abdelkader Charef, 2017).

Change process requires different interventions at several levels: individuals, organizational structure and technology.

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• Change in employees:

Individuals are the pillar of the organization. They interact, meet and communicate with each other daily using various communication channels in order to exchange messages expressing different purposes. Since the importance of these channels is mainly helping people to be more effective in their communications with each other. The necessity of change in the career path of individuals results from feedback readings of their behaviors at work. The change in individuals according to many researchers and writers should focus on several aspects including (Al-Dulaimi, 2016):

- Physical change of individuals.
- Qualitative change of individuals by raising skills and capabilities through training systems.
- Apply the rules of rewards and regulatory penalties.
- Gradual updating of workers by setting new conditions and criteria for selecting new employees.

•Change in Organizational Structure:

Many researchers and corporate consultants believe that the change in the organizational structure is a clear indication and evidence of the distinct organizational change (PavelKrál, 2016). The structural change of the organization appears in several aspects (Zainab Shataiba, 2017):

- The scope of supervision used in the work.
- Creating new departments or merging departments.
- Change in terms of reference or job titles.
- Performance rates.
- Number of jobs.

•Change in Technology:

The technological change is not limited to changing the production technology only, but also extends to the technology of the entire organization, whether administrative information technology, productivity, marketing, financial ...etc. Technology changes include information technology, automated offices, electronic communications, new products and processes, design and manufacture by computer and electronic groups, where the reasons for change in technology are multiple and vary in light of the great development-taking place and are as follows (Bouterfa, 2018):

- Increase energy and meet the expected demand for the organization's products. The organization may resort to change to increase production capacity due to the increased demand for the organization's products.
- Reducing production costs. The organization may work to reduce manpower by replacing technology in the place of individuals. The use of technology leads to a reduction in waste.
- Improving the quality, the reason for the technological change may be to improve the quality of the services provided, as reservations may be made automatically for a doctor's review, which reduces the waiting time of patients.

- Improve customer services and enhance capacity to deliver products in a timely manner.

Distinguishing the organization's product from competitors' products through sufficient flexibility in performing work in a manner that achieves the highest levels of customer satisfaction with the diversity of products.

- Aging and deterioration of equipment and process, as machines and processes become economically inefficient due to poor maintenance and lack of spare tools.

3- Method and Procedures:

3-1- Population and Sample of the Study:

The population consists of all the workers and employees of Algeria Telecom - Laghouat who are 248 employees. We took a sample of 65 employees, 57 of them who completely answered the questionnaires. However, eight (08) questionnaires were canceled because the respondents did not fully answer them.

3-2- Data Collection Method:

We used the questionnaire as a tool to collect information and data. It consists of two sections: the first section contains data of gender, age, educational qualification, years of experience, and professional level. The second section consists of 28 items which are distributed to five blocks. A Likert scale of 1 (strongly disagree) to 5 (strongly agree) is utilized to measure the responses. The first block contains 09 items tackling the variable of technological innovation. As for the second block, it addresses change in the structure and contains 05 items. While the third block (change in technology) includes 04 items, and the fourth block that concerns change in individuals contains 04 items, while the fifth block is about organizational innovation contains 06 items.

3-3- Analysis tools:

In order to make data analysis and test the hypotheses, it is necessary to use Statistical Package for the Social Sciences software (SPSS24.0). The following statistical methods have been implemented:

- Cronbach's alpha is a way of measuring the strength of the consistency of a concept.

- Frequency and percentage statistics used to represent personal information variables.

- Arithmetic mean and standard deviation.

-Correlation coefficient in order to know the degree of correlation between the independent variables and the dependent variable.

-Simple and multiple regression models to test the main hypotheses and the sub-hypotheses.

4- Study results (Analysis and Discussion):

To find out the reliability of the study tool, the value of the Alpha Cronbach coefficient was calculated by (SPSS24.0) software, where we found

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the aggregate value of items is estimated at (0.923). We notice that Cronbach's alpha values for all research dimensions are superior of (0.6) as shown in Table (01), which means that our study tool has good consistency.

Table 1. Cronbach's alpha

Variables	Cronbach's Alpha
Technological Innovation	0.856
Organizational Change	0.871
First Dimension Change in the organizational structure	0.815
Second Dimension Change in technology	0.849
Third Dimension Change in individuals	0.923
Organizational Innovation	0.911
Total Items Value	0.923

Source: by researchers based on SPSS outputs.

4-1- Characteristics of the Sample:

To identify characteristics of a sample in our survey, many factors were taken into consideration. The five characteristics we needed to focus were gender, age, educational qualification, years of experience and professional level as shown in below table.

As for the gender variable, we found that the number of males in the sample is mostly 31 persons, which represents 54.4% of the overall number of employees, while females are 26 representing 45.6%, of the sample. Regarding the age groups, we found that the dominant group is from 25 years to less than 35 years, with 32 singles, at a rate of 56.1%. As for the lowest percentage of age groups, the group was over 45 years, at a rate of 3.5%, which equals only two employees. Regarding the educational qualification, the dominant qualification was the university level with 27 employees, 47.4%. While the lowest level, which is the secondary level, with one employee representing 1.8% of the sample. Whereas, experience from 5 years to less than 10 years was dominant by 20 Individuals with an estimated rate of 35.1%, and the most experienced workers, that is, more than 15 years, were the least numbered with 8 individuals with a percentage of 14.1%. In addition to the professional level, we found that most of the employees were 22 managers who make 38.6% of sample, while there were 9 senior employees who constitute 15.8% of the sample.

Table 2. Sample Characteristics

variable		Frequency	%
Gender	Male	31	% 54,4
	Female	26	% 45,6
	Total	57	% 100
Age	Less than 25 years old	5	% 8,8
	From 25 years to less	32	% 56,1
	From 35 years to less	18	% 31,6
	Over 45 years old	2	% 3,5
	Total	57	% 100
Educational Qualification	Less than secondary level	1	% 1,8
	Secondary level	10	% 17,5
	University level	27	% 47,4
	Postgraduate level	19	% 33,3
	Total	57	% 100
Years Of Experience	Less than 5 years	14	% 24,6
	From 5 years to less than	20	% 35,1
	From 10 years to less 15	15	% 26,3
	Over 15 years	8	% 14,1
	Total	57	% 100
Professional Level	Senior Employee	9	% 15,8
	Manager	22	% 38,6
	Control Agent	13	% 22,8
	Execution Agent	13	% 22,8
	Total	57	% 100

Source: by researchers based on SPSS outputs.

4-2- Arithmetic Means and Standard Deviations Analysis

The results of the arithmetic mean values (dimension) in the below table show the existence of an agreement by the most of company employees.

Table 3. Arithmetic Means and Standard Deviations of Dimensions

Dimensions	Item Number	(Highest – Lowest) Arithmetic Mean	Standard Deviation (Item)	Arithmetic Mean (dimension)	Agreement
Technological innovation	(5)	Highest	4.28	0.620	strongly agree
	(7) (8) (9)	Lowest	4.07	(0.728) (0.753)	agree
Change of the organizational structure	(13)	Highest	4.26	0.613	strongly agree
	(11)	Lowest	3.98	0.612	agree
Change of technology	(15)	Highest	4.35	0.582	strongly agree
	(17)	Lowest	4.19	0.766	agree
Change of individuals	(21)	Highest	4.07	0.753	agree
	(20)	Lowest	3.84	0.996	agree
Organizational innovation	(26)	Highest	4.02	0.694	agree
	(23) (27)	Lowest	3.88	(0.825)	agree
	(28)			(0.927) (0.983)	

Source: by researchers based on SPSS outputs.

The First Dimension (Technological Innovation):

The results show the highest value of the arithmetic mean (4.28) corresponding to the item (05) which means that the company is interested in research and development and allocates financial budget. The lowest value of the arithmetic mean (4.07) is found in the items (07), (08) and (09) which means that the company seeks to improve operations based on the available capabilities and expertise and it uses scientific methods to design and improve the production processes. Besides, the employees, engineers, technicians and administrators, are concerned with improving the processes that contribute to provide high services to the customer.

The Second Dimension (Change of The Organizational Structure):

The highest value of the arithmetic mean is found in Item (13) where it was estimated as (4.26) which means that the employees think that the improvement in work methods requires change. The lowest value for the arithmetic mean is found in phrase (11) and is estimated as (3.98) the company is constantly seeking to redesign communication methods.

The Third Dimension (Change of technology):

Employees believe that the institution must bring about a change in technology in line with technological developments, and this appears in the results through the highest value of the arithmetic mean of the item (15) where it

was estimated as (4.35). In addition, the lowest value of the arithmetic mean is found in item (17) estimated with an arithmetic average (4.19), which indicates that employees believe that new technologies will save time and costs.

The Fourth Dimension (Change of Individuals):

Through our reading of the values of the arithmetic mean of all of the items, it turns out that the highest value of the arithmetic mean is found in item (21) where it was estimated as (4.07). It shows that the company is keen on developing skills and capabilities through training and human resources development. The lowest value of the arithmetic mean is found in the item (20) which equals an arithmetic mean (3.84) where the employees' answers indicate the extent to which new changes in recruitment processes contribute to bringing new competencies to the company.

The Fifth Dimension (Organizational Innovation):

The highest value of arithmetic mean of this dimension (organizational innovation) is represented by the item (26) which it was estimated as (4.02) and this means that the administration resort to using a temporary organizational structure of specialists and workers and is resolved upon completion of the project. The lowest value of the arithmetic mean is found in Items (23), (27) and (28) estimated by the value (3.88) which indicates that there is encouragement from the part of the company to work together and participate in offering opinions. The administration also gives prizes to the creative ideas of the work teams .it also encourages creative competition between the work teams.

Through the evaluation and analysis of the arithmetic mean:

- The highest value (4.28) for the first dimension represented the technological innovation. We concluded that the company is highly interested in research and development and allocates financial capabilities based on the needs and desires of the consumer and the market study. In addition, it is important to provide new and unprecedented services. Indeed, it is noticeable in recent years a new service called "FIMAKTABATI" has been introduced. It is a digital library containing academic and general books. Regarding the process innovation, we concluded that the company is keen to design new operations according to the requirements of the services it provides, and this is reflected in the launch of the service "charging the balance for 36 hours" by phone in case the balance runs out. In addition to the service of notification of the date of the phone-bill through SMS. Based on specific scientific methods, the company also seeks to improve various operations with the help of engineers, technicians and administrators.

-The arithmetic mean value in the second dimension (the change in the organizational structure) reached the highest value (4.26) which means that the company is interested in making the change to improve the working methods. The company is also concerned with constantly redesigning communication methods, upgrading methods from time to time and redistributing terms of reference and functions.

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-Through our evaluation of the arithmetic mean for the third dimension represented in the change in technology where the highest average value reached (4,35). We concluded that the company is very interested in bringing about change in technology in line with technological developments. The company employees are also concerned with the change in technology in their workplace, because the use of new technologies will save them time and costs to obtain the best productivity.

-Concerning the fourth dimension, which represents the change in individuals, the arithmetic average reached the highest value (4,07) which shows the company's keenness to develop skills and abilities appearing through training and human development. The new changes in the recruitment process also contributed to bringing new competencies to the organization and replacing individuals according to their competencies, in addition to adopting a consistently good rewards system.

5- Hypothesis Tests:

5-1-Testing the First Main Hypothesis: We notice from Table (04) that there is a positive correlation between technological innovation and organizational change. The calculated t-value (8,106) is superior to the value of the T value Table (1.990), and that the probability value (Sig = 0,000 <0.05). We accept the hypothesis H1 "There is an impact of organizational change on the development of technological innovation for Algeria Telecom Laghouat-Laghouat".

We get the multiple regression model:

$$Y = 0.249 X_1 + 0.318 X_3 + 1,308$$

Y: technological innovation

X₁: change of the organizational structure

X₂: change of technology

X₃: change of individuals:

Table 4. Testing the first (main hypothesis and sub-hypothesis)

Dependant Variable	Independant Variables	B	Calculated t-value	Sig- Value	Correlation coefficient	Test of the Hypothesis
Technological innovation	Change in the organizational structure	0,249	2,363	0,022	/	Accept H_{1a}
	Change in technology	0,133	1,358	0,18	/	Reject H_{1b}
	Change in individuals	0,318	5,753	0.000	/	Accept H_{1c}
	Organizational change	0, 733	8,106	0.000	0.738	Accept H₁

Source: by researchers based on SPSS outputs.

-First Sub-Hypothesis Test: We can notice from Table (04) that the calculated t value (2,363) is superior to the value of the T value Table (1.990), and that the probability value (Sig = 0,022 <0.05). We accept of hypothesis H1a means that "There is an impact of a change in the organizational structure in the

development of technological innovation for Algeria Telecom-Laghouat at the level of significance of 5%. "

-Second Sub-Hypothesis Test: We can notice from Table (04) that the calculated t-value (1,358) is less than the T value Table value (1.990), and that the probability value (Sig = 0.18 > 0.05). Therefore, we reject the hypothesis H1b and accept H0b "There is no impact of a change in technology in developing the technological innovation of the Algerian Telecom-Laghouat at the level of significance of 5%".

-Third Sub-Hypothesis Test: We notice from Table (04) that the calculated t value (5,753) is superior to the value of the T value Table (1.990). The probability value (Sig = 0,000 <0.05). Therefore, we accept H1c "There is an impact of a change in individuals in the development of the organizational change of Algeria Telecom-Laghouat at the level of significance of 5%."

5-2-Testing the Second Main Hypothesis: We notice from table (05) that calculated t-value (3,800) is superior to the value of the T value Table (1.990). The probability value (Sig = 0,000 <0.05). Therefore, we accept the hypothesis H2 "There is an impact of organizational creativity on the development of technological innovation for Algeria Telecom-Laghouat at the level of significance of 5%."

We get the simple regression model:

$$Y = 0.298 X + 2,981$$

Y: technological innovation

X: organizational innovation

Table 5. Testing the second main hypothesis

Dependant Variable	Independent Variables	B	Calculated t-value	Sig- Value	Correlation coefficient	Test of the Hypothesis
Technological innovation	organizational innovation	0,298	3,800	0,000	0.456	Accept H ₂

Source: by researchers based on SPSS outputs.

5-3-Testing the Third Main Hypothesis: We notice from Table (06) that that there is a positive correlation between technological innovation and both organizational change and organizational innovation. The calculated t-values (7,077) and (2,424) are superior than the value of T value Table (1.990), and that the two probability values (Sig = 0,000 / Sig =0.19 <0.05). Therefore, we accept the hypothesis H3 "there is an impact of organizational change and organizational innovation on the development of technological innovation for Algeria Telecom-Laghouat at the significance level of 5%".

We get the multiple regression model:

$$Y = 0.655 X_1 + 0.147 X_2 + 0,882$$

Y: technological innovation

X₁: organizational change

X₂: organizational innovation

Table 6. Testing the third main hypothesis

Dependant Variable	Independent Variables	B	Calculated t-value	Sig-Value	Correlation coefficient	Test of the Hypothesis
Technological innovation	Organizational change	0,655	7,077	0,000	0,655	Accept H ₃
	Organizational innovation	0,147	2,424	0,0190	0,147	

Source: by researchers based on SPSS outputs.

6- Conclusion

Based on the data analysis of this research through the Statistical Package for the Social Sciences software (SPSS), we reached the following:

- There is a positive impact of organizational change on the increase of technological innovation for Algerian Telecom-Laghouat.
- There is a positive impact of a change in the organizational structure on the increase of technological innovation for Algerian Telecom-Laghouat.
- There is no impact of the change in the technology structure on increasing the technological innovation of the Algerian Telecom -Laghouat.
- There is a positive impact of change in individuals on increasing the technological innovation of Algerian Telecom -Laghouat.
- There is a positive impact of organizational innovation on the increase of technological innovation for Algerian Telecom -Laghouat.
- There is a positive impact of organizational change and organizational innovation on increasing the technological innovation of Algerian Telecom -Laghouat.

Through the previous results of our study, we develop a set of recommendations and suggestions for this company:

- Involve all workers in the creative process by increasing the opportunity to present their ideas and observations periodically.
- Increasing the allocation of financial budgets for the research and development.
- Organizing competitions on creativity for students in the field of technology and communications, which constitutes a database that includes creative projects that can be helped on present or future.

Spreading awareness among members of the company of the need for change in order to improve.

7-Appendices: The Questionnaire.

No	Item	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
01	The company encourages workers and engineers to come up with creative ideas to provide new services.					
02	The company uses experts and consultants to provide new services.					
03	The company provides new services that were not previously produced.					
04	The company relies on developing its services based on consumer needs and desires and market study.					
05	The company is interested in research and development and allocates financial budgets.					
06	The company designs new operations according to the requirements of the provided service.					
07	The company seeks to improve operations based on the available capabilities and expertise.					
08	Engineers, technicians and administrators are concerned with improving the processes that contribute to providing superior customer services.					
09	The company seeks to use scientific methods to design and improve production processes.					
10	Sometimes, the company redistributes terms of reference and jobs.					
11	The company strives continuously to redesign communication methods.					
12	The administration of the company is concerned with raising awareness of the necessity of realizing change operations in line with its objectives.					
13	I believe that improvement in working methods requires change.					
14	Our organization changes the reward and promotion system from time to time.					
15	The organization must bring about a change in technology in line with technological development.					
16	I support the idea of a change in technology in my workplace.					
17	I think new technologies will save time and costs.					
18	The aim of technological changes in processes is to achieve the best productivity.					

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19	New changes in recruitment processes have brought new talents for the organization.					
20	The Corporation is keen to replace employees according to their qualifications.					
21	The administration strives to develop skills and capabilities through training.					
22	The Company intends to adopt a consistently good rewards system.					
23	Our organization encourages joint teamwork and participation in providing opinions.					
24	Skills gained from training programs help employees to innovate modern methods for workers' performance.					
25	The organization is keen to appoint highly qualified employees for positions that have creative potential.					
26	The administration shall resort to the use of a temporary organizational structure of specialists and employees and shall be dissolved upon completion of the project.					
27	The administration awards prizes to creative ideas for work teams.					
28	Our management encourages creative competition between work teams					

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