THE IMPACT OF THE CIMIX INFORMATION SYSTEM ON EMPLOYEES' PERFORMANCE
_ MAINTENANCE DEPARTMENT LAGHOUAT_
أثر نظام المعلومات CIMIX على أداء العاملين
لمديرية الصيانة الاغواط

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ملخص :

هدفت هذه الدراسة إلى معرفة تأثير نظام المعلومات CIMIX على أداء العاملين دراسة حالة لمديرية الصيانة الاغواط_، وقد شملت عينة الدراسة (97) عامل من المؤسسة المعنية، واعتمد ت الباحثة فيها على طريقة معادلات الانحدار الخطي البسيط لاختبار الفرضيات،

وتوصلت فيها إلى جملة من النتائج أهمها: يوجد تأثير معنوي بين أمان نظام CIMIX وأداء العاملين؛ يوجد تأثير معنوي بين شمولية نظام CIMIX وأداء العاملين، أما بالنسبة لفرضيات المتعلقة بالمتغيرات خارج النموذج فقد كانت نتائجها عكس ما تم توقعه فالأولى، كانت تخص تأثير شمولية ومحدودية النفاذية لـ CIMIXعلى أداء العاملين، فقد بينت نتيجة الإختبار بأنه لا توجد فروق معنوية في الأداء بسبب نفاذية لـ CIMIX؛ اما الفرضية المتعلقة بالفرق المعنوي حول أداء العمال وظائف التقنية ووظائف الدعم فقد كانت غير صحيحة.

قدمت الباحثة بعض الاقتراحات بناءً على النتائج المتحصل عليها، أهمها: ضرورة برمجة دورات تكوينية متخصصة في CIMIX خاصة بالنسبة للإطارات؛ وضرورة فتح مجال عمل CIMIX بشبكة خارجية تربطه بباقي المديريات وبالوحدة الرئيسية سوناطراك.

الكلمات المفتاح : جودة نظام المعلومات، أداء العاملين، نظام CIMIX، مؤسسة الصيانة الأغواط.

Abstract :

The aim of this study was to identify the impact of the CIMIX system on the performance of the employees, a case study of the Maintenance Directorate of Laghouat. The study sample included 97 employees from the company. The researchers adopted the method of simple linear regression equations to test the hypotheses.

The researcher have reached a number of results, most notably: there is a significant effect between CIMIX system safety and the employees' performance; there is a significant effect between CIMIX system inclusion and the employees' performance. As for the hypotheses regarding variables outside the model, the results of the test were unlike what was expected. The former concerned the effect of the system's inclusion and its limited permeability on the performance of employees following the test results that showed that there were no significant differences in performance due to the permeability of CIMIX. The hypothesis regarding the significant difference in the employees' performance - technical functions and support functions- were incorrect.

The researcher presented some recommendations based on the results obtained, the most important of which were: the need to schedule specialized training courses in CIMIX especially for executives; and the need to open the CIMIX field of action with an external network that links it with the other directorates and the HQ of Sonatrach.

Keywords : Information system quality, employees' performance, CIMIX system, DML Laghouat._____

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I. Introduction :

The constant dynamism and rapid evolution of the modern era made it necessary for contemporary company to open up for modernity by exploitingstate-of-the-art technology on which they rely to process their data for faster responsiveness and greater efficiency in the acquisition of information. This has led to the growth of human knowledge and expertise to be reflected in raising their organizational performances to the world's highest ranks, as information represents a valuable resource and a vital source of their strength, and one of the most important competitive advantages.Companies managementhas to do with planning;which requiresmanaging information"; but the abundance and the large variety of information cannot guarantee the effectiveness of the organization's performance, but most important of all is the capacity of using ICTs in an optimal way, which is utterly beneficial for companies human resources management, known as "information system".

Accordingly, information systems have changed the management structure, functions, planning methods and the implementation of their core activities, but they still need acceptance, satisfaction, and interestof the users. The company must take into account the technical and behavioral aspects of its systems so that its strategic partners can unleash their potential and give maximum acquired knowledge and skills for reaching to outstanding performance.

The company's bet relies on its outputs, which focus on the management mechanismsrelating to their human capital, and on the extent to which its staff are committed to a modern approach in organizational practices and methods to enable the employees carry out the tasks and duties assigned to them, to assume additional responsibilities that provide them with a high degree of job satisfaction, and to enable them adapt to the work environment; thereby it is possible to reveal the elements that ensure optimal human performance in terms of efficiency and productivity, a fact that has a positive impact on the overall effectiveness of the organization or company.

1. Researchproblem:

In light of the above, it can be stated that this study seeks to answer the following question: **To what extent the information systems CIMIX affect the improvement of the employees' performance in the Maintenance Directorate- DML?**

2. Hypothesesofthestudymodel:

There is a statistically significant effect of the CIMIX system in improving the employees' performance in the Maintenance Directorate- DML Laghouat.

3. Sub-hypotheses

- There is a statistically significant effect between CIMIX systemsafety and employees' performance at 0.05%;
- There is a statistically significant effect between CIMIX systeminclusion and employees' performance at 0.05%;

- There is a statistically significant effect between CIMIX system accuracy and employees' performance at 0.05%;
- There is a statistically significant effect between CIMIX system flexibility and employees' performance at 0.05%;
- There is a statistically significant effect between CIMIX system facilityand the employees' performance at 0.05%.

Hypotheses outside the study model (for the variables of the sample characteristics):

There is a significant difference between the performance of support employees and the performance of technical employees.

4. Studyobjectives:

This study aims at the following:

- Understanding the concept of information systems, and the advantages of their application in the field of maintenance;
- Identifying the structure of the information system in the maintenance directorateDML Laghouat, and the extent to which itkeeps pace with the developments in this field;

Suggesting solutions for improving the information systems, in line with the requirements related to the good performance of the maintenance directorate.

II. Methods:

This study deals with the effect of the CIMIX system, as an independent variable consisting of (safety, inclusion, accuracy, flexibility, facility), on the dependent variable ofjob performance.Accordingly, and based on the above, we have used the method of simple linear regression equations to test the hypotheses measured through the questionnaire submitted to a sample of maintenance directorateemployees.

III. Previous studies and reviewofliterature on Information Systems

1. Previous studies: The most important of the previous studies of this subject are summed up as follows:

1.1- Study of (Tayeb Benaoun, 2008) titled The effect of the Internet on the performance of the employee in the Algerian institution**, Study objective**:The study aims at identifying the effect of the use of the internet and ICTs by the employees, (Evaluating the efficiency and effectiveness of the intranet)as a means of communication on the individual and collective performance of the employees of the Algerian institution, **Research location** Maintenance Department of Laghouat DML, **Most important conclusions**:

- There is a correlation between the quality of the internet and the information it produces, betweenE-mail and GMAO, and between the performance of employees.The study confirmed the efficiency, quality, and speed of these systems;
- There is superiority in the performance of executivesover the performance of control agents because their performance was affected by the degree of connection and use of the Internet;
- The ability of independent variables to explain the differences in performance.

1.2- Study of (Mourad Rayes, 2005) titled The effect of information technology on human resources in the institution. Study case DML Laghouat. **Study objective:** Evaluation of the status of information technology in the study period;Providing an insight into the nature of human resources in the information era, and the requirements for its success, **Research location**: Maintenance Department of Laghouat DML **, Most important conclusions**:

- Intensive use of information technology in the business world leads to human capacity structure;
- The growing complementarity of the activities required to be filled, and minimizing work pressures.

Both studies focused on the importance of communication and its impact on human resources performance. They shared the same study case with ours, but what is additionalin our study is that it focuses on the CIMIX system and studies the differences between the performances of employees at all levels.

2. The concept of Information systems

J .Capirossi(2002) see that:"A set of organized and systematic information applied in an organization that has characteristics of the regulatory lines, in addition to the procedures and means necessary to identify, research, form, preserve, and disseminate information."

For R.Reix& al (2011)"An organized set of resources, tools, software, personnel, etc. that allow the collection, processing, and storage of information in the form of data (texts, images, sounds) in the organization or in a set of factors that record, store, and transfer informationvia information technology or organizational procedures."

We have reformulated the definitions in our own words as follows:“a variety of resources, tools and software, hardware ... taking into account the social actors working together in full integration to record, save, classify, index, and disseminate the information to support the work of the administration and the organization as a whole, and to develop and use information to achieve the objectives of the organization in a way that includes effectiveness and efficiency ".

3. Quality of information system

Concept of the quality of Information:

The degree to which they provide a value to their users directly or to the organization as a whole, to take decisions, and to conduct processes and organized activities, which lead to targeted outputs (B.Davis, 1986).

- **Data completeness:** Get all information stored, not forgotten or deleted;
- **Accuracy of data:** No error in information and data is not valid;
- Outputs easy to understand: Provide information with clear symbols for the user such as: indicators, titles, dates, content of the lists;
- **Response rhythm & time:** Information accessed by the user when needed;
- **Relevance of the outputs:** Information is useful for the user to make a decision;
- **Confidentiality:**Confidential information of strategic importance is not allowed to be previewed or updated only by officials;
- **Safety:**Information systems have programs protected against electronic damage, or hacking, and have protection and rescue measures in some cases.
- There are those who believe that the quality of information should be divided into:

A- Quality of information systems from a statistical point of view

This statistical trend focuses on the process of transferring information in terms of time (speed) and in terms of access (flexibility) (M.Gillet, P.Gillet, 2008**).**

- **Speed of the transmission**: This criterion is not absolute. It indicates that the speed of rotation must be infinite in the maximum possible time for the decision and the actions used, and its suitability to the competitive content. This speed is evolutionary in functionality and in a timely manner, and is not changeable by the function of activities and the nature of its activities;

- **Flexibility in the transmission**: The flexibility in quality must be absolute, and it shows that the information must be complete and appropriate in the case of possession, and must follow the transmission without transfernor loss along the transmission path, and focuses on the non-interference that can be encountered, so it can be said:The information is complete in terms of deletion or misuse.

The information is appropriate in terms of attachment and measurement.

4. The quality of the information system from a dynamic point of view

- **Evolution of the system:** The information system must be able to keep pace with the developments of the institution, and at the same level of "impact, frequency". This is in order to obtain some characteristics that allow this development to measure the institution as an open system in a variable and uncertain environment, and they are considered as a series of chains or rings, which take,in these circumstances, this infinite development to construct an evolutionary information system, which includes elements of rigor by incorporating the factors involved and replacing them by the parameters of the effect for changingthe value and several other available variables;

- **Complexity**: In order to effectively control the functioning of the organization's system, complexity must be achieved less than the organization itself. This complexity must be measured by several elements that can be between the organization's interactions and development. The complexity involved here is not the entanglement but the ability of the system to dissolve and fully integrate into the functions of the organization,and its ability to link them, whether from the tangible entity as facilitating some work that has physical consequences, such as automating some tasks and reducing work efforts, to some hidden work.

4.1- The concept of Performance:

According to Silijanen (2010), "the degree to which workers engage in a behavior that contributes to the accomplishment and achievement of the objectives of the administration."(Khalid Kraouni, 2012)

According to Sarayrah, "the employee's ability to achieve the objectives of the work, accomplished in accordance with the time set for the following criteria: discipline, completion of tasks, relationship with the heads, career, service to the public, cooperation with colleagues."(Khaleda Sarayrah, Mohammed Al-Qudat, 2009)

According to Djamal (1995): "An activity that enables the individual to accomplish the task or goal assigned to them successfully, depending on the normal constraints to the reasonable use of available resources."(Abdul-Fattah Saleh Khleifiyat, Sherine Mohamed Al-Mutarnah, 2010)

We have therefore proposed another definition to Performance based on the concept of regulation as an attempt to reconcile the idea of system with performance: it is the ability of the employee to transform the input of labor (responsibilities, tasks, ...) by interacting with internal practice including skills and knowledge to achieve outputs, which consist of the effective achievement of the organization objectives efficiently and effectively.

4.2- Dimensions of performance:

There are many dimensions of performance(Zaki Abdel Moati Abu Ziada, 2012)

- Al Shaouish(1996): Speed of achievement, level of cooperation, dealing with the work team, accuracy of work schedules and relationship with officials.
- Rama & Al Otaibi (1999):Speed, communication, efficient time utilization, extent of achievement, cooperation, budget, occupational experience, coordination, leadership, supervision, planning.
- Schermnhorn (1999):The amount of work accomplished and its accuracy, knowledge of work, coordination with others, acceptance of new tasks and creativity.
- Abdeldjawad(2005):Amount of performance, quality of performance, speed of achievement, efficiency of performance, simplifying of work.
- Alqais(2005):The amount of work, the speed of achievement, the accuracy of achievement, the quality of the work accomplished and the incrfacility in the work knowledge.

5. What is CIMIX

According to Bougrine (2000):

⇨ CIMIX is a standard application that applies to several fields (banks, hospitals, industry, petrochemicals ...).

⇨ CIMIX wasdeveloped by means and tools (relational database management system) (SGBDR ORACLE).

⇨ CIMIX is a database of several dimensions (material, function, suppliers, ...).

⇨ CIMIX:

Computer Integreted, Manufacturing

IX: display system UNIX

CIMIX is a complementary application to manage maintenance that takes into account all the needs of running DML. The most important is CIM (Computer Intergated Manufacturing), which in fact goes beyond maintenance and inventory management and integrates with accounting and financial management, by invoice tracking units, raising the value of stocks or assets in the budget management field by budget tracking units.**(Bougrine,2000)**

5.1. Difference between application and program:

There is a clear contrast between the application and the program**(Bougrine,2000)**

- ✓ Software: A non-editable standard program such as: Exel, Word.
- ✓ Software package: is an open program that allows to be adapted according to the activities such as: CIMIX.

5.2.Files comprised in CIMIX:

In the computing (computers) the file can consist of**(Bougrine,2000)**:

- ✓ Knowledge base.
- ✓ Program.
- ✓ A collection of data that is organized into the field combined archives.

In the case of the data file in question there are three data submissions:

Table interface screen.

5.3.Database:

A database consisting of several data files linked together by Links (CODE orLOGIN).

A database can be defined as a combination of data.

A database that can be used by different applications and aggregated at the same level, which allows to avoid problems because of the doubling of the same information, and the database is oriented by a database management system.

Such as:

- DBMS a database management system; it is a means of managing and controlling the use of data files (tables), such as DBASE.

- In order to allow and control multiple files, it is necessary to build links between them.

- In the case of links created by programmer or user, SGBD must be set.

5.4.Display System:

A set of programs that ensure computer running and display environment such as: DOS, UNIX.**(Bougrine,2000)**

UNIX UNIX is the display system used for the GMAO project

UNIX UNIX multi-functional and multi-user.

Eventually, MS_ UNIX users will gain access to sources and UNIX server files that are installed on several previously known sites at the GMAO project level.

5.5. Display system of CIMIX:

Bougrine (2000) Is a program that covers all maintenance operations on a large scale with supply perimeter and finance.

If CIMIX is built for three basic operations: storage, procurement, works ... 13 field, which represents the group of activities in maintenance service and organization:

- ✓ Means management.
- ✓ Inventory management.
- ✓ Equipment management.
- ✓ Work management
- ✓ Predictive management.
- ✓ Inspectorate management.
- ✓ Tours management.
- ✓ Planning.
- ✓ Purchase management
- ✓ Budgeting.
- ✓ Analysis and reports.
- ✓ Rules management.
- ✓ Electronic messages

6.CIMIX PRINCIPLES:

6.1.CIMIX-related concepts

It is necessary to define the following concepts:

⇨ **Classification plan**: A display of four levels (family, subfamily, individual, subindividual) that allow very fast selection and a different recording of the CIMIX objectives (materila, job, suppliers…)

The current version of CIMIX comprises seven classifications:

Material, function, processing, operational group, suppliers, performance, reservation, such as: searching in the interface the «List of values" relating to the coding material and the editorial backing associated with Klinger.

⇨ **The concept of Position:** new and complex.

It is necessary to difine it in order to avoid all confusions and interferences

1- Position is above all a cost center.

2- Position is mainly defined as follows:

- Alphanumericcoding, edited, PERE (or starting from), counting deletion, associated with the analytical accounting function.

- The position can be administrative such as: department / service/ district or technical: pump / main pump / turbine 1; the latter functions through processing, such as (Turbine 1 Turbine N. 20 (processing)

⇨ For each function, the following database can be collected: We distinguish three types In **CIMIX**:

- Consumable material such as coils, connectors, …
- Repairable materials, such as: injection pump, pump.
- Registered materials (processing): For this type, there are three classes (storage, restoration, functional server).

In CIMIX, processing can be:

- Registered materials.
- Can serve function.
- Technical and financial follow-up as a function.

For all equipment, the following database can be collected:

⇨ In CIMIX, any database recording is known as encoding, which is used by the system but is rarely used by CIMIX. This encoding can benumeric or alphanumeric. The number of encoding properties is generally 10, with some exceptions:

- 5 encoding properties for FAM; SFAM; GR; SGR in classification schemes.
- 25 properties for encoding deletion and authentication accounts.

6.2.Types of CIMIX interfaces

Types of interfaces (Ali Kiboub, 2003)

- **Screen menus:** Allows access to the transaction screen and selection from a tree of two levels: Key menu / submenu Such as: Accessing the DA screen from the Business Preparation menu
- **Transaction screen:** Allows creating, editing, deleting, or previewing data on a home screen and a completion screen such as (Executor of screen completion "creation" according to transactions "BT preparation")
- **Select screen:** Allows performing database, sorting criteria by selecting the following criteria: (delivering business documents, traffic points, maintenance program, purchase orders)
- **Comment screen:**Transmitting basic or complementary information displayed in the comment screen (alphanumeric coding)
- **Assistance screen:** Each screen can assemble an assistance screen comprisingprocedures and operating guide related to the interface in question

IV. Results and discussion:

–**Testing the study instrument consistency:**We shall test the consistency of the study instrument (the questionnaire); in other words, the stability of this tool and the absence of contradiction with itself, i.e., its ability to yield the same results in case the questionnaire is redistributed to the same sample under the same conditions. Cronbach's Alpha along with SPSS19 was used in order to measure internal consistency,

It is noted from the (table 2, see **annexe**)that the total Cronbach's Alpha coefficient is on the order of (0.944), higher than (0.9). Accordingly, we conclude that the measuring instrument has good consistency. In other words, the questionnaire, as a study instrument, is reliable in measuring the variables under study, owing to its ability to yield results that are in accordance with the answers of the questioned employees, with respect to the questionnaire expressions. Allowing us thus to generalize the results to the entire sample population, ie, the Directorate of Maintenance.

– **Model Hypotheses:** The hypotheses were tested using the SPSS19 program. The(table 3, see **annexe**) shows the results,

The selection coefficient reflects the level of variation in performance which is caused by the independent variable CIMIX

– **Presentation and discussion of the first hypothesis:**

The first hypothesis H0 states that: there is no statistically significant effect between the speed of CIMIX and performance at a statistical significance level 5%, From (table 04, see **annexe**), we find (Sig = 0.0001).Which means that the first hypothesis is accepted, that is: there is a statistically significant relationship between the speed of the CIMIX system used by the employees and their performance in the DML Company; none of the workers has denied the ability of this system to function with quality and high speed. They underlined that there are big differences in their performance and its ability to exchange information quickly between the branches, as well as the possibility of processing a large amount of information in a short time, as the speed of the fiber network adopted GM1 between the main server and the rest of computers, and 100MO between the computers.In addition, it isan excellent means to work with, for all the requirements related to intervention and all the work vouchersare transmittedvia this application, i.e. to dedicate financial and human resources needed to intervene in a given district. This impact occurred in a confidence interval estimated at 95%, any occurrence of this coincidence does not exceed 5%.

– **Testing and discussing the results of the second hypothesis**

Hypothesis:There is an effect between CIMIX safety and performance.

H0: There is no significant effect between CIMIX safety and performance atthe statistical significance 5%,From (table 05, see **annexe**). we find (sig = 0.0001). Hence, the second hypothesis is accepted, this means that there is a positive relationship of statistical significance between the safety of the CIMIX system used by employeestaking part in the study (sample) and their performance at work in DML Laghouat.As this system preserves privacy and confidentiality at work because everyone has Limited Access to the interface and has the right to view the interfaces of other departments via the interface.Also, itcomprises a record of the transactions that prevents losing or altering them. This impact occurred in a confidence interval estimated at 95%, any occurrence of this coincidence does not exceed 5%.

– **Testing and discussing the results of the second hypothesis,**

The hypothesis text: There is an effect between the CIMIX inclusion and performance.

H0: There is no statistically significant effect between CIMIX and performance at the statistical significance of 5%, From (table 06, see **annexe**).we find (sig = 0.0001).

Hence, the second hypothesis is accepted, this means that there is a positive relationship of statistical significance between the safety of the CIMIX system used by employees in the sample and their performance at work in DML Laghouat. As this system preserves privacy and confidentiality at work because everyone has Limited Access to the interface and has the right to view the interfaces of other departments via the interface. Also, it comprises a record of the transactions that prevents losing or alteration them. This impact occurred in a confidence interval estimated at 95%, any occurrence of this coincidence does not exceed 5%.

– **Testing and discussing the results of the fourth hypothesis:**

Hypothesis text: There is an effect between CIMIX flexibility and performance at statistical significance of 5%, From(table 07, see **annexe**). we notice that we accept the fourth hypothesis, in that, there is a statistically significant relationship between the accuracy of the CIMIX system used by the employees(study sample) and their performance in the company of DML.The CIMIX interfaceis well designedand includes all the basic requirements, as it is based on fixed technical and mathematical bases that prevent the occurrence of error.This effect occurred in a confidence intervalestimated at 95%, any occurrence does not exceed 5%.

– **Testing and discussing the results of the fifth hypothesis**

Hypothesis text: There is an effect between CIMIX flexibility and performance.

H0: There is no statistically significant effect between CIMIX flexibility and performance at statistical significance of 5%,from the table we note that (table 08, see **annexe**). and therefore accept the fifth hypothesis, that is, there is a positive relationship among the employeesthat took part in the study sample and their performance in the company of DML Laghouat.CIMIX has the ability to adapt to the requirements of each job and contributes to the flexibility of the task completion. This effect occurred in a confidence interval estimated at 5%.

– **Testing and discussing the results of the fifth hypothesis**

Text Hypothesis: There is an effect between CIMIX facility and performance.

H0: There is no significant effect between CIMIX facility and performance at statistical significance 5%, From the table we note that (table 09, see **annexe**). and therefore accept the sixth hypothesis.This means that there is a statistical relationship between the facility of using CIMIXby the individuals who took part in the study and their performance in the company of DML Laghouat. This system facilitates access to several command boards whose access is only allowed to senior executivesgiven that they are decision-makerswith respect to the data. It is also noted that any employee is capable of using it within few days because CIMIX does not require a period of training outside the company. This effect occurred in a confidence interval estimated at 95%, any occurrence does not exceed 5%.

– **The hypotheses of the variables of the sample characteristics:**

The seventh hypothesis predicts a significant difference between the performance of employees who have afull permeability to CIMIX,and those of low-permeability to CIMIX.Therefore,T-test for two independent groups will be the most appropriate test.

Hypothesis Text: There is a significant difference between the performance of employees who have a fullpermeability to CIMIX and those of low-permeability to CIMIX, for the benefit of the first category.

We can put the null hypothesis **H0** on the assumption that there are no significant differences between the differences or dispersion of the permeability and permeability categories for the employees in the following mathematical formula: H0:

The alternative hypothesis, which we expect to be true, is:
We have selected a significant level of 0.05.That is, the occurrence of the difference

between the two categories will occur at a confidence interval of 95%, the group statistics SPSS19

Comment on (table 11, see **annexe**). We notice from the table that the significant value (0,110) in the table is greater than the supposed significant value, namely 0.05

Test result:

The seventh hypothesis is not valid;in that, there is no significant statistical difference between the performance related to CIMIX of full-permeability-employees and limited-permeability-employees. This is because most workers understand how to use this system and have the ability to control its data. However, the administration authorizes the job procedures to avoid inaccuracies and in order to facilitate the process of accountability, by strengthening the heads of services in DML.

Hypothesis 8: As per to the main role of the Maintenance Directorate, Sonatrach, as well as the qualitative distribution of theemployees' positions that tend to be more technical, we may wonder whether there are significant differences between the performance of the support employeesand theperformance of main jobs;it can be expressed as follows:

There is a fundamental difference between the performance of the employees of support and the performance of those occupying "technical" jobs, in favor of the first category.

We can put the null hypothesis H0: assuming that there are no significant differences between the variations or the dispersion of the two categories of the employees of support and those occupying the main functions, We selected a significant level, i.e., the difference between the two categories will occur with a confidence interval of 95%.(table12, see **annexe**).

Comment on (table 13, see **annexe**).**:**We notice in the table that the significant value of 0.166 in the table is greater than the assumed significant value for the test, namely 0.05; thus accepting the null hypothesis, and reject the alternative hypothesis.

The eighth hypothesis is not validsince there is no fundamental difference between the performance of the employees of support and that of the technical employees. This is due to the convergence of their educational levels and training and ease in using the system.

V. Conclusion :

Success of companies lies in achieving their objectives which requires them to take serious measures in ordertoupdate their information systems to suit the different methods of their work, by encouraging and motivating the readiness of their employees to accept technological updates. The CIMIX system is of great importance to the Directorate of Maintenance, due to the fact thatit one of the most important elements upon which the performance of its human resources is based. Furthermore,it is viewed as a necessary means to achieve the global objectives, besides being an important tool in providing the conditions for the employees to perform their work efficiently and effectively.Accordingly, appropriate infrastructure and specialized workforce must be made availableso that valuable informationbe obtained, leading to a better performance at work.

Since we have validated all the partial hypotheses of the model related to the speed of information access,transmission between branches,safety in the privacy of work,preservation of devices and information, as well as the inclusion of the outputs of this system, accuracy of its information and reductionin the human errors, its flexibility in the course of transactions,andfacility tolearn and use it.The aforementioned advantages that CIMIX offers to the employees have contributedin increasing their productivity, and made it possible for them to solve the daily problems and enable them to predict the amount of future work.This has led tomake good and quick decisions.

As for the hypotheses regarding the variables outside the model, the results were contrary to what was predicted previously. The former were about CIMIX inclusionand limited permeability. The results of the test showed that there were no significant differences in performance due to the CIMIX permeability, because all employeesare able to access the system data and perform their tasks in accordance with their job requirements. They also have the ability to understand the functioning of the system. Another reason for the lack of significant difference in performance is that the Directorate itself does not make full use of all applications in CIMIX.

As for the result of the hypothesis regarding the significant difference in the performance of the technical employees and support employees, theywere incorrect, and this is due to the convergence of education and training levels of the two categories and the divergence of their fields of study, despite their insistence to take CIMIX training to improve their knowledge.However, thereis a similarity in their performance and a difference in the way ofusingthis system but not in knowing it. Further to our research, wehave come up with a set of results, the most important of which are:

⇨ There is a great expectation on the part of employees to open up more to the contents of CIMIX.

⇨ Despite all the advantages of CIMIX in meeting the requirements of work, employeesfeel the need to free access of practice.

⇨ The CIMIX system is used sololy in the maintenance Directorate DML Laghouat.

⇨ The system applications need to be developed.

⇨ CIMIX system has achieved a qualitative leap forward in the performance of employeesby saving time and effort.

This component will include two types of first research recommendations related to the experience they have gone through, and the second practical recommendations resulting from the results of our research.

VI. Recommendations:

Through the modest trial that we have made in this study, we have noticed some phenomena related to the methodology of the research and the process of its design, and the obstacles that reduce the enthusiasm to achieve the desired results and objectives of the company. It is not possible for the researcher to pose specific study problems withoutexploring practically the technology to be studied, which contributes in changing and discarding some misconceptions about the nature of work and the organizational environment in the maintenance Directorate (DML) - subject of the study.

PRACTICAL:

The practical recommendations that we can suggest based on the study results are:

⇨ The Directorate has to schedule specialized training courses in CIMIX especially for executives, and this is to improve their knowledgeon this program in order to make it effective in view of a good performance.

⇨ CIMIX is expected to:

❖ Open more space for writing and submitting reports in detail, in order to avoid reference to the original developer.

❖ Contain a special section to develop the employees' proposals related to the work.

❖ Have a tool that assesses the quality of work using this system and provide incentives for the practice.

⇨ The need to open the CIMIX operating area via an external network connected to the other directorates and the HQ of Sonatrach.

⇨ The Company must give great importance to update the CIMIX versions to comply with global development and mutations.

⇨ The company must add a new application that is specific to technical employees in the form of a file containing a list of the materials to be used.

VII. Annexes des tableaux :

Table(01):Sources rooting of the study model variables

Variable	dimensions and measurements of variables	Variable Studies (sources of theoretical rooting)
Quality of Information System	Facility or Complexity 4 Expressions	Davis (1982), Karwan, Belarlo (1982); Wallace & Thompson (1991), Venkqtes (2003); MooerkBenbasat (1991)
	Flexibility 3 expressions	Mahmoud (1987); Bailey Person (1987); Iveskal (1983)
	Safety 4 expressions	Karwan, Belardo (1982); Wallace &Srinivasan (1985); Seddon, Kiew (1996); Goodhue (1995)
	Speed 3 Expressions	Huff & Bart, Ginsberg (1985); Kin (1981); SnitkinSrinivasan (1985)
	Accuracy 3 expressions	Torkzadeh& Doll Bradoui phrases (1988); Oriliki&Baroudi (1988)
	Inclusion 2 expressions	Person & Bailey (1986); Ives & al (1986); Orlikozski&Baruodi (1988)
Individual performance Consists of 9 terms	Decision-making index	Wallace &Karwan (1986); Belardo, Zmud, Blocher&Moffie (1987), Sanders Courtney (1985)
	Productivity Index	Crawford (1982);

of decision-making		Millman&Hartwike (1987); Huff &Rivard (1985)
	Workflow troubleshooting index	Wallace &Mclachlan; Lee (1986); Srinivasan (1985); Luzi& Mackenzie (1982)
	Work-scale prediction index	Kaspar (1985)
Source: Taieb Ben Aoun, Evaluation of the Use of ICT-based Information Systems on the Performance of Algerian Institutions, PhD Thesis in Management, University of Laghouat, pp. 216-219		

Table(02): Cronbach's Alpha test results of the study variables

Number	Variable	Number of expressions	Cronbach's Alpha
Average of the questionnaire		28	0.944
Source: conceived by the researcher as per SPSS19 outputs			

M: axis
NM: CIMIX system

Table (03): Testing the study hypotheses

Independent variables	The dependent variable	Selection Coefficient	Probability Value	Relationship Model
Speed	Performance	47.1%	0,000	M 7 = 1,04 +0.668 M 1
safety	Performance	42.5%	0,000	M 7 = 0.897 + 0.719 M 2
Inclusion	Performance	21.4%	0,000	M 7 = 2,432 + 0.354 M 3
Accuracy	Performance	43.3%	0,000	M 7 = 1,515 +0,574 M 4
Flexibility	Performance	53.2%	0,000	M 7 = 1,104 + 0,685 M 5
Facility	Performance	50.4%	0,000	M 7 = 1,167 + 0.666 M 6
CIMIX	Performance	70.6%	0,000	M 7 = - 0.117 + 1,012 NM 1
Source: conceived by the researcher as per SPSS19 outputs				

Table(04): Testing the hypotheses of the effect of the speed variable on the performance variable

Model	Unstandardized Coefficients		Strandardized Coefficient	T	Sig
	B	Std.Error	Beta		

(Constant)	1,040	0,288		3.613	0.000
Axe	0,668	0,073	0,686	9,199	0.000
a. Dependent Variable: PERFORMANCE					
Source: conceived by the researchers as per SPSS19 outputs					

Table (05):Testing the hypothesis of the effect of the accuracy variable on performance

Model	Unstandardized Coefficients		Strandardized Coefficient	T	Sig
	B	Std.Error	Beta		
(Constant)	1,040	0,288		3.613	0.000
Axe	0,668	0,073	0,686	9,199	0.000
a. Denpendent Varaiable :PERFORMANCE					
Source: conceived by the researchers as per SPSS19 outputs					

Table (06) Testing the hypothesis of the effect of the accuracy variable on performance:

Model	Unstandardized Coefficients		Strandardized Coefficient	T	Sig
	B	Std.Error	Beta		
(Constant)	1,040	0,288		3.613	0.000
Axe	0,668	0,073	0,686	9,199	0.000
Source: conceived by the researchers as per SPSS19 outputs					

Table (07) Testing the hypothesis of the effect of the accuracy variable on performance

Model	Unstandardized Coefficients		Strandardized Coefficient	T	Sig
	B	Std.Error	Beta		
(Constant)	1,040	0,288		3.613	0.000
Axe	0,668	0,073	0,686	9,199	0.000
Source: conceived by the researchers as per SPSS19 outputs					

Table (08):Testing the hypothesis of the effect of the accuracy variable on performance

Model	Unstandardized Coefficients		Strandardized Coefficient	T	Sig
	B	Std.Error	Beta		
(Constant)	1,040	0,288		3.613	0.000
Axe	0,668	0,073	0,686	9,199	0.000
Source: conceived by the researchers as per SPSS19 outputs					

Table (09):Testing the hypothesis of the effect of the accuracy variable on performance

Model	Unstandardized Coefficients		Strandardized Coefficient	T	Sig
	B	Std.Error	Beta		
(Constant)	1,040	0,288		3.613	0.000
Axe	0,668	0,073	0,686	9,199	0.000

Source: conceived by the researchers as per SPSS19 outputs

Table (10) Descriptive statistics of the permeability degree variable in the study

Standard deviation	Arithmetical Average	Sample	Permeability degree	
0.5725	3.7290	41	Exhaustive	Individual performance
0.7472	3.5873	56	Limited	

Source: conceived by the researchers as per SPSS19 outputs

Table(11): Analysis of the T-test statistics for the seventh hypothesis

Levenve's test for equity of variances				T- test for equality of mean				
performance	Equal variance assumed	f	Sig	T	Dr	Sig(2-tailed)	Mean difference	Std error difference
	Equal variances not assumed	2.599	0,110	95	0,313	0,14170	0,3960	
				94,776		0,14170	0,13404	

Source: conceived by the researchers as per SPSS19 outputs

Table (12): The descriptive statistics of variable of the nature of the job

Standard deviation	average	sample	Position	
0.5725	3.7290	41	Support positions	Individual performance
0.7472	3.5873	56	Technical positions	

Source: conceived by the researchers as per SPSS19 outputs

Table (13): the analysis statistics of T-Test

Levenve's test for equity of variances				T- test for equality of mean				
performance	Equal variance assumed	f	Sig	T	Dr	Sig(2-tailed)	Mean difference	Std error difference
	Equal variances not assumed	1,944	0.166	0,171-	94	0,92	-2.24707	0,14522
				0,750-	70,367	0,85	-2,24707	0,14121

Source: conceived by the researchers as per SPSS19 outputs

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