

The Role of business processes reengineering in costs reduction at the Algerian public industrial foundations

دور إعادة هندسة العمليات في تخفيض التكاليف في المؤسسات الصناعية التابعة للقطاع العام في الجزائر

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Abstract:

The aim of this study is to highlight the role of implementing business processes reengineering on costs reduction in a sample of public industrial foundations in Algeria, to achieve the research objectives we used the descriptive analytical approach and the SPSS software to analyze the collected data, with reliance on a number of interviews to support the results interpretation.

The most important findings of the study is that the majority of root causes of high costs is related to processes management and can be addressed effectively by applying process reengineering according to the suggested steps in this study.

Keywords: Business processes reengineering, processes diagnosing, processes redesign, Costs Reduction, Algerian public industrial foundations

Jel Classification Codes: M49, L00.

ملخص:

تهدف هذه الدراسة إلى بيان دور إعادة هندسة العمليات في تخفيض التكاليف على مستوى عينة من المؤسسات الصناعية التابعة للقطاع العام في الجزائر، تم اتباع المنهج الوصفي التحليلي مع استخدام برنامج Spss لتحليل البيانات المتحصل عليها، والاستعانة ببعض المقابلات لدعم تفسير النتائج.

إن أبرز ما توصلت إليه الدراسة هو أن الأسباب الأساسية لارتفاع التكاليف في هذه المؤسسات معظمها مرتبط بإدارة العمليات ويمكن معالجته بتطبيق إعادة هندسة العمليات حسب الخطوات المقترحة في هذه الدراسة.

كلمات مفتاحية: إعادة هندسة العمليات، تشخيص العمليات، إعادة تصميم العمليات، تخفيض التكاليف، المؤسسات الصناعية الوطنية في الجزائر.

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1.INTRODUCTION:

No doubt that the main characteristic of the business environment is change, due to several factors the most prominent if which is the consumers changing needs and the raise of their level of expectation, all of these forces everyone who is active in this environment to adapt and keep up with the changes in order to survive and thrive, to do that every foundation especially the industrial ones should determine precisely its customers' needs, and from that build systems and procedures that can fulfill it as effectively as possible, the best tool to use in this case is to implement business processes reengineering, after the first book issued in this field in 1993 by the tow pioneers of process management Michael Hammer & James Champy under the title of reengineering the corporation, a fierce race took place between American foundations to adapt this management pattern to make dramatical changes in their working procedures so it can catchup to their main competitors the Japanese corporation.

So in this research paper we will study the capability of the public industrial foundation in Algeria to implement business processes reengineering in order to reduce their costs, especially since these foundation suffers from deep administrative and organizational problems, so we will begin by formulating the problematic of the study in this question:

To what extent can business processes reengineering reduce costs in Algerian industrial foundations?

From this main question sub-questions emerges as follows:

- Is the senior management has the willingness to implement business processes reengineering?
- To what extent are these corporations aware of the necessity of diagnosing their current operations in order to identify the deficiencies related to them?
- Do these foundations have the specifications that enable the success of

redesigning operations?

- Could our foundations implement the alternatives offered by the process reengineering program effectively?

Study hypothesis: As a primary answer to the previous questions, we formulate the following hypothesis:

The main hypothesis: There is no statistically significant effect of the implementation of business processes reengineering on cost reduction in the industrial foundations.

From this main hypothesis, sub- hypothesis emerges as follows:

- There is no statistically significant effect of the willingness of senior management to implement business processes reengineering;
- There is no statistically significant effect that indicates the awareness of these foundations to diagnose their current operations in order to identify the related deficiencies;
- There is no statistically significant effect indicating the ability of the foundations under study to redesign their operations;
- There is no statistically significant impact of the ability of foundations mechanisms to implement and monitor the alternatives provided by the process reengineering approach.

Study objectives: the study aims to:

- Take a closer look at the business processes reengineering with its various concepts and implementation steps;
- Knowing to what extent the industrial foundations under study has the specifications that ensure the successful application of business processes reengineering;
- Diagnosing the causes of high costs at this foundations;
- Explain how process reengineering treats the main causes of costs rising.

Research methodology:

The study relied on the descriptive analytical method due to its convenience to the nature of the research in terms of collecting information, compare and analyze them to achieve the pre-established goals, and we used the statistical analysis tools provided by the Spss software to analyses the data and extract results.

2. Business processes reengineering:

We will try to represent the basic concepts about business processes reengineering in this brief theoretical background.

2.1. Business processes reengineering definition:

There are various definitions of business processes reengineering each one highlights a side of this approach and we will mention the most important:

The pioneers of business processes reengineering Michael Hammer & James Champy define it as the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed (Hammer & Champy, 2002, P35).

Also defined as the fast and dramatical redesign of management and strategic processes, systems and policies in order to increase productivity (De Pena & ficher, 1994, p46).

The following definition highlights the flexibility of business processes reengineering approach to adapt to several Project circumstances, he describes it as an innovation in management knowledge that attempts to raise the improvement of the organization by emphasizing on radical designing of strategies, processes, guidelines and organizational structure. Since the application of BPR concepts can have different forms, its methodologies are different. Because concerning to some factors varies from one project to another project (eftekhari & akavan, 2013, p5).

Business processes reengineering based on four concepts: (Hammer & Champy, 2002, P38)

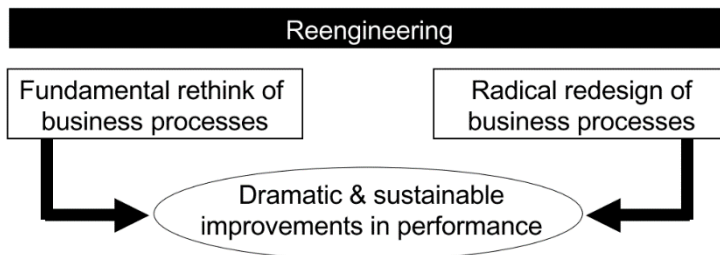
- **Fundamentals:** In doing reengineering, businesspeople must ask the most basic questions about their companies and how they operate: Why do we do what we do? And why do we do it the way we do? Asking these fundamental questions forces people to look at the tacit rules and assumptions that underlie the way they conduct their businesses. Often, these rules turn out to be obsolete, erroneous, or inappropriate and that's a good beginning to start the reengineering effort.
- **Radical:** which is derived from the Latin word radix, meaning "root." Radical redesign means getting to the root of things: not making superficial changes or fiddling with what is already in place, but throwing away the old. In reengineering, radical redesign means disregarding all existing structures and procedures and inventing completely new ways of accomplishing work.

Reengineering is about business reinvention not business improvement, business enhancement, or business modification.

- **Dramatic:** Reengineering is not about making marginal or incremental improvements but about achieving quantum leaps in performance. If a company falls 10 percent short of where it should be, if its costs come in 10 percent too high, if its quality is 10 percent too low, if its customer service performance needs a 10 percent boost, that company does not need reengineering.

The next figure summarize the previous concepts:

Figure (01) business processes reengineering key concepts



Source: Budionoa & Loiceb, 2012, p35.

2.2. Business processes reengineering principals:

There are a number of Business processes reengineering principals as following: (budino & loice, 2012, p36)

1. Organize around outcomes, not tasks;
2. Have those who use the output of the process perform the process;
3. Subsume information-processing work into the real work that produces the information;
4. Treat geographically dispersed resources as though they were centralized;
5. Link parallel activities instead of integrating their results;
6. Put the decision point where the work performed, and build control into the process;
7. Capture information once and at the source.

2.3. Business processes reengineering implementing steps:

Business processes reengineering implementing steps:

Business processes reengineering applied by following a set of steps. First, obtaining senior management approval and support, then build the reengineering team and diagnose the current operations, the next step is redesigning process, and

finally implementing the new processes:

2.3.1 obtaining senior management approval: This is one of the fundamentals that must be met, because the awareness of the top administration about the benefits of business processes reengineering make its implementing easier and support its success;

2.3.2 business processes reengineering team: to ensure the success of business processes reengineering organizations the following parties should be present, (the following members should be present in the large organizations, it is sufficient to have a leader and a reengineering team to ensure the successful functioning of the program (Hammer & Champy, 1993, P106):

- **The Leader:** must be a senior executive of the organization who has enough influence to cause the whole organization turn itself upside down and inside out while reengineering occurs, the leader must also be a consensus builder persuading people to accept the reengineering.
- **The Process Owner:** will usually be a senior manager (often with line responsibility) who has prestige and credibility. The process owner will make reengineering happen at the individual process level. Most often, process owners are already intimately familiar with one of the functions involved in the process that will undergo reengineering.
- **The Reengineering Team:** carries out the heavy lifting. These people actually get their hands dirty figuring out the details of the reengineered process. The best teams have between five and ten members a mix of outsiders (people who don't currently work in any of the functions being reengineered) and insiders (people who do work in those areas).
- **The Steering Committee:** is a broadly based collection of senior managers of the organization who set priorities for the Reengineering Team, decide the allocation of resources, resolve any conflicts that arise and monitor the results achieved.

2.3.3 Diagnosing the current processes: the business processes reengineering team tries in this step to understand precisely the needs of the current processes user, and ask the following question: do the outputs of the process fulfills the requirements of the costumers or the internal users? and then highlighting the strengths and weaknesses of the process, all of that will be a solid ground to begin redesigning the new process (Attaran, 2000, p798).

2.3.4 Implementation: Planning, orchestrating, and managing all of the change

enablers (people, processes, and technology), and driving the implementation toward the business vision and performance targets—making the reengineered process happen. Much like other high-impact business-development and implementation projects, the critical success factors for reengineering will vary somewhat across these phases (Farrell, 1994, p44)

3. Costs reduction:

Costs are the most important factors that every organization seeks to reduce it to the minimum due to several considerations, like gaining a competitive advantage and take a decent share of the market that enables the continuity and success of the organization.

3.1. Definition of cost reduction:

The economic organizations aims to increase its profits and works on the improvement of its competitiveness, by offering its products at a lower cost than its competitors at the best quality, and we can define cost reduction as Real and lasting reductions in the costs of production or in the services provided without affecting its suitability for the required use, hence searching for the means and methods for improving product and processes design in order to reduce costs, as such, it indicates a transition from the current cost level to a lower one, so that the organization can produce the same product and proceed the same operations at a lower cost. (denverport & short, 1990, p7)

3.2. The causes of high costs in the organization:

There are several administrative, operational and behavioral causes that increase costs we highlighted the most important of theme as follows (Saudi council of engineers, 2017, p11):

- Lack of sufficient information about the project or the organization processes and procedures will lead to wrong decisions which increase costs;
- Emergency situations and exceptional circumstances, as well as following customs, traditions and routines, all of that contribute to increasing costs, such as following a working procedures only because it was used in the past or for social considerations, while neglecting the cost and efficiency side;
- High costs and poor quality may result from the absence of a systematic way of generating ideas and obtaining other effective alternatives,
- The emergence of modern and advanced technology that was not present or known before can increase the costs at least in the short term;

- The changing of consumers tastes and needs force the organization to update the design and processes linked to the production or the service, all of that will inevitably increase the costs;
- Using out of date or non-local standards and specifications in the organization;
- The lack of effective communication and coordination;
- Resisting change and the absence of quality and value measurements.

3.3. The causes of high costs in the organization:

There is a substantial difference between business processes reengineering and other methods in terms of costs reduction, where this tools try to split the components of the product or operation and exclude some parts to reduce cost, business processes reengineering is built on clients needs and expectations, let me illustrate more the process that redesigned by reengineering tries as starting step to know precisely what the final user want, then build the operations in the best manner that can fulfill his needs, at the same time it exclude any additional procedures and activities that doesn't add value.

4. practical study:

In order to study to what extent business processes reengineering reduces costs, we chose three public industrial foundations operating in algeria, taking into consideration the homogeneous nature of these foundations and its organizational form, to ensure that results can be generalized, when we take a closer look at this foundations we notice that all of them compose of several production unites located in regions in algeria, the national foundation of paint unit of souk ahras (ENAP) is one of 6 production unites, the national foundation of textile and cotton industries (SONITEX) is one of 7 unites specialized in all kinds of textile industries, and the last one is DIVENDUS AMM is a group of all sorts of organizations founded by the ministry of industry and mines in 2015, and the unit under study is for manufacturing home and office furniture that operate in TAREF state.

To reach the desired objectives of this study and to test its hypotheses, and obtaining results with scientific value, we designed a questionnaire targeted to the senior managers of the three foundations as shown in the following table:

Table 1: The number of distributed and retrieved questionnaires

Foundation	Questionnaires	
	Distributed	Retrieved
National foundation of textile unit of souk ahras (SONITEX)	30	26
National foundation of paint unit of souk ahras (ENAP)	30	28
DIVENDUS group Taref AMM unite	20	19

Source: prepared by researchers

We concentrated on senior managers is due to the nature of the study subject who linked to the senior management decisions and procedures.

Research tools :

The study based on a questionnaire designed according to Likert quinary scale (Rensis Likert) to measure the responses of the sample members as shown below:

Table 2: tests weights according to Likert quinary scale

choice	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Weight	1	2	3	4	5
Value	1,79 – 1,00	2,59 – 1,80	3,39 – 2,60	4,19 – 3,40	5,00 – 4,20

Source: prepared by researchers

The questionnaire divided in two parts:

- first part is for respondents personal and professional data;
- Second part divided to tow axes, the first related to the independent variable business processes reengineering and consists of 21 questions, and the second related to dependent variable cost reduction and he contain 16 questions.

In addition to the questionnaire, we conducted some interviews as an auxiliary tool to the interpretation of the results.

Statistical analyses: we used the Spss software to make the following statistical tests:

- **Alpha Cronbach** and the **validity test** to make sure that the data is reliable.
- Frequencies, percentages, means and standard deviations;
- Multicollinearity test (**VIF**), Tolerance, correlation test (**Pearson**), one sample t test, one way **ANOVA** and the test of the significance of the study model (**Coefficients**).

Reliability test: the reliability of the study model can be tested as following:

Table 3: Alpha Cronbach and the validity test

(Alpha Cronbach)	validity test
0.703	0.838

Source: Prepared by researchers based on the outputs of Spss₂₃

The value of Alpha Cronbach in the whole questionnaire is 0.703 is a very good compared to the minimum acceptable one at 0.6, as an explanation so we can say that if we redistribute the questionnaire to the same respondents again we will get a match in results at 70.3%, the of validity ratio is the square root of alpha caronbach and his very considerable at the value of 0.838 this indicates that the tool used for the study is stable and reliable.

The characteristics of the sample individuals:

It consists of four elements shown below:

Table 4: The characteristics of the sample individuals.

Professional position		Educational level		Years of experience		Professional field	
Category	%	Category	%	Category	%	Category	%
Chief of department	17.8	Secondary	17.8	Less than 5	23.2	General administration	20.5
Chief of division	35.6	Professiona l	12.3	From 5 to 10	32.8	Accounting and finance	21.9
Chief of administration	46.5	University	50.6	More than 10	43.8	Supplies and sales	10.9
		Post graduate	19.1			Production department	31.5
						Human resources	8.2
						Laboratory	6.8
Total	100	Total	100	Total	100	Total	100

Source: prepared by researchers

We notice from the previous table that the category of administration chief is the majority at 46.5%, by the rest categories, the reason why we concentrate on senior managers is due to the nature of the study subject who is linked to the senior management decisions and procedures, for the educational level, we find that

those who hold university degrees are the majority by more than 69%, due to positions occupied by the majority of the sample members that require a high educational qualification, also these foundations give the permission to their employees to complete university studies, on the professional experience side, we note that most of the respondents have more than 10 years of experience 43.8% followed by a 32.8% category with 5 to 10 years of professional experience, this enhances the credibility of the as they are aware of their foundation producers and properties, as for the professional field, most of the departments of the organization were covered in response to the specifics of business processes reengineering, which requires the participation of all parties within the organization to implement it.

Analysis of questionnaire axis:

First: analysis of the business processes reengineering: we will study the responses of the sample members regarding the four dimensions of business processes reengineering application as shown in the table below:

Table 5: analysis of the business processes reengineering implementation steps

BPR implementation phases	terms	mean	S division	rank
senior management approval	5	2.41	0.54	4
Diagnosis of current operations	4	3.99	0.69	1
process redesign	6	2.72	0.68	3
Implementation of the new processes	5	3.13	0.61	2

Source: Prepared by researchers based on the outputs of Spss²³

Analyses of senior management willingness to adopt business processes reengineering: As we previously mentioned the foundations under study is a production units submit to the decisions of their central administration, so their implementation of the modern management tools whether it is business processes reengineering or another methods, is subjected to the approval of senior management represented in its central administration, from this, five questions were formed to measure their willingness to implement business processes reengineering, the first one measures to what extant the senior management aware of the need to make dramatical changes in process in order to achieve business success, and the sample members strongly agrees on this element with a mean of 4.26 at a standard deviation of 0.44, what we felt from asking managers that they are fully aware of the ineffectiveness of the old managerial tools used by their foundations for over three decades and they have to make dramatical changes, in

the second question we realized that there is an absence in a specialized authority within the organization responsible for managing and developing operations, this makes implementing business processes reengineering harder specially that the three foundations is big organizations spreaded all over the country so it is inconceivable that organizations of this size don't have an authority responsible of managing and developing operations, from the conducted interviews the chief of Human Resources Department of the National foundation of textile and cotton industries stated that his department is responsible of rebuilding the organizational Structure but we noticed that the mechanisms used is not scientific, we also note the absence of goal setting and planning related to the development of operations in each of the phrases 3 and 4, we can see also that the foundations studied don't seek to adopt new modern proven managerial tools, and to know the reason for that we needs whole study conducted only in this topic.

Diagnosis of foundations current operations: If we return to the literature review of this study we will find that the first step taken when implementing business processes reengineering is diagnose of current operations to identify its strengths and weaknesses, Statement number 6 shows that the interrogators agrees that their corporations perform the diagnosis Identify glitches and that's a good indicator because without accurate identification of problems related to operations it cannot be successfully developed , also the three foundations has a map showing the various operations they perform according to the mean of seventh term who reached 4.15, another good indicator is that a team can be formed from within the corporations and they could hire external experts helping them develop processes because this is a critical element in the success of business processes reengineering application.

Analysis of process redesign dimension: In this dimension, we reached the core essence of business processes reengineering, because it is considered one of the most important stages, therefore, we will measure the ability of the foundations to conduct it throughout the above statements, the term number 10 talk about benchmarking strategy, here, most of respondents strongly disagree with the presence of this strategy within their foundations as the mean of 1.53 shows, we also notice the absence of efforts that seeks to reduce centralization within these organizations, which considered one of the most prominent obstacles preventing the successful implementation of process reengineering, also, throughout statements 12, 13 and 14 we notice that there is a possibility to carry out the basic

activities of re-engineering like changing the organizational structure, merging and simplifying operations, and carryout customers concerns, because business processes reengineering revolve around satisfying customers and providing their needs, in term number 15, we note that the foundations under study do not rely on modern technology to manage their operations, and this is a big obstacle considering that modern technology is the cornerstone of re-engineering efforts.

Analyzing the Implementation of the new redesigned processes: At this point, we have reached the end of the business processes reengineering, after the redesigning of processes and getting the approval of senior management on the new alternatives and proposals that was brought up to develop processes, we can now initialize the implementation and monitoring stage, at first we notice in the term number 17 that the foundations implements the research and development outcomes related to its products and processes as the majority of respondents strongly agrees on this element at mean of 4.42 and standard deviation of 0.49, but what we miss here is a clear-cut implementing plan set by the foundations managers, and this makes it more difficult to run the new processes and take a longer time, we also note, through the last term, that there is resistance to change, which is considered one of the most prominent obstacles that hinder the foundation from reaching the success in business processes reengineering application, but from the results of the rest of the questions, we found complete approval prevailing over most other execution procedures, as all the foundation provides the necessary requirements for the implementation of new redesigned process, in addition to the training of employees on new work procedures, all of these considered auxiliary elements to facilitate the implementation process.

Second: Analyzing the cost reduction axis:

we will highlight the real causes that lead to uncontrolled costs in the foundations, by formulating a set of possible causes of high costs in 16 terms, and then discover which of them applies on the foundations under study, then exploring how business processes reengineering eliminate this root causes:

Table 6: Diagnosing the causes of high costs in foundations

° N	Questions	Mea n
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1	The narrow decision making authority of the foundation managers as result of their restriction to the decisions and procedures of the central administration	4.05
2	Poor coordination between the internal departments of foundation	3.85
3	Inefficiency of the organizational structure	3.75
4	Absence of cost reduction among the primary goals of the foundation	3.63
5	Absence of strategic cost planning	4.81
6	Using old management tools that do not fit with the current requirements of the foundation	4.74
7	Ineffectiveness of the systems of measuring and monitoring costs used by the foundation	4.14
8	Inability to provide the right information about costs to all organization departments	3.84
9	Incapacity of the research and development related to the operations of the foundation	4.67
10	The absence of mechanisms to generate creative ideas that would reduce costs	4.77
11	High operating and raw materials costs	4.85
12	Lack of emphasis on reducing the cost of products and processes in the early design stages	4.38
13	The imbalance between cost control and quality improvement	4.07
14	Operations that are not compatible with customers' needs	3.95
15	Slow production and administrative operations	3.73
16	Using out of date Information and Communication technology in management	4.71

Source: Prepared by researchers based on the outputs of Spss²³

after analyzing the data We noticed that there are several causes of high costs directly related to processes management, we start by first term, one of the principles of business processes reengineering is giving more authority to decision makers in the workplace this cause can be excluded by restructuring the organization in manner that gives employees wider authority to make decisions and emphasizing in the same time at taking responsibility and oversight, the respondents also agreed to the inefficiency of the organizational structure and coordination between the various departments as a reason for high costs, so by applying business processes reengineering we will increase the efficiency of organizational structure and solve this problem, here we turn to another cost driver, which is the failure to adopt modern management tools that respond to current challenges this makes the foundation unable to properly manage their resources and incur indispensable costs, In term 10, the respondents fully agree to The absence of mechanisms to generate creative ideas that would reduce costs within the organization at a mean of 4.77, as we mentioned earlier, this element is

very important in the success of redesign new effective operations, so If we do not pay attention to creativity many ideas and alternatives that enhance the efficiency of the foundation operations will be lost, after that we can talk about the phrase number14, where the respondents considered the presence of some specifications within the foundation products and operations that are not compatible with customers' needs a cause of increasing costs, as Michael Hammer says in his book reengineering the one of the most important books in processes management : In order to differentiate between the value-adding process and the non-value-adding process, just ask the question doe's customer car about it is existence? Customers are the most important element to consider in process reengineering, and the existence of a process that does not respond to the needs of its users inevitably leads to high costs, also, slow processes lead to increased costs, because in business world, time equal money and a delay in any process costs the organization additional burdens, we also found among the most prominent reasons of high costs the use of out of date Information and Communication technology in foundation management, as it is considered one of the most important dimensions that contribute to the success reengineering efforts.

Hypotheses test:

After investigating the answers of the respondents on each of the questionnaire axes, in next step we will test the study hypotheses, but first we must examine the validity of the study model by ensuring that there is no high correlation between the independent variables through a set of tests, the first of which is Multicollinearity test (**VIF**) and Its value should not exceed 10, then Tolerance test and it value should not be more than 0.05.

Table 7: Multicollinearity and Tolerance tests

Independent Variables	VIF	Tolerance
Senior management willingness to adopt BPR	1.83	0.55
Diagnosis of the current processes	3.75	0.27
Processes redesign	3.27	0.31
Implementing and monitoring the new processes	6.34	0.16

Source: Prepared by researchers based on the outputs of Spss₂₃

It seems that all values obtained are within the allowed range, the value of Multicollinearity test (VIF) between 1.83 and 6.34 which less than 10, this indicates that there is no high correlation between the independent variables, in

this result supported by the value of the Tolerance test in all variables is higher than 0.05, here we can say that the study model fits the research objectives.

Correlation analyses: by using (**Pearson**) Correlation test to examine the main hypothesis of the study:

Table 8: Pearson Correlation test

BPR	Pearson	Sig
Costs Reduction	Correlation	
BPR and Costs Reduction correlation	0.411	0.000
** Correlation is significant at 0.01		

Source: Prepared by researchers based on the outputs of Spss₂₃

It seems clearly through the previous table that there is a direct correlation between business processes reengineering and costs reduction, as it reached 0.411 which is statistically significant, this means that the implementation of business processes reengineering following the suggested model will reduce the costs in the foundation.

So for the main hypothesis that says: "There is no statistically significant effect of the implementation of business processes reengineering on cost reduction in the industrial foundations" Here we reject the nihilistic hypothesis **H0** and accept the alternative hypothesis **H1** which highlights a direct correlation between the application of business processes reengineering and costs reduction at the level of 0.000 and he is statistically significant because his less than 0.05.

We're going to test the Sub-hypotheses in the next element:

One sample t test: we used this test because he is the most appropriate to analyze the sub-hypotheses of the study, the principal of decision is to accept the nihilistic hypothesis **H0** and reject the alternative hypothesis **H1** if the calculated **t** is less than the tabular **t** as follows:

Table 9: One sample t test

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Questionnaire dimensions	t	Sig	Decision	Mean
Senior management willingness to adopt BPR	67.78	0.000	Reject H0	2.41
Diagnosis of the current processes	91.45	0.000	Reject H0	3.99
Processes redesign	96.30	0.000	Reject H0	2.72
Implementing and monitoring the new processes	68.76	0.000	Reject H0	3.76

Source: Prepared by researchers based on the outputs of Spss²³

As the previous table shows, we reject all **H0** hypotheses of the four dimensions of the process reengineering implementation, and accept the alternative hypothesis **H1**, because the calculated **t** exceeding the tabular **t** in all of the hypothesis at a significance level of 0.000 and his less than 0.05.

The model overall significance: we used one way ANOVA to test the significance of the model direct correlation between business processes reengineering and costs reduction in the foundations:

Table 10: One Way ANOVA

	Sum of squares	df	Mean square	F	Sig
Regression	1.789	1	1.789	14.441	0.000
residual	8.797	71	0.124		
Total	10.586	72			

Source: Prepared by researchers based on the outputs of Spss²³

We see from the previous table that the significance level is 0.000 which is less than 0.05, so as a conclusion we can say that the linear regression model is statistically significant, because the independent variable has a significant effect on the dependent one, and this supports our rejection of the main hypothesis and accepting the alternative hypothesis.

Model partial significance: we will complete the previous element by testing the partial significance of the study model parameters as follows:

Table 11: Coefficients test

Model	B	Standardized coefficients	Beta	t	Sig
(constant)	-0.192	1.169	0.411	-0.164	0.870
BPR	1.415	0.372		3.8	0.000
^a Dependent variable: costs reduction					

Source: Prepared by researchers based on the outputs of Spss₂₃

The previous table represents the parameters of the study according to the linear regression model, at first we note that the constant is not statistically significant at a level of 0.870 which is more than 0.05, as for the business processes reengineering parameter we can say that he is statistically significant at the value of 1.415, here we can extract the linear regression equation that represents the direct correlation between business processes reengineering and costs reduction as follows:

$$Y = 1.415x$$

Y representing business processes reengineering and **X** indicates cost reduction.

5. CONCLUSION:

After highlighting the most important concepts related to research variables, beginning by defining business processes reengineering and focusing on their implementation steps from diagnosing the current processes of the foundation to knowing their strengths and weaknesses points, passing by the most important step represented in new process redesign in which the reengineering team define the needs of process outputs users, then innovating new alternatives that improve the process effectiveness, at this point we reached the final step which is setting the necessary procedures to implement and monitor the new redesigned processes, looking to the practical part of the study we seeks to highlight the most important causes that increases costs in the foundations, then investigate how can we eliminate the most important of them by implementing business processes reengineering , the study reached a set of results that can be summarized in the following elements:

- The study concluded that the implementation of business processes reengineering in the algerian industrial foundations will considerably reduce its costs, this after diagnosing the most important causes that lead to high costs in this organizations, as a result, we realized that a large portion of this roots can be

eliminated by applying business processes reengineering, at this point we have answered on the problematic of the study;

- the senior managers of the foundations under study are totally aware of the necessity of making fundamental changes in processes, however there are an absence in some key elements to reach success in business processes reengineering implementation the most important of which is taking the initiative to apply modern administrative approaches, and here we have answered on the first sub-question of the study;
- In the current processes diagnosing stage the foundations has all the success factors that enables them to perform this step effectively, with this conclusion, we have answered the second sub-question of the study;
- in the second step of business processes reengineering application, which is processes redesign, we conclude that the organizations under study have some qualification to perform the processes redesign, and at the same time there was an absence in several key elements like the technological factor and decisions delegation, but this deficiencies can be remedied if the senior management seeks earnestly to adopt to business processes reengineering model, at this point we have answered on the third primary question of study;
- The foundations has all mechanisms that enables them to run the new redesigned processes, by this conclusion we answered the last sub-question of the study.

Considering the previous results, we give the following recommendations:

- The senior management of the industrial foundations represented in their central administration must take the initiative to implement modern administrative methods compatible with their internal and external environment like business processes reengineering to reduce costs and improve processes effectiveness;
- The public industrial foundations should reduce centralization and give the managers and employees wider authority to make decisions in the working place, without neglecting the responsibility side.
- The foundations must take advantage of modern technology to improve their operations. Because the reliance on traditional tools is one of the main reasons why organizations fail in the contemporary business environment;
- The organization under study should embrace the culture of constant change to the internal and the surrounding environment with its various variables, in order to ensure continuity and success.

- Encouraging the creativity and innovation by setting up mechanisms that enables the foundation to listen and discuss employees' and costumers proposals, this will benefit a lot in solving processes problems;
- Taking a forward step from just dealing with high costs symptoms to addressing the root causes of this problem.

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