

The Analysis of Critical Success Factors (CSF) of Information Technology (IT) Projects in Algeria: a comparative Study of Public and Private Sector

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Abstract: Critical Success Factors (CSFs) of Information technology Projects are the domain of an Information Technology (IT) project that are crucial to its success. The determination of different CSFs help to ensure that the project manager maintain the focus on what is important to perform and using resources in a rational way. The objective of this paper is to identify critical success factors (CSF) that influence information technology projects in Algeria, in order to minimize and overcome projects failure.

Keywords: IT, CSF, information, technology, Algeria

I- Introduction:

Information system (IS) is defined to be a set of material and immaterial elements that interact in order to fulfill the objective of the organization, and they are very important to its functioning and progression. According to ISO 21500, a project consists of a single set of processes that encompass controlled activities in the organization. There are several types of IT projects executed to meet the different needs of organizations. However, their nature may differ according to the organization objectives and scopes. According to literature revue, communication in the organization, management support, team competence, training of workers, user involvement, project planning, clear project goal, risk management, stakeholder involvement and leadership are key factors that have an impact on information technology projects. The objective of this paper is to identify the critical success factors that influence information technology projects in Algeria, to minimize and overcome projects failure. For this, we will try to find an answer to the following research question: How different is the influence of the critical success factors on information technology (IT) projects success between public and private organization? To answer this

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question, a mixture of descriptive and inferential statistical methods has been used to describe the studied phenomenon.

II- Materials and Methods:

Data collection was based on a survey (see the appendix) where the target population represents workers who are directly involved with IT in the organization. The total number of survey respondents was 303 for both public and private sectors from different organizations in Algeria. However, some respondents were not directly involved to IT project and other responses were missing. Therefore, the total of responses used after removing the missing data and data cleaning were 147 only for both sectors. The success of the project is measured by 3 items that are; budget (cost), schedule(time) and scope. Normality test was used to check if the studied data is within normal distribution or non-normal distribution. In addition, skewness and kurtosis were used to test data normality. For both tests if the value is close to zero, then the data is normally distributed. According to (Garson, 2012) the rule of thumb of skewed data should be within -2 and +2 and for kurtosis it should be between -3 and +3. Also, Z-scores have been calculated to boost the normality analysis results. To test for reliability, a cronbach alpha has been calculated using SPSS¹. Since the questionnaire was constructed based on 5-likart scale statements, it would be appropriate to use reliability test to check internal consistency (Chetty & Datt, 2015). To test for multicollinearity, variance inflation factor (VIF) has been applied. Since it consists of a comparison between two things (in our case the public and the private sector), we relied on a logistic regression in order to model the studied phenomenon. At the end, confirmatory factor analysis (CFA) has been used to test the validity of the used instruments.

III- Results:

As shown in table 1, the number of respondents from public sector were 69, which 68.1% of them are male (47 responses) and 31.9% are female (22 responses). The number of respondents from private sector were 78 responses which 79.5 % of them were male (62 responses) and 20.5 % were females (16 Responses). The respondents' age is mostly balanced between 30 and 40 years old for both public and private sectors, with 47.8 % of total responses from public sector and 51.3 % of total responses from private sector. The second highest age level from both public and private sector were from age of 20 to 30 years old with 31.9 % from public sector and 28.2 % from private sector. Moreover, age level from 40 to 50

¹ Cronbach alpha ranges between 0 and 1.00, and acceptable values range from 0.70 to 0.95 (1.00 represents high consistency (Tavakol & Dennick, 2011)).

years old was 17.4 % in public sector and 15.4 % from private, and the least respondents age level was that above 50 years old with only 2.9 % from public sector and only 5.1 % from private sector. Moving to educational background of the respondents between IT and non-IT, the majority were from IT background from both public and private with 84.1 % from public sector and 66.7 % from private sector. Respondents with non-IT background were 15.9 % from public sector and 33.3 % from private sector. Concerning job roles, the majority of respondents were project managers, senior Managers and Team Leaders from both public and private sectors. Concerning years of experience, most respondents have more than 10 years experience with 49.3 % from public sector and 56.4 % from private sector.

Table 1: Demographic information of the studied sample

<i>Variable</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>
<i>Gender</i>	<i>Public</i>		<i>Private</i>	
<i>Male</i>	47	68.1 %	62	79.5 %
<i>Female</i>	22	31.9 %	16	20.5 %
<i>Total</i>	69	100%	78	100%
<i>Age</i>	22	31.9 %	22	28.2 %
<i>From 20 to 30</i>	33	47.8 %	40	51.3 %
<i>From 30 to 40</i>	12	17.4 %	12	15.4 %
<i>From 40 to 50</i>	2	2.9 %	4	5.1 %
<i>Above 50 years old</i>				
<i>Education background</i>	58	84.1 %	52	66.7 %
<i>IT</i>				
<i>Non - IT</i>	11	15.9 %	26	33.3 %
<i>Number of employees</i>	1	1.4 %	11	14.1 %
<i>Less than 50</i>	4	5.8 %	11	14.1 %
<i>From 50 to 100</i>	31	44.9 %	19	24.4 %
<i>From 100 to 500</i>	33	47.8 %	37	47.4 %
<i>More than 500</i>				
<i>Job Role Project Manager</i>	10	14.5 %	11	14.1 %
<i>Senior Manager</i>	9	13.0 %	14	17.9 %
<i>Team Lead</i>	13	18.8 %	14	17.9 %
<i>Programmer</i>	6	8.7 %	4	5.1 %
<i>Technician</i>	6	8.7 %	1	1.3 %
<i>IT Analyst</i>	4	5.8 %	2	2.6 %
<i>Developer</i>	0	0%	2	2.6 %
<i>Consultant</i>	3	4.3 %	6	7.7 %
<i>Other</i>	18	26.1 %	24	30.8 %
<i>level of Experience</i>	16	23.2 %	19	24.4 %
<i>0 to 4 years</i>	19	27.5 %	15	19.2 %
<i>5 to 10 years</i>	34	49.3 %	44	56.4 %
<i>above 10 years</i>				
<i>Citizenship</i>	63	91.3 %	56	71.8 %
<i>Algerian</i>				
<i>Non-Algerian</i>	6	8.7 %	22	28.2 %

III-1- Frequencies analysis:

First, when it comes to project budget, as shown in below table 2, the majority of respondents in public sectors answered that the project was on cost with 62.3% of respondents, and it was over cost with 37.7% of respondents. Similarly to the private sector, the majority answered that project was on cost with 70.5% and over cost with 29.5% of answers. Regarding the schedule, 37.7% in public sector answered that the project was on schedule and 62.3% answered that the project went behind the schedule. For the private sector, the majority answered that the project was on schedule with 51.3 and the others answered that project went behind the schedule with 48.7% of answers. Last, both public and private sector have majority answers that meet the scope of the project, with 85.5% of respondents from public sector and 71.8% from the private one.

Table 2 : Frequencies analysis of Project Success

<i>Variable</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Frequency</i>	<i>Percentage</i>
<i>Budget (Cost)</i>	<i>Public</i>		<i>Private</i>	
<i>Project was on cost</i>	43	62.3%	55	70.5%
<i>Project went over cost</i>	26	37.7%	23	29.5%
<i>Total</i>	69	100%	78	100%
<i>Schedule (Time)</i>				
<i>Project was on schedule</i>	26	37.7%	40	51.3%
	43	62.3%	38	48.7%
<i>Project went behind schedule</i>				
<i>Scope Meet</i>	59	85.5%	56	71.8%
<i>Scope Did not meet</i>	10	14.5%	22	28.2%
<i>Overall Project result</i>				
<i>Successful</i>	45	65.2%	56	71.8%
<i>Sochallenging</i>	23	33.3%	20	25.6%
<i>Not successful</i>	1	1.4%	2	2.6%

III-2- Testing constructs normality:

As shown in table 3, skewness coefficients of all independent variables range between -0.583 and -0.959. In contrast, the results of kurtosis for all independent

variables range between 0.512 and 1.587. Consequently, the results of both skewness and kurtosis meet the rule of thumb and indicate the normality of data.

Table 3: Skewness and Kurtosis analysis

Descriptive Statistics					
	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Clear project goal	147	-.923	.200	1.030	.397
Project Planning	147	-.784	.200	1.318	.397
Communication	147	-.692	.200	1.282	.397
Team Capability/Competence	147	-.583	.200	1.151	.397
Top Management Support	147	-.959	.200	1.587	.397
Risk Management	147	-.688	.200	.512	.397
User involvement	147	-.683	.200	.752	.397
Stakeholder involvement	147	-.744	.200	.650	.397
Training	147	-.736	.200	.676	.397
Leadership	147	-.777	.200	.959	.397
Valid N (listwise)	147				

According to skewness and kurtosis results², a Z-score equation need to be used to calculate the Z- skewness and Z-kurtosis using the below two formulas:

$$Z = \text{Skewness} / \text{SE skewness}$$

$$Z = \text{Kurtosis} / \text{SE Kurtosis}$$

Table 4: Z-scores results

	N	Skewness		Z-SKEW	Kurtosis		Z-KURT
	Statistic	Statistic	Std. Error		Statistic	Std. Error	
Clear project goal	147	-0.923	0.2	-4.615	1.03	0.397	2.594458
Project Planning	147	-0.784	0.2	-3.92	1.318	0.397	3.319899
Communication	147	-0.692	0.2	-3.46	1.282	0.397	3.229219
Team Capability/Competence	147	-0.583	0.2	-2.915	1.151	0.397	2.899244
Top Management Support	147	-0.959	0.2	-4.795	1.587	0.397	3.997481
Risk Management	147	-0.688	0.2	-3.44	0.512	0.397	1.289673
User involvement	147	-0.683	0.2	-3.415	0.752	0.397	1.894207
Stakeholder involvement	147	-0.744	0.2	-3.72	0.65	0.397	1.63728
Training	147	-0.736	0.2	-3.68	0.676	0.397	1.702771
Leadership	147	-0.777	0.2	-3.885	0.959	0.397	2.415617

According to table 4, we notice that our data are not normally distributed.

² Warner (2008) explained that in order to check if the data is within normal distribution, a Z-score calculation needs to be performed.

III-3- Reliability analysis:

Results presented in table 5 show that reliability coefficients for statements related to both public and private sectors are very close to 1.00. This means that, in both sectors, statements related to the questionnaire are significantly reliable. This gives an advance approval that the selection of this questionnaire was acceptable and correct.

Table 5: Reliability analysis for public and private sectors

Type of the Organization?	Cronbach's Alpha	N of Items
Private	.943	35
Public	.961	35

III-4- Independent Variables Reliability Tests

Table 6 shows Cronbach's Alpha values for the independent variables of this study. Results show that reliability coefficient for the overall independent variable is (0.953), which means that the items in the questionnaire are significant all together. Also, for each factor in the study the result was above (0.7) which indicates a good reliability. There is only one factor that has a result less than (0.5) which is team capability/competence.

Table 6: Results of Cronbach's Alpha reliability for independent variables

Factors	Reliability Statistics	
	Cronbach's Alpha	Number of items
<i>Clear Project Goal</i>	0.809	3
<i>Project Planning</i>	0.792	3
<i>Communication</i>	0.817	4
<i>Team Capability/Competence</i>	0.428	3
<i>Top Management Support</i>	0.846	5
<i>Risk Management</i>	0.87	3
<i>User involvement</i>	0.808	3
<i>Stakeholder involvement</i>	0.841	4
<i>Training</i>	0.866	3
<i>Leadership</i>	0.867	4
Overall	0.953	35

III-5- Checking for multicollinearity

Multicollinearity checking is based on VIF (variance inflation factor) coefficient. If VIF is above 3 for one variable, we have multicollinearity.

a- Regression of independent variables on “Cost”

Results of the regression of the explanatory variables on the dependant variable “Cost” are given by the following table 7:

Table 7: Regression of independent variables on “Cost”

Model	Coefficients	t	Sig.	Multicollinearity statistics	
	Bêta			Tolerance	VIF
(Constante)		,240	,811		
clear project goal	,073	,443	,669	,251	3,991
Project Planning	-,056	-,377	,706	,307	3,259
Communication	,029	,163	,871	,212	4,719
Team	,052	,438	,662	,472	2,120
Capability/Competence					
Risk Management	-,207	-1,465	,145	,338	2,956
User involvement	-,198	-1,268	,207	,278	3,601
Stakeholder involvement	,072	,427	,670	,237	4,214
Training	,136	,971	,333	,342	2,925
Leadership	,075	,453	,651	,248	4,037

According to this table, values of VIF that are in bold indicate the existence of multicollinearity in the regression of independent variables on “Cost”.

b- Regression of independent variables on “Time”**Table 8: Regression of independent variables on “Time”**

Model	Coefficients	t	Sig.	Multicollinearity statistics	
	Bêta			Tolerance	VIF
1 (Constante)		,986	,326		
clear project goal	,128	,787	,433	,251	3,991
Project Planning	,413	2,802	,006	,307	3,259
Communication	,048	,271	,787	,212	4,719
Team	,036	,304	,762	,472	2,120
Capability/Competence					
Risk Management	,157	1,120	,265	,338	2,956
User involvement	,170	1,096	,275	,278	3,601
Stakeholder involvement	-,006	-,034	,973	,237	4,214
Training	,112	,798	,426	,342	2,925
Leadership	,310	1,887	,061	,248	4,037

According to this table, values of VIF that are in bold indicate the existence of multicollinearity in the regression of independent variables on “Time”.

c- Regression of independent variables on “Scope”

Table 9: Regression of independent variables on “Scope”

Model	Coefficients	t	Sig.	Multicollinearity statistics	
				Tolerance	VIF
1 (Constante)		1,302	,195		
clear project goal	,268	1,660	,099	,251	3,991
Project Planning	-,054	-,372	,711	,307	3,259
Communication	,205	1,166	,246	,212	4,719
Team	,209	1,778	,078	,472	2,120
Capability/Competence					
Risk Management	-,057	-,408	,684	,338	2,956
User involvement	,049	,317	,752	,278	3,601
Stakeholder involvement	-,093	-,563	,574	,237	4,214
Training	-,059	-,426	,671	,342	2,925
Leadership	,236	1,457	,147	,248	4,037

According to this table, values of VIF that are in bold indicate the existence of multicollinearity in the regression of independent variables on “Scope”.

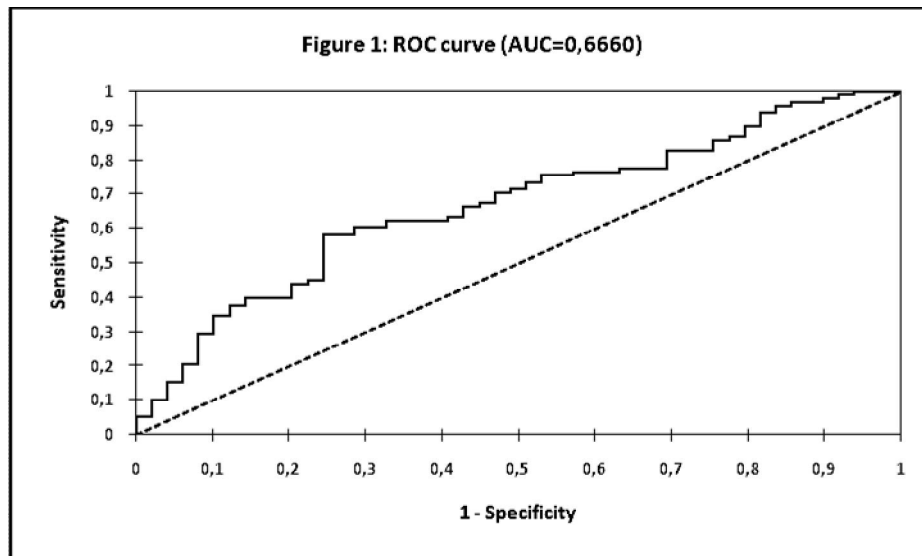
IV- Regression analysis:

In the following, we will present estimation tables of different logistic regressions. Note that the regression is globally significant if the area under the curve (AUC) is close to 1.

IV-1- Regression of independent variables on the variable “Cost”

Table 10: Logistic regression of independent variable on “Cost”

Independent variables	Coefficient	SD	Khi ² of Wald	Pr > Chi ²	Odds ratio
Constante	-2,0797	1,2243	2,8856	0,0894	
Clear Project Goal	0,2534	0,3284	0,5958	0,4402	1,2885
Project Planning	-0,0691	0,3872	0,0319	0,8583	0,9332
Communication	0,1779	0,4226	0,1773	0,6737	1,1948
Team Capability	0,2435	0,3079	0,6252	0,4291	1,2757
Top Management	0,0897	0,3531	0,0645	0,7996	1,0938
Risk Management	-0,5226	0,3349	2,4352	0,1186	0,5929
User Involvement	-0,5386	0,3773	2,0378	0,1534	0,5836
Stack Involvement	0,3373	0,3705	0,8291	0,3625	1,4012
Training	0,4742	0,3221	2,1672	0,1410	1,6067
Leadership	0,3102	0,3408	0,8284	0,3627	1,3637

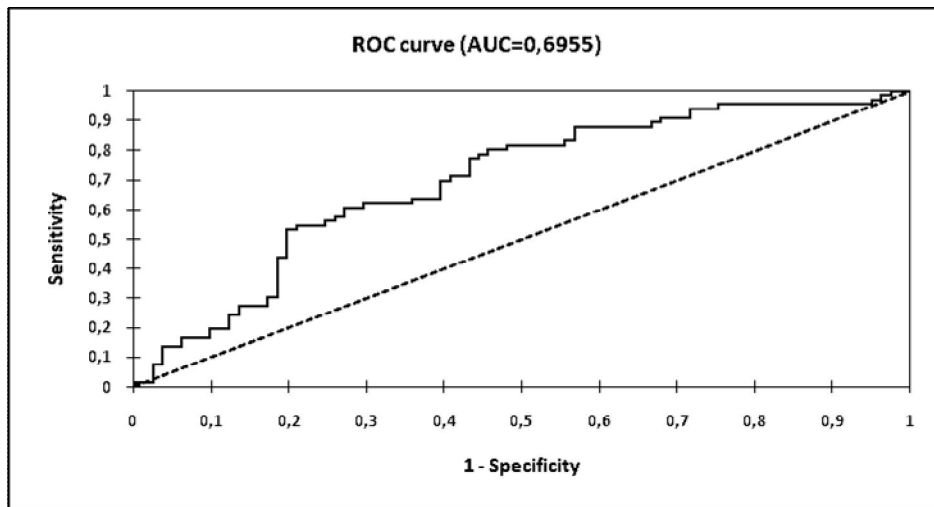


From figure 1, the AUC (area under the curve) of the regression of independent variable on the dependant variable “Cost” indicate that the regression is globally significant because it is close to 1 (0.6660).

IV-2- Regression of independent variables on the variable “Time”

Table 11: Logistic regression of independent variable on “Time”

Independent variables	Coefficient	SD	Kh ² ofWald	Pr > Kh ²	Odds ratio
Constante	-1,0088	1,1717	0,7412	0,3893	
Clear Project Goal	0,0249	0,3081	0,0066	0,9355	1,0253
Project Planning	0,8926	0,3965	5,0665	0,0244	2,4414
Communication	-0,2821	0,3995	0,4987	0,4801	0,7542
Team Capability	-0,1914	0,2933	0,4258	0,5140	0,8258
Top Management	-0,5290	0,3363	2,4741	0,1157	0,5892
Risk Mngement	0,1024	0,3155	0,1052	0,7456	1,1078
User Involvement	0,1605	0,3494	0,2110	0,6460	1,1741
Stak Involvement	-0,4552	0,3503	1,6885	0,1938	0,6343
Training	-0,0462	0,2985	0,0240	0,8769	0,9548
Leadership	0,5099	0,3436	2,2019	0,1378	1,6651

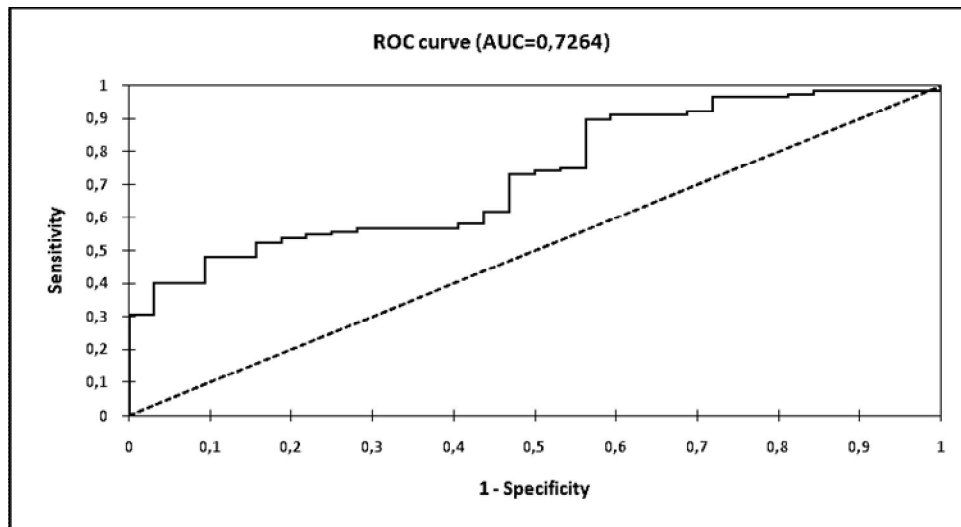


From figure 2, the AUC (area under the curve) of the regression of independent variable on the dependant variable “Time” indicate that the regression is globally significant because it is close to 1 (0.6955).

IV-3- Regression of independent variables on the variable “Scope”

Table 12: Logistic regression of independent variable on “Scope”

Independent variables	Value	SD	Khi ² ofWald	Pr > Khi ²	Odds ratio
Constante	-1,2190	1,3137	0,8610	0,3535	
Clear Project Goal	0,6916	0,3959	3,0513	0,0807	1,9969
Project Planning	-0,3344	0,4633	0,5209	0,4705	0,7158
Communication	0,5975	0,4869	1,5059	0,2198	1,8176
Team Capability	0,6669	0,3522	3,5852	0,0583	1,9482
Top Management	-0,2938	0,4197	0,4902	0,4839	0,7454
Risk Management	-0,4064	0,3845	1,1169	0,2906	0,6660
User Involvement	0,0810	0,4257	0,0362	0,8491	1,0844
Stack Involvement	-0,6607	0,4678	1,9949	0,1578	0,5165
Training	-0,3641	0,3967	0,8424	0,3587	0,6948
Leadership	0,7649	0,4193	3,3279	0,0681	2,1488



From figure 3, the AUC (area under the curve) of the regression of independent variable on the dependant variable “Scope” indicate that the regression is globally significant because it is close to 1 (0.7264).

V- Studying validity

It is very important to evaluate the reliability and validity of the used instruments in order to end up with a good and a reliable research. (Mohajan, 2017). Kimberlin and Winterstein (2008) have described validity as” the extent to which an instrument measures what it purports to measure” and for the data to be valid, the instrument needs to be reliable. In contrast, it can be reliable even if it is not valid.

Confirmatory factor analysis (CFA) is “a type of structural equation modeling that deals specifically with measurement models; that is, the relationships between observed measures or indicators and latent variables or factors” (Brown & Moore, 2013). According to (StatisticsSolutions, 2013) , “confirmatory factor analysis it can specify measured variable is related to which latent variable”. Indeed, it is used to confirm the measurement theory or reject it. Also, it assesses the validity of measurement by checking the model fit using indicators such us; Chi-square test or GFI, NFI, RMR, RMSEA, SIC, BIC, and other indicators that support in determining the model validity. Results of CFA produced using Amos software are given in table.

Table 13: Confirmatory Factor Analysis Results

Criterion	Rule of Thumb	Research Model Output
Chi-Square χ^2	χ^2/df	792.820
Degree of freedom	df	515
χ^2/df	<3	1.53
CFI	> 0.90	.905
GFI	>0.95	.780
AGFI	>0.95	.731
RMR	<0.08	.047
NFI	>0.95	.774
RMSEA	<0.06	.061
TLI	> 0.90	.890

In order to answer the research question of this study, hypotheses have been tested to find out if there is a relationship between critical success factors and project success, then we compare the result of both public and private organization.

- **H1o:** No association exists between Critical Success Factors and project success in Algeria.
- **H1a:** An association exists between IT projects Critical Success Factors and project success in Algeria.
- **H2o:** No association exists between IT projects Critical Success Factors and the completion of projects within the allocated budget in Algeria.
- **H2a:** An association exists between IT projects Critical Success Factors and the completion of projects within the allocated budget in Algeria.
- **H3o:** No association exists between IT projects Critical Success Factors and on-time project completion in Algeria.
- **H3a:** An association exists between IT projects Critical Success Factors and on-time project completion in Algeria.
- **H4o:** No association exists between IT projects Critical Success Factors and the completion of projects' scopes in Algeria.
- **H4a:** An association exists between IT project Critical Success Factors and the completion of projects' scopes in Algeria.

Fours hypotheses have been tested to find out whether an association exists between IT Projects Critical Success Factors and project success which is determined by the last project that has been implemented and managed by the survey participants. The test that has been used to determine the association was

chi-square test. The results of chi-square that has a probability less than or equal to 0.05 were used to reject the null hypothesis (IT projects has no association with project success (LeBlanc, 2008)).

- **Hypothesis 1:**

From the results presented in table 14, the significant CSF are User involvement, Stakeholder involvement and Leadership from private sector and only Stakeholder involvement from public sector which means that there is no association between those Critical Success Factors and project success in Algeria. For the other CSF, we accept the H1a which indicate that there is association between those Critical Success Factors and project success in Algeria.

Table 14: Chi-Square Tests (overall project success * CSF)		
	Public	Private
<i>Clear Project Goal</i>	0,092	0,439
<i>Project Planning</i>	0,962	0,241
<i>Communication</i>	0,496	0,518
<i>Team</i>		
<i>Capability/Competence</i>	0,971	0,728
<i>Top Management</i>		
<i>Support</i>	0,983	0,911
<i>Risk Management</i>	0,174	0,601
<i>User involvement</i>	0,924	0
<i>Stakeholder involvement</i>	0	0,041
<i>Training</i>	0,671	0,072
<i>Leadership</i>	0,568	0,025

- **Hypothesis 2:**

From the results presented in table 15, the significant CSF are only Capability/Competence from private sector which means that there is no association between those Critical Success Factors and project success in Algeria. For the other CSF, we accept the H2a which indicates that there is association between those Critical Success Factors and project success in Algeria.

Table 15: Chi-Square Tests (Budget (Cost) * CSF)		
	Public	Private
<i>Clear Project Goal</i>	0,429	0,211
<i>Project Planning</i>	0,5	0,13
<i>Communication</i>	0,39	0,726
<i>Team</i>		
<i>Capability/Competence</i>	0,269	0,046
<i>Top Management</i>		
<i>Support</i>	0,592	0,274
<i>Risk Management</i>	0,707	0,622
<i>User involvement</i>	0,903	0,342
<i>Stakeholder involvement</i>	0,498	0,538
<i>Training</i>	0,212	0,194
<i>Leadership</i>	0,432	0,225

- **Hypothesis 3:**

From the results presented in table 16, the significant CSF are Clear Project Goal and Leadership from public sector which means that there is no association between those Critical Success Factors and project success in Algeria. For the other CSF, we accept the H3a which indicates that there is association between those Critical Success Factors and project success in Algeria.

Table 16: Chi-Square Tests (Schedule (Time) * CSF)		
	Public	Private
<i>Clear Project Goal</i>	0,041	0,113
<i>Project Planning</i>	0,131	0,399
<i>Communication</i>	0,176	0,088
<i>Team</i>		
<i>Capability/Competence</i>	0,406	0,354
<i>Top Management</i>		
<i>Support</i>	0,378	0,361
<i>Risk Management</i>	0,859	0,458
<i>User involvement</i>	0,639	0,174
<i>Stakeholder involvement</i>	0,143	0,449
<i>Training</i>	0,561	0,781
<i>Leadership</i>	0,043	0,529

- **Hypothesis 4:**

From the results shown in table 17, the significant CSF are only Leadership from private sector which means that there is no association between those Critical

Success Factors and project success in Algeria. For the other CSF, we accept the H4a which indicates that there is an association between those Critical Success Factors and project success in Algeria.

<i>Table 17: Chi-Square Tests (Scope * CSF)</i>		
	Public	Private
<i>Clear Project Goal</i>	0,078	0,083
<i>Project Planning</i>	0,324	0,436
<i>Communication</i>	0,652	0,209
<i>Team</i>		
<i>Capability/Competence</i>	0,849	0,077
<i>Top Management</i>		
<i>Support</i>	0,53	0,595
<i>Risk Management</i>	0,1	0,225
<i>User involvement</i>	0,725	0,361
<i>Stakeholder involvement</i>	0,167	0,245
<i>Training</i>	0,408	0,838
<i>Leadership</i>	0,539	0,031

VI- Conclusion:

Critical Success Factors (CSFs) are variables that the manager must prioritize in order to achieve his goals. Taking seriously and efficiently CSFs represent a key factor that lead to project success for any organization. To achieve its goals, this latter must systematically assess those variables in order to choose the suitable methods in dealing with them.

At the end of our paper, we can conclude that despite answer differences in both public and private sectors regarding budget, schedule and cost, there is always an association between those Critical Success Factors and project success in Algeria. This means that, if we take care of communication in the organization, management support, team competence, training of workers, user involvement, project planning, clear project goal, risk management, stakeholder involvement and leadership, this will lead to mastering our projects. In particular, dealing with leadership is the first key factor to project success in Algeria.

VII- References:

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Appendix:

The Analysis of Critical Success Factors (CSF) of Information Technology (IT) Projects in Algeria: a comparative Study of Public and Private Sector

Information

This survey concerns a study conducted at the level of public and private organizations in Algeria. The purpose of this study is to identify the critical success factors that influence information technology projects in Algeria, to minimize and overcome projects failure. Your answers will contribute to achieve the objectives of our study.

Your participation in this study is voluntary and you can withdraw from the study at any point before submitting your answer. The survey should only take around 15 minutes to complete.

I would welcome any comments or suggestions you have, please add them at the space provided at the end of the survey.

Thank you for taking the time to answer the following questions.

Confidentiality

The information you provide is anonymous and cannot be identified from this questionnaire. Data collected from this survey will be stored securely and only accessed by the researcher. The information will be collated statistically and anonymously, and names will not be identified.

Section 1: Background Information

Please mark your response from Question 1 to 7 by ticking only one answer for each question as shown or by filling them:



1.1 What is your gender? ☐₁ Male ☐₂ Female

1.2 What is your age category?

- ☐₁ From 20 to 30
☐₂ From 30 to 40
☐₃ From 40 to 50
☐₄ above 50 years old

1.3 please specify your education background?

- ☐₁ IT
☐₂ Non-IT

1.4 Type of the organization:

- ☐₁ Public
☐₂ Private

1.5 Number of employees in organization?

- ☐₁ Less than 50
☐₂ From 50 to 100
☐₃ From 100 to 500
☐₄ More than 500

1.6 what is your job role?

- ☐₁ Project Manager
☐₂ Senior Manager
☐₃ Team lead
☐₄ Programmer
☐₅ Technician
☐₆ IT analyst
☐₇ Developer
☐₈ Consultant

Other (please specify)

1.7 What is your Citizenship?

- ☐₁ Algerian
☐₂ Non-Algerian

1.8 What is your level of Experience?

- ☐₁ 0 – 4 years
☐₂ 5 to 10 years
☐₃ above 10 years

1.9 Have you been involved in any IT projects?

- ☐₁ Yes
☐₂ No

Section 2 : Project Success

Please consider the last project you managed and completed and based on it choose the correct response.

Please mark your response by ticking only one answer for each category



Project	Overall project result		Budget (Cost)		Schedule (Time)		Scope	
	Successful	Not successful	On budget	Over budget	On schedule	Behind schedule	Did not meet	Meet
	☐	☐	☐	☐	☐	☐	☐	☐

Section 3: Clear Project Goal

Please select the degree to which you agree or disagree with the following statements as a key for the critical success factors of IT projects in Algeria in relation with clear project goal.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Clear Project Goal: Clearly stating the aim and objective of the project

3.1	The project has clearly stated and measurable goals and objectives.	1	2	3	4	5
3.2	Project goals are made clear to all participants.	1	2	3	4	5
3.3	Project participants are committed to the achievement of project goals.	1	2	3	4	5

Section 4: Project Planning

Please select the degree to which you agree or disagree with the following statements as a key factor for successful IT project in relation with project planning.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Project Planning: To plan for activities and actions required for project implementation

4.1	The project schedule is feasible. And The funding for the project is adequate.	1	2	3	4	5
4.2	The project plan is visible/available to project team members and other relevant stakeholders.	1	2	3	4	5
4.3	Each task/activities/work packages are assigned to specific project team member or members.	1	2	3	4	5

Section 5: Communication

Please select the degree to which you agree or disagree with the following statements as a key factor for successful IT project in relation with communication.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Communication: Communicating with all major shareholders and Ensure active involvement of IT managers and employees to the implementation process.

5.1	The information needs of stakeholders and project team members are satisfied in a timely manner through appropriate use of communications media.	1	2	3	4	5
5.2	The project status is visible to every stakeholder and project team member.	1	2	3	4	5
5.3	Existence flow of information between the team and end user.	1	2	3	4	5
5.4	Existence of Communications between top management and the project team.	1	2	3	4	5

Section 6: Team Capability/Competence

Please select the degree to which you agree or disagree with the following statements as a key factor for successful IT project in relation with team capability and competence.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Team Capability/Competence: a well-qualified team, that is motivated, educated, experienced, talented and knowledgeable

6.1	There are more experienced project team members than inexperienced team members.	1	2	3	4	5
6.2	The project suffers from not having enough experienced or qualified team members.	1	2	3	4	5
6.3	Existence of set of skills for Project Team members who has both business and technical knowledge.	1	2	3	4	5

Section 7: Top Management Support

Please select the degree to which you agree or disagree with the following statements as a key factor for successful IT project in relation with top management support.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Top Management Support: providing the necessary resources and authorization/ approvals for project, and energizing the team

7.1	Top management is responsive to our requests for additional resources, if the need arises.	1	2	3	4	5
7.2	Top management shares responsibility with the project team for ensuring the project's success.	1	2	3	4	5
7.3	Top management grants the necessary authority to the project team and will support them on decisions concerning the project.	1	2	3	4	5
7.4	Top management keeps the pressure on business units to work with IT	1	2	3	4	5
7.5	Top management understands the importance and opportunities of IT	1	2	3	4	5

Section 8: Risk Management

Please select the degree to which you agree or disagree with the following statements as a key factor for successful IT project in relation with risk management.

Strongly disagree		Disagree		Neutral		Agree		Strongly agree					
1		2		3		4		5					
Risk Management: help reduce and avoid risks, and to take preventive or responsive action to avoid them													
8.1	There is a risk management plan and course of action for each high-risk item.								1	2	3	4	5
8.2	Risks are analyzed and prioritized based on their probability of occurrence and impact on the project.								1	2	3	4	5
8.3	Risk assessment information is always visible, and they are shared with stakeholders and project team members.								1	2	3	4	5

Section 9:User involvement

Please select the degree to which you agree or disagree with the following statements as a key factor for successful IT project in relation with user involvement.

Strongly disagree		Disagree		Neutral		Agree		Strongly agree				
1		2		3		4		5				
User involvement: To consult the end users throughout the project to meet the exact requirement												
9.1	The project team consult users on requirements							1	2	3	4	5
9.2	The project team keep users informed about the project and its progress							1	2	3	4	5
9.3	The level of user involvement in the IT project contributed to its success /failure							1	2	3	4	5

Section 10:Stakeholder involvement

Please select the degree to which you agree or disagree with the following statements as a key factor for successful IT project in relation with stakeholder involvement.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Stakeholder involvement: Involving all major stakeholders, Stakeholders include all members of the project team as well as all interested entities that are internal or external to the organization

10.1	All stakeholders are identified and documented.	1	2	3	4	5
10.2	There are regular meetings with various stakeholders.	1	2	3	4	5
10.3	There is an information gathering activity to identify stakeholders and their stakes/concerns.	1	2	3	4	5
10.4	There is participating for customers as stakeholders to implementation of IT project.	1	2	3	4	5

Section 11: Training

Please select the degree to which you agree or disagree with the following statements as a key factor for successful IT project in relation with training.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Training: Training to managers, Staff and end-users for better understanding of the system, confidence of use and adopting the modern technology

11.1	Existence of clear strategy for knowledge sharing and training.	1	2	3	4	5
11.2	Existence of training program for implementation project team.	1	2	3	4	5
11.3	Existence of training program for project users.	1	2	3	4	5

Section 12: Leadership

Please select the degree to which you agree or disagree with the following statements as a key factor for successful IT project in relation with leadership.

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

Leadership

12.1	The leaders at various levels are effective problem-solvers in technical and social issues.	1	2	3	4	5
12.2	The leaders at various levels assign correct tasks to correct people.	1	2	3	4	5
12.3	The leaders at various levels welcome communication of project problem at any time.	1	2	3	4	5
12.4	The leaders at various levels clearly define what is expected from project team members.	1	2	3	4	5