

Original Research Paper

# An Investigation for Electronic-Management Use in Educational Projects Management (A Case Study in AL Baha-KSA Area)

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**Abstract:** This study aims to test the possibility of switching to electronic management in Albaha educational projects management. Investigation trial uses descriptive analytical method with a survey. The sample was (74) questionnaires of participants. Individuals of the sample agree with the importance of applying electronic management. With automation management reports will be available immediately; transactions between administrative levels of consultants and contractors will be easier, cutting effort and time and increase accuracy. The study's results also show the urgent need for providing to apply the electronic management and present the obstacles that may happen. This study found a significant difference between educational project management and the possibility of transforming to electronic management. This study recommended launching a strategic plan for educational projects management are in Albaha, this can be achieved by backing of higher leadership in ministry of education; providing financial needs; providing Internet services to all sites of projects implementation; preparing training courses; workshops and meetings to spread the culture of electronic management among employees and raise their awareness about electronic management.

**Keywords:** Electronic Management, Education, Project

## Introduction

Because of the rapid development in information systems and the widespread technological revolution in the world and the enormous increase in the size of the flow of information, which deals with administrative worker in various sectors, we can say the administrative rules and found itself forced to think seriously in full or gradual transition to computerize and increase them, seeking countries to get rid of the traditional management, so-called electronic management in all its dealings, has given the government of Saudi Arabia. This paper is a case study held at Albaha province about project management in educational area, an educational project management are not free from such rapid shifts and technological developments that pervaded all fields of life and became an automated work instead of traditional work, because it leads to a waste of energy and a waste of time and increasing costs and a lack of work, because the information they deal with

these departments. This study seeks to identify the possibility of switching to electronic educational projects in the patio area management and to find out the necessary needs and the most important problems that limit their application.

## Importance of Study

For this study, a significant degree of importance gains from the theme for the following reasons:

1. Interesting study in engineering projects where construction sectors and is considered to construct the most important economic sectors in the countries and an indicator of the development of peoples and a measure of the degree of advancement and a standard competitive among developed countries to prove their ability and development of engineering and technology.
2. The study adds new knowledge through dealing with the subject of the employment of information and communication technology for the development of administrative work in the educational project management.

3. According to recognize the difficulties that impede the transition to electronic management in the educational project management Albaha to correct them and find solutions to them; as well about identify necessary for the application of e-governance needs to be provided.

4. This study hopes to benefit from the rest of the study of educational departments of the Ministry of Education and other ministries, both because of its importance and timeliness. As well as, it is hoped that this study will be added to the new scientific project management in the Arab and libraries that need more of this research because of the shortage of studies and research in project management research electronically.

### *Research Problem Evidences*

An exploratory study was the most prominent visual presence of many administrative works, which consumes time and effort as follows:

1. Sample administrative leadership and staff management buildings Affairs found the administrative procedures and routines of paper for each project take them most of the official working timework and employed on the work of overseeing fulfilling projects and field trips, especially with the large number of projects execution time of the study's 30 educational project found in different places and spaced throughout the region.

2. The sample of supervisors consulting offices engineers to carry out educational projects have also found the traditional business to consume them time and effort great and distract them from their home, a field supervision of fulfilling projects and the receipt of the business, besides the difficulty of the review and audit of financial dues to contractors and inventory work carried out in the traditional manner.

3. Sample engineers companies and institutions supervisors unanimously to carry out the project (contractors) on suffering the large number of management review and growing need to leave their jobs in fulfilling the project sites and go almost daily to department of education to apply business receipt and follow-up reports and review with the consulting engineer and passing on more than one section in management and the ministry so they can exchange the amounts due and the delay in paying claims effect on liquidity and the continuity of the work may lead to stalled projects.

Researchers noted that reliance on traditional tools in project planning and follow-up implementation and control-increasing complexity of projects-creates difficulties and challenges and the need for continual control overtime and the cost and performance of the project to end on time and within the assigned a budget and the best quality.

### *Research Questions*

The research question can be put in the following main question:

What is the possibility for switching from the educational project management in Albaha to electronic management?

And this can be fragmented to the three Sub questions:

1. What degree of importance of the application of e-management in the educational project management of Albaha?

2. What are the main cofactors for carrying out e-management in the educational project management of Albaha?

3. What are the obstacles facing implementing the e-management in the educational project management of Albaha?

### *Research Hypothesis*

The hypotheses can be put for the following main hypothesis:

“There are significant differences between the resources available in the educational project management of Albaha relationship and the possibility of the application of e-management”. This main hypothesis can be fragmented to the following sub hypotheses:

H1: There are statistically significant differences between the degree of importance of the application of e-management relationship and the possibility of the application of e-management in educational projects of Albaha.

H2: There is a statistically significant relationship between the availability of co factors and the possibility of the application of e-management in educational projects of Albaha.

H3: There is a statistically significant relationship between the presence of obstacles and the possibility of the application of e-management in educational projects of Albaha.

### *Study Terms*

Those are some of the terms contained in the study are as follows:

1. Department of Education: It is a government agency under the Ministry of Education, responsible for mobilizing human potential and energies and efforts and work to coordinate and direct them to achieve the goals of the ministry.

2. Project: Is a task to achieve certain goals within a mentioned period and certain cost and scope has been agreed on, such as composing a new building.

3. Educational projects: Tasks that are designed to build new educational buildings during the period and the cost of specific, such as schools and educational administrative offices.

4. Project Management: Administrative roles are working to find out the needs and objectives of the project and preparing budgets, noting and evaluation to achieve the project objectives in an efficient and more effective good use of available resources.

5. Electronic-Management (e-management): Is the effective use of integrated information and communications technologies for completion of the transactions and provide better services easily and quickly and with high accuracy, to achieve the objectives of the organization and provision of effort, money and time.

6. Contractor: Is the owner of the organization contracted with them to fulfill the project or his approved representative, which manages fulfilling the project on the ground.

7. Engineer Consultant: Is an engineer who has experience was hired to oversee the technical aspects of fulfilling a specific project for the owner of the project.

8. Summaries and Reports: It means the tables that limit work completed or to be performed where, to compare it with the approved amounts in the project contract.

The following Fig. 1 represents the features of the projects e-management software. Projects e-management

software provides the correct information to decision makers based on accurate information to follow up the work and the level of completion and to follow-up contractors and ensure compliance with implementation plans, contracts and technical specifications.

Programs also provide reports and statistical studies needed to establish the development policies and to follow up the project's completion with high accuracy and speed of information transmission between users homogeneously (contractors, consultants and observers, accountants, testing labs and the owner of the project).

## Literature Review

Altesha (2013) study presented some applications of e-management in the Ministry of Education in Kuwait Administration employees needs and adopted the approach descriptive survey and developed a questionnaire was applied to the sample consisting of 380 individuals were selected at random from the research community's (7545) male and female employees in the ministry and the findings, the researcher recommended the importance of the Ministry of Education in Kuwait attracting human distinctive competencies in e-management and the need for participation of all groups involved in the planning for implementing e-management.

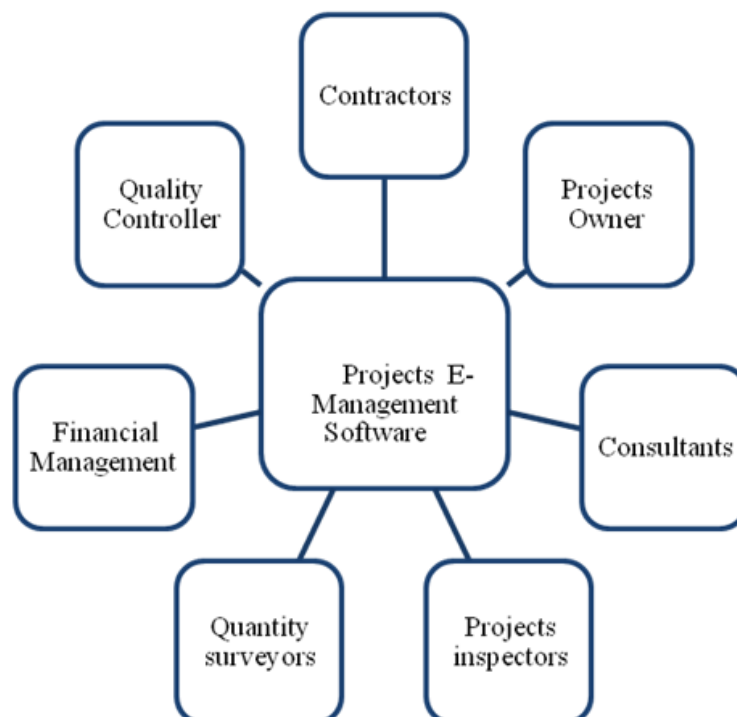


Fig. 1. The features of projects e-management software

Wong and Zhang (2013) study aimed to identify the challenges facing external developers in real estate projects management in China and how to mitigate and solve problems using information technology and construction project management system on the Internet, has been used approach to the case and interviews study and it was the most important results the main reason for the Project failure is coordination and cooperation difficulties caused by the geographical distance and the central administration after that and recommended the application of project management systems on the Internet that have proven their capacity to overcome the difficulties and obstacles and have made access to project information direct in a timely manner and simplified the decision-making processes in a timely manner to ensure the success of the project.

Nitithamyong and Shibniewski (2011) tried to verify the reasons behind the poor performance of construction projects on the Internet management systems and propose effective ways to apply and take advantage of the tremendous capacities and applied case study method and resulted in the existence of a clear relationship between performing these systems and the number of constraints and identified basic needs and the reasons that lead to the success of their application and recommended the importance of the application of construction project management systems on the Internet and guided to the most effective ways to the success of the application of these systems, by improving the acceptance in the industrial sectors.

Dairi (2011) shed light on the impact of poor planning on the delayed implementation of construction projects in the Emirate of Dubai in the United Arab Emirates between 2006-2010 and used the analytical descriptive approach and developed a questionnaire was distributed to the research sample, which included specialized projects and construction companies management companies medium and large in all construction disciplines in the Emirate of Dubai and it was the most important results the delay in completing engineering projects because of the lack of adoption of construction companies on the elements of the administrative and engineering planning and effective basis for the success of their plans and it was the highlight of the recommendations the construction companies subjecting managers and technicians to training sessions each according to its competence, such as the (PMP), to prepare statistical data on previous projects for use in future projects databases and are also based on modern computer programs in project planning, such as (Primavera), which provides energy and money.

The current study is trying to address some of the subject of e-management needs and challenges and impediments to implementation and importance of administrative aspects, educational and some of these studies dealt with the reality of the application of e-

management and the difficulties facing it, some of which dealt with the challenges of application in the construction project management and its impact on project planning and cofactors for its success. This study tool and learn the fitting statistical methods for data collection and analysis.

## **The Methodology of the Study**

This method of the study describes the study population, as well as data collection and study tool used and the method of preparation methods and the sincerity and persistence and finally processors and statistical methods used. The researchers referred to secondary resources which led researchers in theoretical framework's handling of the search to the secondary data sources that are on the books of Arab and foreign and references relevant and periodicals, articles, reports and research and previous studies on the subject of study, research and reading in the various web sites. Besides, primary resources which information was collected by and analyze this information to answer the research questions of the study and test of hypotheses by a questionnaire.

### *The Study Population*

The study includes a community of all those responsible departments engineering offices, companies and institutions that are related to oversee implementing educational projects Albaha and includes two elite educational administrations:

- General Directorate for Education Albaha
- Department of Education Makhwah province

Populating the study were as follows: (13) were head of units, (18) were head of departments, (9) staff, (22) a consulting engineer and (36) continued to companies and institutions contracted engineer for fulfilling educational projects-time application study In the second semester of the academic year 2013/2014. Also, the sample was selected randomly and the returned questionnaire was (78) copies, a 74 copies were valid.

### *The Study Tool*

A questionnaire with 5-level Likert scale was used as a tool to collect data to answer the research questions of the study. After the questionnaire was performed, tests of validity and reliability were conducted.

### *The Validity*

Validity was done to verify the authenticity tool to find out the validity used in a manner virtual honesty, sincerity and meaning, tool that measures the scale variable that it was placed precisely, is the honesty of the

needed of tool to show the ability of each phrase of her words on the measure was developed to measure. (Campbell and Stanley, 1966).

Further, to check the veracity of the tool to see the validity of their use, it has been accessed resolution and mediation in the early draft of the questionnaire by academic professors to ensure the virtual honesty and judgment on the validity of the paragraphs and the safety of formulation and its relevance to the subject of the study. The tool finally reached in its final form, which included (36) items, grouped with three major dimensions.

### *The Reliability*

The reliability of the questionnaire study was calculated through Cronbach's alpha coefficient. Cronbach's Alpha Coefficient means the steadily resolution intended to give the same result if the redistribution of the questionnaire more than once under The same circumstances and conditions, or in other words, the questionnaire stability means stability in the results and not change significantly As if it were redistributed to the respondents several times during certain periods of time (Carmines and Zeller, 1979).

### **Findings**

Based on the collected data, analysis with statistical methods used to measure the reliability and validity of the study tool and then answer the questions of the study and verify hypotheses using statistical analysis software (SPSS), arithmetic means and standard deviations for all the independent variables of the study and subsidiaries, were used to present and discuss the results as needed by the study questions under the lower and upper limits that will be dealt with to the values of averages for 5-level Likert scale. Cronbach's Alpha Coefficient means for the dimensions and in total is given by Table 1 as followed.

Based on Table 1, it was clear the reliability coefficient of the dimensions of the questionnaire ranged between (0.81-0.91), while the total overall reliability (0.91) This means that high reliability coefficient which is within acceptable levels for testing, making it and suitable tool for scientific research (Sekaran, 2003).

The researchers added three questions at the end of the study tool to see the study sample opinion about the impact of the application of e-management in the educational project management on implementing these projects and the extent of their expectation the application will lessen delayed or stalled projects and will affect the lift and improve the quality of implementation and, finally, whether the application will create attractive work for contractors detecting environment and the results were as follow.

Table 1. The Reliability (Cronbach's Alpha Coefficient means)

Dimension	Items	Value of $\alpha$
Importance Level	9	0.81
Co Factors	11	0.88
Obstacles	16	0.91
Total Overall scale	36	0.91

Based on Table 2, the rate of respondents was (84%) of the sample who believed the electronic management application in the educational project management will reduce delayed or stalled projects and because of the rise in this ratio to the high-level of confidence when the study sample in the capacity e-management to remove some of the administrative causes that hinder implementing projects and lead to stalled or delayed, including a researcher at the speed of financial dues to contractors exchange belief and to simplify the delivery and receipt of fulfilling business processes through the stages of implementation of educational projects.

Table 3 shows the rate of (84%) almost from the sample of the study believe the electronic management application in the educational project management will improve the quality of project implementation and because of the rise in this ratio to the view often on a sample study the impact of the application of e-management will increase the attention and follow-up and technical control by the workers in the educational project management, which will lead to increased accuracy and quality in implementing these projects management.

Table 4, shows the rate of (95%) of the sample of the study believe the e-management application in the educational project management will lead to the creation of an attractive work for contractors privileged environment to engage in a bidding educational projects, as the researcher believes that the reasons for the reluctance Contractors distinguished from entering into those tenders is slow administrative procedures and delays dues Exchange and these will be overcome in the event of the application of e-management projects in educational administration also saw the majority of the members of the study population.

### *Test of Hypotheses*

Based on the finding of the study the statistical significance of the differences in responses between the averages of the study sample test application of the researcher (T) test for one sample "One Sample T test" and the results were as follows.

### *Test of the First Hypothesis*

The first hypothesis states that "There are statistically significant differences between the degree of importance of the application of e-management relationship and the possibility of the application of e-management in educational projects of Albaha".

Table 2. The role of the application of e-management in lessening delayed projects

Opinion	Frequencies	Percentage
Yes	62	83.8
No	12	16.2
Total	74	100.0

Table 3. Application of e-management in improving the quality of project implementation

Opinion	Frequencies	Percentage
Yes	62	83.8
No	12	16.2
Total	74	100.0

Table 4. Application of e-management in creating an attractive work environment for contractors detecting

Opinion	Frequencies	Percentage
Yes	70	94.6
No	4	5.4
Total	74	100.0

Table 5. Test of statistical significance of the differences between the averages of the answers the study sample results

Hypo	Average	Standard deviation	T-value	Sig	Decision
H1	4.5811	0.36716	37.044	0.001	Accept H1
H2	4.5713	0.40194	33.628	0.001	Accept H2
H3	3.9992	0.61781	13.912	0.001	Accept H3

Based on Table 5, the T-test shows the existence statistically significant differences at the lower of (0.05) in all the first dimension of the questionnaire, as the value of *t* for the first row (37.044), with a statistically significant level (0.001) and can interpret this result that all the study sample individuals with a sense of almost uniformly toward the degree of importance of the application of electronic management due to their practical experience and the rehabilitation. Based on this principle H1 was accepted.

### Test of the Second Hypothesis

The second hypothesis states that “There is a statistically significant relationship between cofactors and the possibility of the application of e-management in the educational project management of Albaha”.

Besides, referring to Table 5, the T-test shows that an existence of a statistically significant differences at the less than (0.05) in all second dimension phrases in the resolution, as the value of *t* for the second row (33.628), with a statistically significant level of (0.001).

This can be interpreted as the result that all the study sample because of their knowledge and tell them of the electronic dealings in other organizations in the state agree on the importance of availability of the cofactors that help in the e-management application. Based on this premise it H2 was accepted.

### Test of the Third Hypothesis

The third hypothesis states that “There is a statistically significant relationship between the presence of obstacles and the possibility of the application of e-management in the educational project management of Albaha”.

Also, based on Table 5, the T-test shows that an existence of a statistically significant differences with less than 0.05 in all items of the third dimension in the questionnaire, as the value of *t* for the third row (13.912), a statistically significant level with (0.001). This can be interpreted as the result that all the study sample because of continual communication with the educational project management agree on the existence of obstacles that could face e- management application. Based on this premise H3 was accepted.

### Conclusion

In the light of what has been presented from the results, those are some interpretations with the most important findings of the study are as follows:

1. The sample answers of the study showed that, the arithmetic average of the overall response of the respondents about the degree of importance of the application of e-management in the educational project management of Albaha was very high, at (4.58) equal to (92%) almost, they are strongly.
2. The results of the study showed the important role of e-management in providing direct information and reports for educational projects as needed and speed up the arrival to directives, circulars and decisions between management and contractors.
3. The study showed the need for the application of e-management because they increase the audit of the financial of educational projects, such as a review of abstracts and reports; especially those prepared by summaries and Contractors accuracy and lessen the traditional manual labor errors.
4. The results of the study showed the e-management application helps in decision-making and speeds in finding solutions to the problems that arise during implementing educational projects.
5. The study showed the transformation of managing e-learning project management helps workers, engineers, consultants in the speed of implementation of administrative work leading to save more time and effort to fulfill the responsibilities of more importance and increase the need for special application if the number of projects being fulfilled in the same time because supervision of such projects and manage traditional methods consume large effort and longtime.
6. Also, it was shown the arithmetic average of the total response of respondents degree too high indicates the presence of factors that can be adopted to help in the

e-management application in the educational project management of Albaha, has reached the arithmetic average of the total (4.57) which is roughly equivalent (91.5%), that is, they strongly agree, because of the active role of these factors in helping to e-management in the educational project management application, especially to provide technical infrastructure and Internet service in educational administration and locations of project implementation, as well as providing the physical needs for the application and sharing electronic management.

7. Based on the finding of the arithmetic average of the overall response of the respondents highly refers to the existence of obstacles that meet e-management application in the educational project management of Albaha, the arithmetic average has reached to (4.00) which equal to (80%) of agreement. Some of the important obstacles were lack of training courses in e-management awareness and education-inspiring and capabilities in personnel and ways to deal with the service; lack of financial grants for training programs for workers in e-management, as well as educational project management and other departments such as gaining and financial management link. While, this administrative link is one of the main reasons for delay and slow administrative procedures if there is relying on traditional methods of performance.

### *Recommendations*

In light of the findings, the researchers proposed several recommendations:

1. The importance of starting to prepare a strategy for the transition to e-management in educational projects of Albaha management plan, with the support and the support of senior leadership in the Ministry of Education and to provide the material needs.

2. Improving the infrastructure necessary for the application of the e-management projects in educational administration area and to provide Internet service in implementing all project sites.

3. The need to attract human resources administrative and technical competencies and technical expertise necessary for the application of electronic management, the importance in overcoming the difficulties and provide maintenance and technical support and staff training.

5. Using the business process reengineering in educational projects patio and associated departments will reduce the centralized procedures and educational systems project management.

6. Work to remove obstacles that may face the e-management application in educational projects of Albaha.

### *Proposals for Practical Application*

A suggestion to improve the application of e-management in educational projects, managing the use

of management information systems based on modern programmed techniques called (DashBoard systems) or similar, to provide a user interface in a web page and the one linked to data containing the data necessary for such projects base and are easy to these interfaces supply and mobility and the possibility of design and display graphs, maps, statistics and performance indicators, as well as featuring displays instantaneous detailed reports to help in decision-making and performance evaluation. These applications characterized by high flexibility and the possibility of working out of the traditional hardware (Pc`s) or phones or handheld or even smart phones and other Internet-related devices and access is restricted by the predetermined from the system administrator authority, on the screens of specific options are compatible with the powers vested in each user and is Through these applications online by electronic link between all the management staff of education, engineers and consulting firms, architects and contractors.

After the data is all the projects entered the database would be easy to manage the project elements and bills of quantities and archive files and documents projects electronically and display instantaneous reports assigned the achievement and compared with timelines for projects and the contractor can enter the receiving questions from the project site without the need for management review, as it would be easy to prepare extracts by contractors, as well as ease reviewed and audited by the consultant and officials in the department of education.

This application also has a high potential to save digital images for projects with each visit to the consultant and manager can order and officials in the department of education smart managing alerts by means of text messages and e-mails and monitor and evaluate to perform all users and track completing transactions and the conduct of business operations and field visits receipt sites for implementing projects.

### *Future Proposals*

1. This study on the role of the application of e-management in improving the quality of implementation of construction projects and speed of delivery.

2. Conduct a study on the e-management capacities to control implementing construction projects by monitoring and follow-up operations and procedures for implementation.

To sum up, researchers believe the entry of information technology in construction project management has become an urgent need to think about in their application seriously by administrative leaders and they will make a large leap in construction project management, will yield the speed of the strategic objectives of government or private organizations and

looks researcher that this study will be a facilitator to other studies advanced in project management electronically and to see the transition to e-management in government projects in all ministries and agencies manage the Kingdom of Saudi Arabia and the Arab states, which always aims to serve the citizens and community development and sophistication services and investment optimization national resources and gains. Programs can support working on tablets PC technology to be used by consultants' engineers in case of they are at the project site to upload their reports quickly and directly to the databases. Also, programs can provide flowcharts to display grouped data that help to understand and compare the results more accurately and easier.

#### *Limitations of the Study*

This study is one of the few studies to examine Albaha educational projects management; it tries to explore the limits of the ICT levels of this area.

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#### **Author's Contributions**

Both authors work in this paper in equal efforts.

#### **Ethics**

This work is a common and collaboration work of the two authors.

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