



THE IMPACT OF EFFECTIVE PROJECT MANAGEMENT ON TIME, COST AND QUALITY.THE CASE OF A CONTRACTING FIRM IN THE MIDDLE EAST

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ABSTRACT

This paper focuses on the importance of project management planning and its impact on the three main components (cost, time and quality) that determines the success of any projects. The sample of the study included ten (head managers, project managers and senior engineers) in three contracting companies in the Middle East (Jordan and Palestine) for a period of nine months starting March till the end of December 2017. The findings highlighted the importance of having a skilled project management system that works effectively on project plans to achieve the project objectives according to the required time cost and quality, the researcher recommended that companies should do consequent train workshops to their managers and employees and also ask their managers to prepare a statistical databases on previous projects in order to use them in the future project.

1. Introduction:

The importance of project management appeared as a tool to provide solutions and facilitate the implementation of projects while committing to a specific criteria in terms of executing actions within a plan, specifications, budget, time and energy which all must comply with an estimated limit. Companies seek to achieve control over the project environment and ensure that the project deliverables are being managed through project management. As described in the PMBOK book (2001).

Efficient project management begins with studying and researching a project from all perspectives in order to identify relevant information of a project before the planning phase begins. This is to ensure that deliverables are considered and all relevant information is gathered before beginning a project in order to effectively plan for a project.

The Middle East is now one of the most successful investment stations in the world specially Jordan and specifically Amman where the real estate sector has noticed significant growth over the last five years, this contributed to attract investments to this country from around the world. This has placed great responsibilities on the construction and contracting companies in terms of commitment to submit projects according to the owners, governmental and real estate plans, in terms of implementing projects with the required budget, highest quality and shortest time.

All companies which are involved in the construction process are aware that submitting a project with low quality, exceeding the budget and specially delay in project delivery, according to owners and investors timetable and requirements, lead to, reduce financial profits for these parties, loss of funds for both investors and contractors and bad reputation for the contractors and the agencies, which promotes the investment of construction, projects in this country.

In this article, the researcher will focus on the importance of project management planning in contacting companies and its impact on the most necessary project elements (Time, cost and quality).

2. LITLITRUE REVIEW:

2.1 Project Management

Oisen, (1971) defines project management as “an application of a collection of tools and techniques to direct the use of divers resources towards the accomplishment of a unique, complex, one time task within time, cost and quality constraints. Each task requires a particular mix of these tools techniques structured to fit the task environment and life cycle (from consumption to completion) of the task”.

Others defined project management as planning, controlling and monitoring of all phases of a project and the motivation of all workers involved in it, to accomplish the project vision on time and to a specified quality and cost which are called the iron triangle:

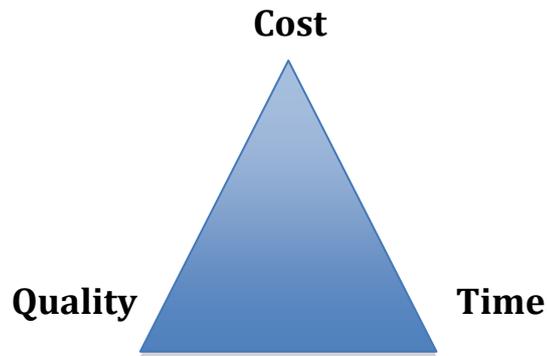


Figure 1: iron triangle. Source. (Tom Tsongas)

Referring to the upper Figure, the iron triangle assists project management for accomplishing and finishing a project successfully. Tom Tsongas, (2011).

2.2 Planning

AQs defined by S. P. Dozzi, Hira N. Ahuja (1994), "Planning requires visualizing all the operation of the projects to arrange these operations in a proper sequins to achieve confident that each operation is understood". (p.10) Planning is an important tool for the performance and for companies to perform well it's an essential part in any management process, which involves choosing objectives, then establishing programs and techniques for achieving the project goals. Planning allows managers to define the time needed for project implementation, cost and quality these are component of failure or success of a project.

This means that planning determines projects implementation in an organized way in order to submit projects in the required specifications.

2.3 Project planning

"Project planning generally involves assessing a project and establishing actionable courses of action among other activities on the way forward for a given project" Roberts (2011). In other way, project planning is a preparative stage for every project, in which project manager understands and determine arrangements on how, when and who carries out projects specific activities. Project planning appears as an important function in project management because it uses the available resources to ensure optimal integration of project activities to accomplish project goals. It also contains formulation of essential project plans, simply to create balance in existing resources and project goals.

2.4 Stages of Projects Duration:

The extent to which contracting companies understand the concept of project duration has been measured and divided by Lukasz Kisiel (2015) as below:

1. Understanding the project: It is very important to understand the project and its' requirements in order to recruit every worker in the right position upon their qualifications and professions. Also, it is very vital to understand the scope of work and the specified requirements the client provides to the contractor, which are agreed on, in the contract between the owner and the other concerned parties. As a rule, any construction project is divided into design stages followed by the construction phase; the design process outputs are the drawings, calculations, and all the design documents. The other stage is to implement and prepare the necessary factors for the construction phase.
2. Defining projects objectives: The three measurements of any project efficiency and success are (time, cost and quality). The overall objective of any project is to implement the project in the shortest time, cost and highest quality. In practice, these objectives are in conflict with each other; in most cases to be able to finish the project in the shortest time, larger investments are required therefore a higher cost. Also, in cases of requesting very high quality implantation the price increases and the process might take more time.

As a result, the manager must find a general appropriate solution to balance the three objectives, if the manager succeeds to place a managerial plan for each of the three main aspects of any project, the project will run smoothly and difficulties will be avoided and decreased. As shown in (Table 1.1) Karen Young gave a short definition for the three components of a project in her article (*Project Management Success – Scope (quality), Time, Cost.*)

Table 1.1: Definitions

Factors	Definition
Quality	What needs to be delivered in the project. The execution of the work of the project under the terms and conditions and specifications.
Time	Time refers to the amount of time in which the complete project must be delivered.
Cost	Cost refers the financial cost of the project (material and resources)

- Time: Time Management is mostly the ability to organize and plan the time spent on activities in a day. The results of good time management increase effectiveness and productivity. If a plan is set in accordance to the time factor, more will be done in less time. Project Time Management includes'' the processes required to ensure timely completion of the project'' PMBOK Guide (2002) p.7.
- Cost: The total amount paid by the enterprise for the materials, labors and indirect expenses for the production of a particular product. In other words, it is the price that the company incurs from the materials, workers' wages and other expenses in the production of goods and services. According to E. McConnell's article (2010) (*A quick post about Cost Management*) ''Project Cost Management is a series of activities for estimating, allocating, and controlling costs within the project. It allows determining and approving budget for the project and controlling spending. For example, in construction project cost management it is vital to estimate cost of materials, equipment, salary of workers, etc.'' Which means that cost management is the process of planning and controlling the budget of a business. Implementing a cost management plan allows a business to predict the expenditures to help reduce the chance of going over budget and keeps their over-all budget under control.
- Quality: Sited in the book *project quality management*, J. M. Duran (1951) defines quality as the ''Conformance to requirements or fitness for use''; which means that the product or services

must meet the required objectives of the project and its value to project owners and funders can use the outcomes of the project as originally intended. Another definition is that quality is achieved by conforming to established requirements within an organization Russel, (2013) p.20.

Quality management is the process of ensuring that all project activities should be effective and efficient for designing and planning to reach the purpose of the objective and its performance. Having quality management plans help to monitor and verify that project deliverables meet defined quality standards, which are typically defined by the customer, it also involves reviewing the product and materials to see if they meet the defined quality norms. (Rupen Sharma, 2013).

In Tim McClintock Article *What is project quality management?* (2017), He divided project quality management into three major procedures:

1. Plan quality management, which is to understand the quality needs and standards for any project and product.
 2. Control quality: recording and monitoring the results of quality activities to assess performance and recommend necessary changes.
 3. Perform quality assurance: auditing the quality requirements and quality control leads to ensure suitable quality standards are used in the project.
3. Collecting and analyzing data and information: before starting to prepare the project plan, the following information must be available in order to have a plan that is detailed and thorough:
- The Contract documents and other project documents, which must include project drawings, general and specific specifications of the project, ‘‘BOQ’’ bill of quantities and prices, official correspondence, decisions and agreements between the contracting parties (Owner, consultant, contractor and official entities) and other documents and necessary reports to start the project plan.
 - Project description, area and distribution of projects blocks.
 - Lists of procurements, suppliers and equipment required for the project.
 - Project management methodology and technology.
 - Availability of resources such as equipment, labor, subcontractors, market price...
 - Identifying available resources and appropriate alternatives for both materials and plans.

4. Project Timetable: this stage includes:

- Dividing the project into activities.
- Determining the relationship between the activities.
- Representing the activities and the relationships and estimating the times for each activity.
- Calculating the critical path activities of the project and determining the time surplus for each activity.

Critical path: a set of critical activities that stays from the beginning to the end of the project.

Critical activity: Critical activities are the project tasks and work elements that must start and finish on time to ensure that the project ends on schedule and on agreed deadline. They must be carefully documented, monitored and managed to ensure the success of the project. A delay in any critical activity delays the completion of the project.

In Chandana's article (2017) she differentiate between the Total float and the free float by saying that "Total float is the total amount of time that a schedule activity may be delayed from its early start date without delaying the project finish date, or intermediary milestone". Which means that it, allows an activity to be delayed without affecting the overall duration. Whereas "Free float is an amount of time that a schedule activity can be delayed without delaying the early start of any immediately following schedule activities".

If the value of the total time surplus period of one activity is zero, we call this activity a critical one, because it also has an effect on the critical path of the project, and any delay in implementing this activity will result delaying the subsequent activities; and therefore delaying the project as a whole.

5. Taking approval and decision on the plan: after the completion of the previously mentioned stages, the project work plan is ready for actual implementation, however this is can only happen after the competent authorities through confirm the plan.
- The coordination between the planning department of the contracting company, the planning engineers, suppliers, subcontractors, project engineers and project managers to finalize the plan.
 - Defining the weaknesses and flaws of the plan before it is put in action.
 - The submission of the plan by the planning department of the contracting company to the senior management of the company, which gives the permission to work under the given plan and provides all the necessary facilities for its success.

6. Implementation stage :implementing the plan: Once the plans are developed they are put into action. Successful implementation of the plan ensures understanding and whole-hearted cooperation of all the employees. PJ Commerce Academy (2016), p.29.

All the previous phases will not achieve any benefit and feasibility unless the plan is successfully implemented, by implantation we mean:

- Dedicate the authority to the professionals and distribute the work, and use the right and needed resources to translate the plan into action.
 - The planning engineers and managers in contracting companies play a vital role in the implementation though clarifying the plan and explaining it, motivate and reward the workers, give guidance and advise them to ensure that it is implemented in the correct way in order to reach the desired goals.
 - Efficient project managers rely on their power, specific procedures and rules to influence their employees
7. Follow up phase: follow up action; to see whether plans are being implemented, activities are performed according to schedule. In case of any deviations, changes are made in the plans. PJ Commerce Academy (2016), p.29.

The follow up phase is considered as one of the most important stage in the planning process. Although it is extremely important, the follow up phase is often neglected. During this phase, all project activities are arranged to bring the project to a successful completion. The planning engineers' scope of work does not end in setting a plan, but must also ensure that it is being implemented in the right way. For instance; follow-up phase activities include providing instructions and training for the work force, maintaining the results, evaluating the project work flow, writing project reports, transferring to the directors and noting any discrepancies in the plan and work flow in order to avoid them before they occur.

The follow up process is usually carried out through:

- Providing the technical staff with the necessary equipment and instructions to follow up with the implementation process.
- Reviewing the plan and the timing for each activity and comparing them with the theoretical project plan.

- Reviewing the implementation process and matching it with the actual agreed on plan; and if any delay in any activity is observed, the possibilities are to transfer the activities from time surplus activities to critical activities –If possible- with a view to reduce the project implantation period.
- Observing external conditions, which may affect the implementation of the plan, and finding solutions and alternatives to ensure that the plan is not affected in a way that could delay the project or harm the workflow.

2.5 Link between project planning and Project Success

In the project management planning stage of a project as pointed out in Lukas Kisiel (2015), project manager works with his entire team who is involved in the project, in order to come up with management frameworks, tasks schedules, detailed designs resource and communications plans as well as the project budget, scope and time plan among many other essential project documents. These kinds of documents help in providing comprehensive definition of a project for the project workers and team to understand and work on towards projects aims and objectives. A number of phases of a project fall into the project planning phase where the overall of project management methodology is made and the techniques on how to put project requirements into actions. Therefore, planning a project in the right way and manner, documenting and recording the plan in details and then executing it correctly most likely lead to delivering a project successfully and as required.

The need of effective project manager in contracting companies is important to fully understand what stakeholders require in their project because what the project team observes as project success might be different in the eye of the project owners and stakeholders. In order to prevent that project managers should work on identifying the various perspectives of what project success is to the owners and stakeholders before embarking on any project. And make these perspectives clear and simple in the project plan for all people who are involved in project implementation.

Project plan is an essential aspect that shapes the success of the project because effective project management plan directs the team to their tasks in the project. If the project management plan was carried out in an effective manner it can assist the team and the rest of the workers to understand the stakeholders views that lead them to focus on the requirements of the project and be engaged with the project duration and also undertake all project activities successfully as required (Reiss 2007).

3. Sample of The Study

The sample of this study consists of professionals from several organizations across multiple contractors who were interviewed to share their views on the major factors that contribute to effective project management on time cost and quality.

The sample consists of head managers, project managers, senior engineers from a range of contracting companies, sub-contracting companies which are located in Jordan and Palestine.

The sample answered the below questions:

- Does a good management planning affect submitting a project on time without any delay?
- Does planned project management affect the cost of the project?
- Does planned project management affect the quality of the project?

4. Data collection and Analysis

After conducting intensive literature reviews on the impact of effective project management on time, cost and quality in the case of contracting firm in the Middle East, data was collected via a structured interview developed in English and Arabic Language and consisted of four questions, the questions were asked to ten head managers, project managers and senior engineers. The professionals' answers were analyzed and then compared with other views from the literature reviews. This explanatory study is based on qualitative approach, which was carried out on March 2017 till December 2017. The survey format was a qualitative interview-based approach to support the results of the study and the needs of project management and planning. The interview method was thus employed since it is an effective way for identifying the importance of effective project management planning on time cost and quality.

5. Interview Analysis

The analysis of the interviews show that 90% the interviewees agreed on the importance of planning in companies before starting any project and they emphasized on the importance of having a planned time schedules which includes all the critical and none critical tasks that should be done in the implementation phase to submit a project on time without any delays. As for the quality 60% consented on the necessity of having a clear plan which has an understandable requirements and standards for the project in order to be followed by the workers, and they also mentioned the importance of doing frequent inspections by project managers and senior engineers on the delivered product and service to achieve a project with

the highest quality. In the last question 80% said that a planned project management can affect the project budget without exceeding the specified budget if it was followed with three main factors which are monitoring, controlling and following up, they also insisted on the importance of having an experienced project manager who can set a plan concerning the project's cost and also find quick solutions for any error that may occur in project implementation.

In the light of these findings the researcher highlighted the importance of having a skilled project management system that works effectively on project plans to achieve the project objectives according to the required time cost and quality, the researcher recommended that companies should do consequent train workshops to their managers and employees and also ask their managers to prepare a statistical databases on previous projects in order to use them in the future project.

6. Conclusions

In this chapter the main findings of this study are summarized and general conclusions are described to present the impact of project management planning on time, cost and quality based on the findings of the study to help future work and highlight project management importance in contracting companies in the Middle East.

This study showed that the adoption of contracting companies on generalities in their management plans without focusing on the real project objectives which is implementing the project in the shortest time, best quality and less cost causes failure of the project plans, which resulted wasting time and money. It also revealed that the general imbalance among large number of contracting companies in the middle east, leads to the delay of completing a project this imbalance is evident when these companies find themselves in a crisis due to the inability to implement their plan on the project due to the lack of management planning and lack of understanding the aim of the project from the technical staff and misplacing the resources resulting future failure and losses in the companies. The study showed the lack of management in contracting companies in terms of neglecting the importance of efficient planning leaves managers in chaos and lack of flexibility in dealing with the risks of the project and also lack of management coordination between the cadres of the project and company, which lead these companies to take unstudied steps which also lead to more delays in projects rather than reducing the implantation time, cost. The study also revealed that the

inability to set a tight schedule for the project puts the company in error; assessing the time of implementation of the project because it didn't distinguish between critical and noncritical work in implantation of the plan which results extra costs and time for implementation.

And if the contracting companies didn't apply the principle of mandatory planning on managers, this would give the opportunity for the company staff to implement the project in an improvised way far from the projects concept, which leads to delay in presenting the project on time because the projects staff has taken critical decisions during the project causing a lot of unnecessary expenses, spending a lot of time and less specified quality in project implementation.

The results of the study mentioned that there must be correlation between the management components of the construction projects and the parties who are responsible for the project process who are the main contractors, subcontractors and suppliers, that influence directly on the quality of the project and the duration of its implementation. Furthermore project managers should explain and clarify the project objectives, tasks and plan process to its workers and allocate the tasks among the workers so that no chaos appear during the implantation stages. Finally the study revealed the importance of having all the plan characteristics for any project such as clarity, flexibility, realism and Preciseness, it should also integrate and homogeneity to the project plan and project aims and objectives.

As a result of the above mentioned the researcher emphasizes on the importance of having a planned project management system in contracting companies and its direct impact and relation on the three main components which are time cost and quality in order to complete the projects successfully as required and achieve its aims and objectives. It is essential to note that project planning doesn't fully guarantee project success, but it increases the chances of project success and without project planning there will be high chances of project failure. Project planning is an important component of any project as far as its management is involved. This argument is supported by Heinemann (2009), who recommended that companies must pay special attention to the planning stages also invest and focus on their project management processes because it can make or break the entire project and/or the company. The study indicated that effective project management has a strong positive impact on planning and the overall final outcome (time cost and quality) of a project which measures whether the project is successful and reached the stakeholders satisfaction or not.

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