

Evaluation Methods and Recovery Process a New Approach in Project Management

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Abstract—The project is an alive being, acts and reacts with people around, surrounding environment, economic situation, development, quality of life and others in a way to change some or many life manifestations, people life conditions and increase development, then it must be evaluated, tested and assessed periodically for all items, components, contents and configure clearly for whom it concerns, getting realistic results and data acquisitions, also the evaluation methods have to present the strengths and the weakness points to achieve the main objectives from this process which aims to recover the situation and take the necessary corrective actions against failure modes. Project management was coined in 1950s, initially with emphasis on activity scheduling, budgeting and control and remained so even with the advent of computers in management. Now project management is redefined by wide ranges of fields and knowledge of areas such as stakeholder management and integration management and others when the iron triangle time, cost and quality still the main goal to achieve and reach the project objectives properly.

Nowadays projects are more complex and larger than before, also it affects many domains and parties, it takes more much money to be achieved more than we expect, especially with the high rates of inflations and the banking interests. Even quality approach is different from before and customer satisfaction became a necessary process in the project handover and with the continuous progress in scientific and luxury domains, the projects have to represent a new concept where monitoring and evaluation methods must keep pace with current development.

Evaluation models take place during the project life cycle periodically (biweekly or monthly) with a numerical approach which can configure about the case, discovering the errors and points out the responsibility of humans or others, then a recovery plan or even a corrective action can take place rapidly preventing the great deviation from the right way and repose the project in its right direction. Check lists can provide a realistic assessment and evaluation for many project activities especially with iterative events and regular work.

Index Terms—Evaluation method, recovery process, data acquisition, recovery plan, check list, corrective action, assessment, early warning system, failure mode.

I. INTRODUCTION

The project life time cycle which is normally long and exposed to many risks, challenges and even to stop for a while and restart again, all these factors affects the project negatively and without a periodical evaluation process andX realistic assessment may be a great deviation occurs from the correct and the right ways, especially in long lifetime projects which may differs form 3-5 years or even more, then a small deviation in the beginning will lead to a great one in the end and may be the project objectives will not be available to be done, then failure can occur and may be a recovery plan or some corrective actions cannot return the project to the initial case, then we need a new one to take place if needed[1]. Projects are today widely used as a business model for private and public sectors and they constitute the preferred model for developing changes in construction, oil and gas, chemical processes, aerospace, defense, etc. Complex projects are found in different industrial and public sectors and span over different types of projects when complexity is a relative term depending on the capability of the organization, thus a small project may be complex for small organization[6]. The Project Management Institute (PMI) in the USA defines the project management as an "application of skills, knowledge, instruments and techniques on different activities for the achievement of the project requirements". Project management is fulfilled by applying and integration in the initiation, planning, execution, monitoring, control and closing processes. [3]

II. EVALUATION MODELS AND CHECK LISTS

According to the American standard, the Key Project Management Knowledge Areas (PMKAS) needed to fully understand project management process are Project Integration Management, Project scope Management, Project schedule Management, Project Cost Management, Project Quality Management, Project Resources Management, Project Communication Management, Project Risk Management, Project Procurement management, Project Stakeholder Management. Every PMKA contains specific process, practice, progresses, input, output, tools, and technique and together they complement each other to meet the project's overall requirements and demands. The synergic effect of these PMKAs is well known in project practice and science, despite some PMKAs often being singled out as more important than others. The Iron Triangle (time, cost and quality) was conceived as a framework to enable project leaders to evaluate and balance the competing demands of costs, time and quality within their projects.

Although the strength of the Iron Triangle has often been examined with regards to other knowledge's areas such as Scope or Performance, it remains the dominant concept in Project management.[5] Program Evaluation and Review which is called PERT is one of the main methods to assess the project in project management which depend on the estimation of time needed to each activity and then have three estimation modes:

Optimist (o) - Most probable to occur (m) - Pessimist (P), then the average of an activity time needed can be calculated as follows:

$$TE = (O+4M+P) \div 6$$

Then the critical path can be defined and also the deviation for all of them can be calculated as:

$$O^2 = (P-O) \div 36$$

But depending on the milestones schedule or time tables just to describe and configure the evaluation of a project and calculate the estimated deviation which can change positively or negatively for many reasons and due to any external or internal failure modes or even risks or challenges, it is not a realistic way to assess project.[7]

The project have to be evaluated at least monthly, when we have a project which the lifetime is about 36 months or less, not to be checked and evaluated less

than once a month to discover deviations and estimate risks also lack of resources, weather, variations, high banking interest, high rate of inflation, change in currency value and for others, then we need to feel monthly about the project and answer really the main question which is always and ever How is the project??

The project evaluation method must give a general overview about the project, then using a model and check lists can give us a numerical value which can be compared monthly to show how the project progress is? Where are the weakness points? Who is responsible about? How we can deal with? When we can take corrective actions? When we can and operate recovery plans? and so on.

Evaluation model or point's system model can be applied to show and describe the project status and some items can be checked and evaluated as:

- 1- Reliability and credibility of milestones schedule and other time tables which govern and control the project.
- 2- Attendance of top management.
- 3- Reliability and credibility of communications.
- 4- Reliability and credibility of documentations.
- 5- Incidents and injuries.
- 6- Financing and cash flow as planned.
- 7- Work conditions and mobilizations.
- 8- Life safety regulations.
- 9- Audit reports.
- 10- Community services provisions

Each of them can be evaluated in score records which permit the evaluation process and comparison. A quality audit is a standard, systematic review of project activities to recognize whether these activities are executed in line with business process alternatives against tactical decisions. The goal of executing a project quality audit is to show the missing or inefficient policies, procedures and / or process that decreases quality levels and increases the probability of project failure.

During a supervised conventional quality audit session, the project manager can review quality metrics such as defect frequency, budget deviation, failure rate, on-time performance, and gauge project activities against the quality baseline. Auditing project permits recognition and correction of any deficiencies in project activities [3].

Evaluation Model

- 1-Reliability and credibility of milestones schedule and other time tables. 90/100.
- 2-Attendance of top management 20/25.
- 3- Reliability and credibility of communications 21/25.
- 4-Reliability and credibility of documentation. 20/25.
- 5-High morale and spirit. 23/25.Total sum.174/200.

Check list no.1 Monthly cash flow 30/35.

Check list no.2 Incidents and injuries 12/15.

Check list no.3 Administrative conditions7/10.

Check list no.4 Social services 18/20.

Check list no.5 Safety regulations.16/20.

Total sum 83/100. Final sum.257/300

III. EARLY WARNING SYSTEM AND FAILURE MODE

A risk is a certain event of consequence that may occur during the time of a project. It may or may not have a measurable impact on the project.

This impact may either be positive or negative. Risk identification is a critical and iterative process and it is imperative to include this step in each project.[2]

Then an early warning system have to be applied on the whole project to expect or show earlier how the project will be affected by daily events or discovering a weakness point or more to have to deal with earlier, just to minimize the effect or prevent it, for example a high rate of inflation, lack of some resources, delay on long lead items delivery time table, Lack in quality control, lack of skilled workmanship or others which may be not here,touched,seen or present now, but in the near future, it can affect negatively the project process or even lead it to a failure mode.

Monitoring is a continuous function that aims at providing management and stakeholders with indications of progress or lack of progress in realizing the project or program results. Monitoring and evaluation for outcomes impact shifts from performance monitoring to results measurements where the systems attached the highest importance to providing feedback on results at the level of outcomes and goals. In performance monitoring data can easily be obtained from internal institutional information systems, but in results-based monitoring, beneficiaries are targeted for information on the project and how it has affected them. This needs to be done while the

program is being implemented so that corrective actions can be taken. It is advisable to separate the monitoring of short term (or early) indicators from the monitoring of medium –to long-term indicators. Indicators which change slowly are not good indicators for measuring short-term outcomes then evaluators should select and use indicators that respond quickly and that are easy to collect.[4]

IV. CONCLUSION

Projects have become longer, larger, costly and more complex, then evaluation methods have to be in the project management process as a main objective to ensure project success. The main items of the project must be evaluated periodically to show the project progress and compare with the previous records in a numerical form to have a realistic results and impressions and can indicate the weakness points, also corrective actions and recovery plans can take place to prevent the deviation and help the project to reach the objectives and the goals in time needed with a full quality control to ensure the deliverables quality. Also, the monitoring and evaluation process can help the project management authority to keep the stated path of the project and can affront some or many variations which normally attack the project life cycle and its stages with the full demonstration of the progress and give an imagination and an estimation to describe the effect of these variations, which may prevent them or to minimize the case at least. Using a recovery plan or a corrective action or both of them according to the numerical models and some important check lists concerning the main items of the project can affront the weakness points and errors with discipline in site, safety rules and regulations, contrary attacks and others to repost the project on the correct and the main railways to reach the station if success.

An early warning system has to be applied to alert earlier the defects and the deviations out of the objectives of the project, then we can discover a lack of resources, governmental or political effect, high rate of inflation, higher banking interest, pandemic diseases, bad weather conditions or others which can affect negatively the project success.

It is best to appoint employees specialized in the field of project evaluation and monitoring to achieve professionalism in work and achieve transparency and justice, and to be polite or afraid of the evaluation

process in order for it to fulfill its purpose, which is to always keep the project in very good condition and on the right path to achieving its stated and specifies goals.

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