

On-Time Completion : Myth To Reality

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Abstract – During project’s initialisation phase, conclusion of time of completion of project is a hurried affair. Conventional linear scheduling methods fail to capture on-time completion in reality. Ever growing needs on changes due to stakeholder, resource constraints, location, environmental factors, and economic situation drive this subjective term ‘on-time’ completion. Using heuristic rules and historical values, envisioning alternatives, interactions of project’s triple constraints are seldom considered for developing practical and feasible Project duration. Construction phase is often marred by surprises and changes. The pace of the construction and moral of the team is dented by surprises. This paper aims to look at the factors that influence determination of realistic ‘project duration’ which helps facilitate a project in achieving ever elusive ‘on-time completion’, and focus on various outcomes of several interactions and influence between various parameters before conclusion of ‘project duration’.

Keywords – Project duration, On-time completion, realistic schedule, resource constraints, triple constraints.

INTRODUCTION

The triad of scope – time – cost is the base for any project estimation. The interactions between these triple constraints are the focus of an estimator and a planner. Two issues of utmost importance in a construction project is the project duration for a constructor and the project cost for a sponsor. Heuristic values and historical data are good tools for estimation of a project’s cost and project duration for a given scope of work. It is often used to determine high level values by project teams. These values are carried over by the stakeholders even after the scope of work is normalized and few initial details are signed off. Determination of project duration is not easy to evaluate while the project is at the concept stage. One need to look at various factors effecting the determination of ‘project duration’, within which a project is said to be ‘on time’.

Different project formats have different sets of stakeholders. Intent of project format on hotels, hospitals, residential complex, residences, infrastructure, airports & seaports etc, have different reasons of inceptions. These stakeholders who initiate the project and are initially responsible for project finances, initial appointments of designers, approvals – statutory or concept designs, high level decision making and others. Stakeholders of the project are responsible for discussing, debating and ascertaining the project duration. The factors that generally influence this decision are the market survey, economic situation, project finances, end user demands, historical data, and expert judgments. In remote cases, some stakeholders demand for completion of project during their tenure in office.

In reality, while at execution, vendors, suppliers, other designers are appended to database of stakeholders. Also are those who are simple onlookers like neighbors, shopkeepers in a infra project, property owners alongside of a project development and are interested in the project. At the initial stages of execution, constructability, historical informations, lesson learnt, experiences of new project team members often reinforce previously determined data on completion time. Stakeholders such as new vendors who were not a party during the determination of the project duration, who join in the middle of execution phase, often question the validity of the project duration to impress that the realistic time line indicated are not realistic for their scope of works. Thus, this brings the *basis* of project completion time to a debate.

The changes that comes to a project scope, time and cost due to project, people and design issues, errors and omissions, is the driving parameter for on time completion. Assumptions by all stakeholders in a project bring lots of surprises to a project. *Assumption management* becomes a full time job of a planner. The issues and risks encountered in a project while its execution, plays a pivotal role in defining project timelines. Hence, risk management is the key driver for on time completion.

I. THE CURRENT SITUATION

The research question is: who decides the project duration?. Of various stakeholders, project sponsors have influence over this constraint. During the initiation, is this constraint defined realistically?. Out of various forms of project sponsors, we intend to look at those who have position, power, and information and their approaches to determination of project duration and its impact.

- Individuals with power, directly involved as project stakeholders influence the project team to complete the project in stipulated time. In the event that the project is completed within time defines and reinforces their social, official and political status. On time completion of projects doesn’t necessarily adhere to project’s scope and efficiency. The outcome of project in terms of its efficiency, satisfaction, sustainability and expandability decreases as the project ages. The performance requirements of all the stakeholders are not clearly defined and short performance on deliverables by any or all stakeholders are generally acceptable. Completed projects in this category are high on maintenance and low on usage due to satisfaction levels. The reasons are generally attributed to shortening the initiation and planning phase, diluting the scope and intent of the project, non-adherence to standards, and compromise of quality parameters.

While the construction life cycle of these projects are shortened, contingency plans and strategies are not designed. Thus, latter when the power rests with another set of individuals, insufficient maintenance takes a back seat, for technical non-performance of the project can be easily directed to quality attributes of the project.

- Projects which are envisioned due to market demand and economic situations have critical focus on project duration. On time completion is closely monitored. Fear to lose the market share on supply demands always is in the focus of the sponsors to target the project completion. Here, stakeholders in high position are active in determining ever fluctuating project deadlines. The interactions of cost, time and scope are very exhaustive. Interactions of inputs such as time, resources, energy, and information with outputs such as time, efficiency, performance is in real-time. These interactions leading to plenty of changes in the project scope and design, lags in meeting the satisfaction levels.

Several interactions leading to frequent changes in plan of action, overly stretched resources, incomplete documentation, results in either incomplete or prolonged closeout phase of a project. As a result of this, quick normalization on expected levels of performance of the project, after it's commissioning is dubious. The initial costs for this normalization phase tend to increase.

Stake holders in high position are usually seen to defy the communication protocol. It is often seen that these individuals would give instructions and take decisions without looking at the project progress and performance leading to lots of rework and scope changes. With changes taking place briskly, it is well known that circumventing the communication protocol would result in failure to meet requisite deliverables at acceptable grades.

- Duration for projects, which originate due to technological changes, advancements, and requirements are meticulously planned, well executed and deliverables show visible signs of customer acceptance and satisfaction. The duration of the project is reigned by stakeholders who are involved in the project from implementation till closeout. Personalities as project stakeholder, with strong hold on information, are industry stalwarts, and are champions in their field of service apply lesson learnt to the best of its usage to projects. With acquired knowledge, skills and competencies they envision the project. Interaction among project inputs, outputs and tools & techniques are well implemented for effective decision making and deliverables of the project.

Authors from their experiences intend to illustrate few cases to understand reasoning on systematic determination of project duration..

Case – 1:

Myth 1: Heuristic approach can be applied to construction project's timelines

This case repeated twice in our organization; a hospitality project and an office complex. Though both the projects were conceptualized, constructed and handed over at different calendar period, both were located in densely populated locality of a metropolis. The proposed sites of the project were surrounded by dwellings 3 stories high. The inhabitants of these dwellings were people with power, influence and well known in social circuits too. The project sponsor indicated that the project needs be completed in 24 months. This date of completion was indicated to the project manager after the sponsor had negotiated an agreement with the neighbors on the ordeal that they would have while the project is being constructed.

Here is a case where the project completion time was already decided by the project sponsor and the neighbors before the project could go to designs. While discussions with consultants, the sponsor gathered that the project will have lots of uncertainties. After, designs were detailed out and commencement of work, the uncertainties unfolded. The foundations had to go deeper than planned for, there was a rock outcrop was encountered when excavation was in progress, the excavated sides of soil was very unstable and needed stabilization. There were traffic restrictions during the day and at night noise of construction work and machinery would disturb the neighbors. Project teams cannot get construction material in daylight and cannot work in the night. Vital materials like ready mix concrete are to be used within a stipulated time from mixing. The project site was located at the commercial hub, most of the plot was being utilized, leaving no space for material storage and small concrete plant installation. Given these situations how would the project manager proceed with the work, give productivity, and complete the project *on-time*.

The moot question is 'was the project completion time determined by a competent team? Both the projects were stretched beyond initial project estimated time and had severe cost and scope overruns. How would the project team determine if they completed the project *on-time*.

Case – 2:

IV. FEW ILLUSTRATIONS

Myth 2: Due to extensive project portfolio available with the sponsor, they can best determine the project timelines

While working on a commercial mall project in an up market area of a metropolis, the project sponsor imitated the project and took vendors on board for construction. The project teams were given straight orders to complete the project in 30 months. The team was a mix of in-house and outsourced professionals. As the management of sponsor organisation had already finalised on the project duration, which in turn were based on the demands by multinational tenants, the project timelines were passed on the suppliers and constructors..

When the project was in construction phase, the rear side of the project had habitation with inferior living conditions. The occupants of these dwellings were ever ready to create disturbance and disruption to the work. Despite several security measures, pilferage was very high; project materials assets were often damaged and stolen. There was an instance where the project works were stalled for few days.

At almost about 60% completion, the project went through few design changes due to additional requirements by government and by tenants. The sponsor insisted that the project be done by stipulated time including retrofits. Project team had a facilitated workshop with the sponsor with real facts and data. This enabled the sponsor to retract and revise the project scheduled completion time along with the cost overruns.

Case – 3:

Myth 3: Past experience is sufficient to determine the project duration

This case is of a residential complex which was similar in size to the one the sponsor had completed in the recent past. Based on the experience of the project team project duration was fixed at 36 months and commitments made to the end users. Latter external project team was hired for a construction project of a residential complex.

Investigations made by the team revealed several surprises on external factors that could delay the project. To name a few, the project was being taken up which was a land fill, the place used to be a quarry earlier, the constructor was another wing of the sponsor, inexperienced team members of the constructor, first residential venture for this constructor, close proximity to airport, several land owners in JV, non availability of water source for construction within the project site. With so many major risks involved, a thorough qualitative and quantitative analysis of the risk was mandatory.

Major risks were identified; responses created and were discussed with the all stakeholders. The outcome of the all discussions was that the responses for the risks would be looked when the risk occurred. At the insistence of first occurrence of the risk when the sponsor was indicated that the project would go beyond the stipulated time, the project team was threatened that they would be terminated and someone else would be hired to do the job based on his requirement of time. The second and third project teams too failed to deliver the project on time.

Case – 4:

Myth 4: Execution phase of the project determines the project completion time.

A Project team involved in a construction project being considered by a sponsor for a big publishing house which is in business for many decades. While the publishing house is in business with long standing and good amount of market share and exceptional readership is intending to put another unit to meet the demand, the intention of the sponsor was almost nil involvement and no headache for the sponsor and seamless transition of the operation to increase capacity. This project the time of completion was never defined either by market demand, economical considerations, technological reasoning or by the sponsor themselves. The focus of the outcome was not the time but satisfaction of the stakeholder. In such a scenario, the project duration was more focused on time of completion of the planning phase.

As the likelihood of elaboration of the project's scope during construction was very minimal, completion of the project was driven by the effective planning on all areas of project construction life cycle with more focus on *on-time completion* of planning phase.

V. A REALISTIC APPROACH

Factors influencing the determination of project duration are a plenty. Inputs such as natural and preferential precedence, availability of technology, environmental factors are to name a few. Contracting strategy and selection of an appropriate vendor or supplier is another important part of planning. Appropriate analysis of all of these elements effecting the desired outcome and output from the project should be looked into and realistic time for the project determined. Application of techniques such as critical path and chain, determining the optimum contingency on time, application of these contingencies judiciously will result in realistic project duration. Harmony between all the above factors would facilitate in determining on-time completion.

In order to determine the realistic project duration, factors affecting the project outcome needs to be identified for risks

generating from them, responses to the risks to be created, qualify the responses and quantify the impacts. While the project is progressing, there would be several interactions between cost, time and scope due the options in responses to the risks. This would often need effective change management system in the project during implementation.

VI. CONCLUSIONS

Envisioning a project collectively by all stakeholders in a project with adequate information would result in effective determination of optimized completion time. A facilitated approach will have clarity on uncertainties, role requirements, and buying-in of completion time by all stakeholders.

Not accepting arbitrary deadlines, negotiating a realistic completion time is one of the attributes of a project manager and his team. Obtaining data, analysing them, creating information for effective decision making, envisioning project through experience, facilitate in determining the project duration, distributing attributes to all stakeholders of deliverables for *on-time completion*, managing the project's challenges using various management techniques is the responsibilities of a project team. Hence, realistic time lines are best determined by experienced project team, systemically and systematically.

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