



The project management triangle conundrum: Selecting between Quality, Cost, Time



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Introduction

When a new project is framed, the project manager usually asks the question as to which drivers are important to the project. The project management triangle is often used to facilitate this discussion (Wikipedia, 2016). Multiple variations of this triangle are available in the literature, but in essence they all require positioning the project relative to three issues, namely good, fast or cheap (See Figure 1). In this representation good can be considered as equivalent to quality.

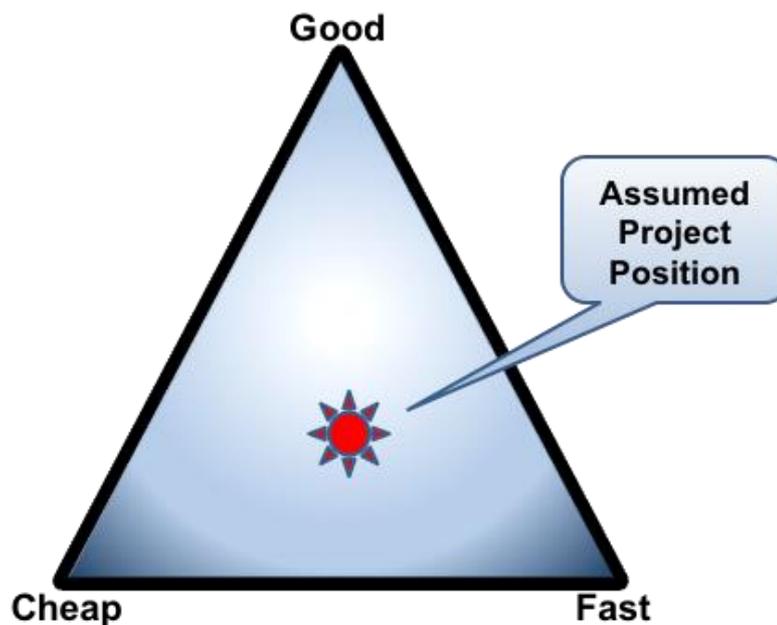


Figure 1: Project Management triangle

Trying to plot a project on this triangle does not give the project management team any real tangible means of guiding the project and making trade-off decisions when required. It just remains a “nice picture”.

It is often said that good and fast projects are expensive, good and cheap projects are slow, and cheap and fast projects are of poor quality. It is our opinion that this dogma leads to a totally inadequate setting of the project framework and does not provide the project team with the correct guidance.

We believe that quality should always be the point of departure for any work and that, if a quality product is delivered, it will lead to meeting the business objectives in terms of cost and schedule. In contrast, if quality work is not delivered the probability of meeting the cost and schedule objectives is very slim. According to Mazohl (2013), quality is not a part of the project management triangle, but it is the ultimate objective of every delivery.

Once the quality objectives are clearly understood, the project team must understand the trade-off between cost and schedule as it applies to the project that they are executing. A schedule driven project will undoubtedly be more expensive than a cost driven projects but if that is what is required to be a business success (e.g. meeting a specific market window) then it is the right approach to follow.

A basic fundamental issue is that quality is not defined, or understood, in its totality and this contributes to the confusion.

Defining Quality

Most often quality is stated as conformance to predefined standards. While this is true, it is totally inadequate to describe quality in its entirety.

We prefer to define quality in terms of the following five points:

- **Accurate:** Information / deliverables should be fair and free from bias. It should not have any technical, arithmetical and grammatical errors.
- **Complete:** Accuracy of information and deliverables is not enough. It should also be complete which means facts and figures should not be missing or concealed. Telling the truth, but not the whole truth is of no use. All relevant aspects should be addressed. Key aspects that are relevant to the nature of the project should not be overseen.
- **Reliable:** Reliability speaks to consistent performance in quality; information, deliverables and performance on the project should be such that it can be trusted.
- **Timely:** Plan the work (schedule with milestones and holding points) and work the plan to in order to deliver the quality product. It should be available when required (information, deliverables, resources). Deliverables should not be over or under developed in relation to what is needed in a given stage during the project life cycle
- **Conformance:** Quality also implies meeting predefined standards and specifications. Durability should be based on business requirements throughout all project stages and disciplines.

Looking at the above definition, one gains a better perspective as to quality. No matter what product is being developed, the work must be accurate, **complete**, **reliable**, **timely** and must **conform to requirements**. If this is not the case, it results in rework, higher operational costs, missed deadlines and budgets and even poor morale of the

team. The final product will not meet the business strategy and result in poor client satisfaction.

Of the five points mentioned above, the first four points can be considered binary in that the work is either accurate, complete, reliable or timely or not. It cannot half meet these terms. For example, a design calculation is either accurate or not. If it is not correct, the hardware will most probably fail to meet the required performance.

Conformance to standards and especially specifications is often quoted as the key quality parameter. In terms of meeting a specific business objective the required specifications can vary greatly. For example, in fast moving industries it may be required to design hardware with a limited life expectancy (IT, pharmaceuticals) of say 5 years, while in the commodities business (refineries, mines), life expectancies of 30 years, or more, is considered normal. It is thus required that each project is based on a solid understanding of the business needs, such that the correct specification can be set.

Quality can thus be seen as the basis upon which the ability of meeting the business objectives depends. It is the pivot point upon which all other project decisions and trade-offs rest, as illustrated in Figure 2.



Figure 2: Quality is the pivot point

Having now clarified that quality is the basis, the balance between schedule and cost can be elaborated on. A project can now be defined as either schedule or cost driven or managed by earned value management. Neither of these elements can, however, be pursued without taking cognisance of the other and form part of contractual obligations. A schedule driven project timeline can, for example, not be shortened to such an extent that the cost becomes prohibitive. Therefore, the project team should be given some boundaries around schedule and cost and the value/cost vs time relationship. It must also be taken into account that this relationship may change as

the project development proceeds. For example, during early front-end loading cost may be more important than schedule, but during final commissioning schedule may become critical and important to evaluate what's earned to ensure the project is completed before the funds evaporate

Focus on Quality

On projects, the focus between quality, cost and schedule is likely to be unbalanced in favour of schedule and costs – and often unwittingly at the expense of quality. Figure 3 illustrates the pressure on schedule and cost because of a poor focus on quality.

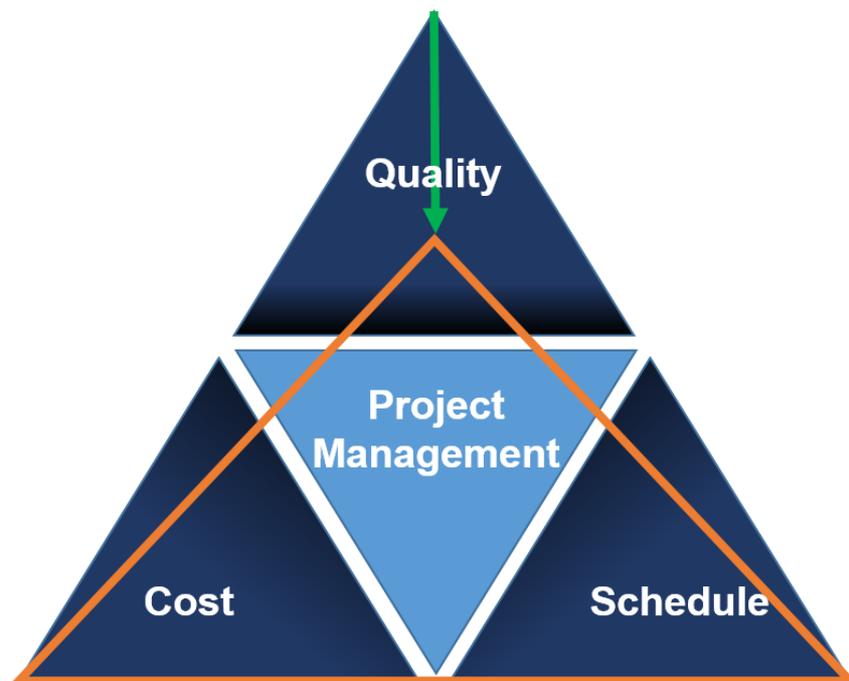


Figure 3: Bias towards cost and schedule results in poor quality and increased costs

This imbalance exists, and will continue to exist because **the real cost of quality remains hidden among total costs**. Quality Management Systems (QMS) have recently been introduced that, over and above the traditional quality practices, can also track the cost of poor quality on a project in monetary terms, capture the lessons learnt and enable the organisation to improve the overall performance of projects. Implementing such an advanced system requires substantially more investment in prevention techniques rather than in appraisal of quality but results in significant reduction appraisal and non-conformance costs. Using such a system has already proven in real cases the advantages that can be gained. This is illustrated graphically in Figure 4.

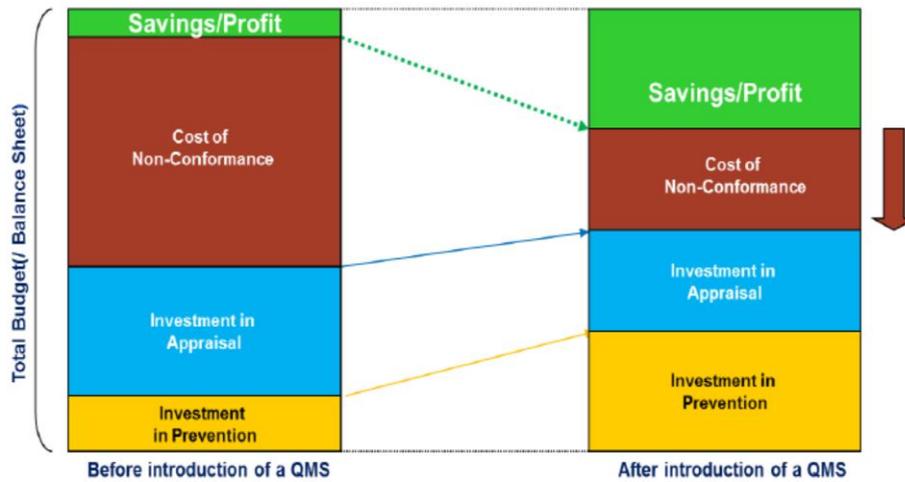


Figure 4: Prevention rather than appraisal leads to increased profits

Ensuring Quality

Quality can, first and foremost, not be achieved without an integrated project team representing all the core competencies required to execute the specific project. Ensuring that you have the right people on the job is a key starting point to ensure quality deliverables. Figure 5 shows a typical integrated project team consisting of a sponsor providing the overall leadership, a core project management team consisting of members from project management, technical, business and operations. The core competencies in each of the aforementioned areas are also shown in the diagram.

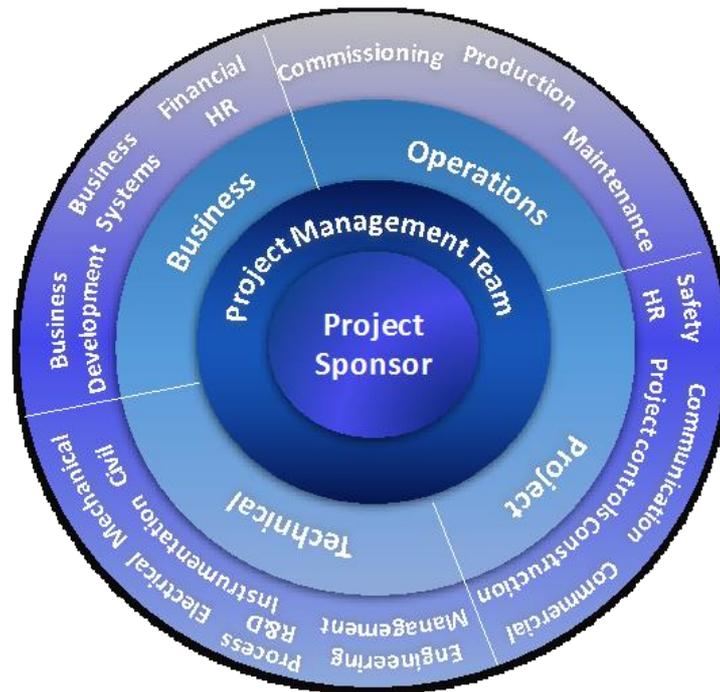


Figure 5: The integrated project team

When the project team lacks skills in certain of the areas, a balanced and complete view of the requirements cannot be set and neither can a complete quality focus be achieved.

Although having an integrated project team on board is a good starting point, it does not, on its own, guarantee quality. The project leadership still needs to nurture a quality mind-set that is supported by adequate processes and tools, assisted by Human Resources to strengthen the discipline, including the integration thereof. This is where weaknesses are identified and training is required for enhancement. Using an advanced quality management system, as discussed previously, can help to focus the team by tracking and reporting on the real cost of quality as the project proceeds.

Concluding remarks

A quality approach means that all deliverables across the total project life-cycle must be of quality. This not only implies quality assurance of the product (hardware) being delivered, but also the project charter, the business plan, the design work in all study phases and the project execution plan as examples.

A quality approach leads to improved efficiency, safety and profitability.

References

Mazohl, P., 2013, Project management. Available from <http://www.further-training.net/pm/keep-an-eye-on-quality/> Accessed On 26 August 2016.

Wikipedia, 2016, Project management triangle. Available from https://en.wikipedia.org/wiki/Project_management_triangle Accessed on 26 August 2016.