

A Project Sponsor's Warp-Speed Guide: Improving project performance

Appendix I – Triple constraint

Four components of the triple constraint

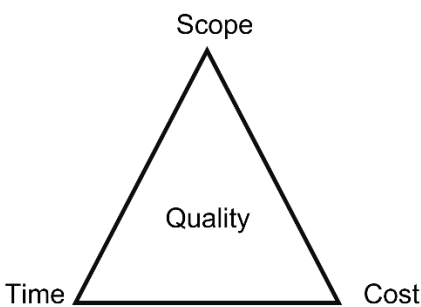


Figure 0-1 The triple constraint

This appendix contains a summary discussion of the triple constraints¹ of time, scope, and cost that every project must manage to ensure project success. Because the three constraints are interdependent, projects make many trade-offs among these constraints during the project's life.

Project sponsors minimize the adverse impacts these constraints can have on project success by supporting:

1. Expeditious decision-making on project issues as opposed to elongated decision-making.
2. Reasonable planning as opposed to abbreviated planning.
3. Thorough estimating as opposed to pressuring the team for lower estimates.
4. The project manager's determination to minimize the approval of change requests.



At some point in every project, a stakeholder, the project sponsor or even a team member will wander up to the project manager's desk and ask a seemingly innocent question. Examples are: "What would it take to complete this project a month early?" or "Do you think you could complete this project for x dollars less?" or "Gary has a great

¹ The triple constraint is sometimes referred to as the project management triangle or the iron triangle.

idea to add XYZ to this project. Could you add it?" Your job as a project sponsor is to support the project manager while they make the tough call to reject these requests because they require more money, more time, and increased scope. None of these ideas should be allowed to distract the project team from the agreed project plan.

Time constraint

Project time refers to the project's planned schedule to achieve completion. Time is a constraint that exerts pressure on the team because:

1. The sponsoring organization is always keen to finish as soon as possible to start realizing the project's expected benefits.
2. Longer projects cost more money than shorter ones.
3. Projects completed on the planned schedule are more likely to complete on budget.

The time constraint can be addressed by:

1. Operating with an expeditious decision-making management style.
2. Including a schedule contingency task in every deliverable of the project's planned schedule with the project manager as the assigned resource.

Scope constraint

The project goal and objectives determine the project scope. Project work turns the project scope into requirements and deliverables. The scope is a constraint that exerts pressure on the team because:

1. The team will discover appealing new scope² during requirements elaboration and design work. Some stakeholders will push to include this new scope in the project.
2. In its eagerness to be responsive, the team may take on additional scope without recognizing the added risk to project completion.

The scope constraint can be addressed by:

3. Operating with a management style so that the inevitable scope ambiguities are concluded as out-of-scope as much as possible.
4. Operating with a management style that defers all proposed scope additions to a follow-on project.
5. Including an allowance amount in the project budget to anticipate the inevitable change orders.
6. Defining a release or version plan for the product. Then stakeholders can see when proposed scope additions will be incorporated into the product and stop pressuring the team to include all scope in the first release.

Cost constraint

Project cost is the total of expenditures required to complete the project. The project budget initially defines cost. Cost includes items such as labour, materials, vendor sub-contracts, permits, currency exchange, and operating expenses. Cost is a constraint that exerts pressure on the team because:

1. The estimates in the initial project budget are subject to underestimating errors³.

² Adding appealing new scope to the project scope is called scope creep. See the Glossary entry for Scope creep.

³ Overestimating errors are rare because teams tend to be overoptimistic in their estimates.

2. Unexpected events that tend to increase the project cost will occur.

The cost constraint can be addressed by:

1. Operating with an expeditious decision-making management style to contain the elapsed time of project tasks.
2. Including a contingency reserve amount in the project budget to anticipate the cost of underestimated task effort.
3. Including a management reserve amount in the project budget to cover unanticipated costs such as strikes, severe weather or materials shortages.

Quality

Projects strive to meet stakeholder requirements that define quality. Quality becomes a risk to the project when it's not explicitly defined but assumed.

Quality is often illustrated in the middle of the triple constraint diagram because the other three constraints constrain the level of quality. Conversely, increasing quality usually affects all other constraints.

Quality is a constraint that exerts pressure on the team because:

1. All stakeholders expect high quality as the default.
2. The team will encounter many opportunities to add more quality to deliverables without recognizing the added risk to project cost and completion.

The quality constraint can be addressed by:

1. Planning and operating with a fit-for-purpose approach to quality.

2. Documenting non-functional requirements using the requirements to plan the project.