Understanding the Project Management Triple Constraint

~ By Duncan Haughey

All projects are carried out under certain constraints – traditionally, they are cost, time and scope. These three factors (commonly called ‘the triple constraint’) are represented as a triangle. Each constraint forms the vertices, with quality as the central theme:

- Projects must be delivered within cost
- Projects must be delivered on time
- Projects must meet the agreed scope – no more, no less
- Projects must also meet customer quality requirements

More recently, the triangle has given way to a project management diamond: cost, time, scope, and quality are now the four vertices, with customer expectations as a central theme. No two customer expectations are the same, so you must ask specific questions about the customer’s expectations:

1. **Cost:** All projects have a finite budget; the customer is willing to spend a certain amount of money for delivery of a new product or service. If you reduce the project’s cost, you will either have to reduce its scope or increase its time.

2. **Time (Schedule):** As the saying goes, ‘time is money’, a commodity that slips away too easily. Projects have a deadline date for delivery. When you reduce the project’s time, you will either have to increase its cost or reduce its scope.

3. **Scope:** Many projects fail on this constraint because the scope of the project is either not fully defined or understood from the start. When you increase a project’s scope, you will either have to increase its cost or time.

Once a customer asks you to complete a project, the person will state what is important; for example, the project must cost no more than £50k, be delivered by a particular date, or contain certain features.

The triple constraint is about balancing each constraint to reach a successful conclusion. As the project progresses, the project manager may find that any changes impact one or more of the constraints. What might happen? Here are some examples:

1. During an automotive engineering project, an unexpected budget cut is imposed on your project after the company posts poorer than expected 4th quarter financial results.

**Impact:** Scope is cut, quality is reduced, and the schedule is pushed back so that cheaper resources can be found. The most significant constraint, in this case, is the cost (the money the company is willing to spend).
2. During a project to create a new mobile phone handset, your customer asks that the launch date is brought forward two weeks to coincide with a major industry show.

**Impact:** Costs increase as more people are added to meet the new deadline. Some features of the product are removed and put into a phase two release to reduce delivery time and meet the new launch date. The most significant constraint, in this case, is time (project schedule).

3. During a software development project, your customer increases the scope. The client asks that new features be added to the software after learning that a competitor’s product will be in direct competition with their own. It is important the product includes these new features if it is to compete successfully.

**Impact:** The budget and schedule increase as a result of pushing up the final delivery date. More people are added to minimise disruption to the project schedule, thereby increasing the project’s overall cost. The most significant constraint, in this case, is scope (features of the product).

In each of these examples, it is the project manager who needs to rebalance the project to meet new constraints and deliver success for the customer.

The adage, *Fast – cheap – good: You can have any two*, has more than a grain of truth. Rarely do project managers find that they have the budget to deliver top quality on time. More often, a project manager needs to weigh one constraint against another to reach the best result.

As a project manager, you need to educate your customers about project management’s triple constraint, create the best balance, and be aware of all changes that will impact cost, time, and scope.

The triple constraint represents key elements of a project that, when balanced well, lead to success.