

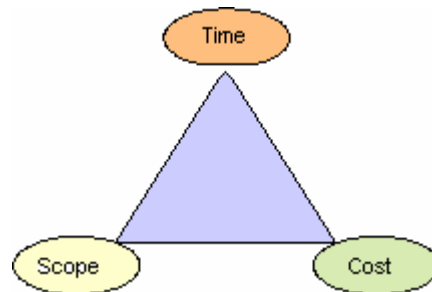
Ode to an Egyptian

by Beth Erwin

We owe a lot to the Egyptians – the invention of mortar, hieroglyphs, even the fact that you eat a bowl of Cocoa Puffs © every morning can be attributed to them, at least indirectly. For me, though, the greatest contribution the Egyptians made to our culture and, specifically to project management, was the pyramid.

According to dictionary.com, a pyramid is defined as “A solid figure with a polygonal base and triangular faces that meet at a common point.” In other words, three triangles that lean towards each other, all connecting seamlessly in a three-dimensional shape. And it is at the triangle where this discussion will begin.

Every project, no matter how big or how small, is subject to three primary constraints – scope, cost, and time. These triple constraints are most often depicted as a triangle, with each point representing one of the constraints.



The first constraint we'll discuss is scope. I could throw another definition at you, but I think scope is best described with an analogy. Pretend you're a custom home builder. A new neighborhood is about to start construction and you are one of three builders that have been contracted to create the houses in that neighborhood. There are 25 lots but your company is responsible for Lots 1-12 only. Lots 1-12 represent your scope. You are only responsible for Lots 1-12 and will build only those homes, sod those yards, and plant those trees for only those lots. Why does that matter? Because houses cost money and they take time to build. And as the builder, you've created a budget and a timeline for 12 houses, not 13. You've also calculated your profits based on how much you can sell those 12 homes for in the open market. Taking on an additional house that wasn't planned for is going to blow your budget and your schedule, not to mention eat away at your profit. Which leads us to our next constraint, cost.

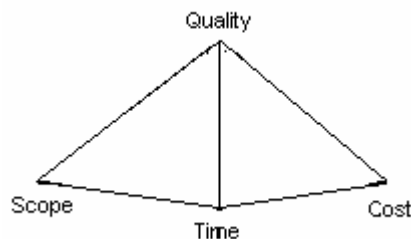
Cost is based on effort, the literal number of hours you spend on a given task, and the price of the materials and services you may use during that task. You may take 6 months of calendar time to create a single house but the odds are you have not spent 100% of your time on that house. Most people, whether

they're building a house or creating a web application, are splitting their time across several projects so their total allocation is shared. As a consumer, you shouldn't have to pay for the time your contractor spent on someone else's house, just the literal time spent on yours. As a project manager, you are responsible for the cost of only those houses you are responsible for building and no one else's. Once you know the effort, calculating cost (at least the man-hour portion) is simply a matter of multiplying the effort times the wage per hour you pay for a given worker. So if your framer gets paid 125.00/hour and the task is 50 hours of effort, the cost for that task is \$6,250.00 (plus materials).

The last constraint on our triangle is time. Time is duration in the world of project management and is calculated by dividing the effort it literally takes to perform an activity by the allocation of the worker assigned to the task (effort/allocation=duration). The calculation can get a little fancier than that, but that's the basic equation. If your plumber says it will take her 100 hours of effort but she only works 2.5 days of a 5-day work week, her allocation is 50%. The task that takes 100 literal hours of time will actually require 200 hours of calendar time (25 days assuming an 8 hour day) to complete.

Now this is where it starts to get interesting because as you can see, the triple constraints all affect one another. Getting a project done faster is always better, right? Well, that depends. You can add more people to your project and probably shorten your duration, but as soon as you do that, your costs went up because you now have to pay 20 people instead of 10. Perhaps you've just been told that you've just lost 100,000 of your original budget unexpectedly but you're still expected to deliver all 12 houses. You can do that but it's going to take more time because now you have fewer people to perform the work. Management wants an additional 3 houses but they still want you to hit your original deadline? Fine, but I'm going to need a lot more money. The triple constraints can be the bane of a project manager's existence but also his or her savior because it is the ultimate tool for negotiation. As long as you have one variable to manipulate and you know which variable is most important to your management team, you're golden.

Now at the beginning of this article I promised you a pyramid and a pyramid you shall have. You see, the triangle you're manipulating isn't really a triangle at all, it's three triangles all connected together to form a pyramid. And at the pinnacle of that pyramid is one last interactive constraint, quality.



Now I'm no quality expert, but I know a few. Quality is "the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs" (dictionary.com) Rephrased to fit our analogy, quality is building those 12 houses according to spec in a way that either meets or even exceeds the buyers' expectations. If you said you'd build that 2-story house in 6 months on a 2 acre lot with 5 windows, a 3-car garage, and charge \$300,000 for it, then that's what you need to do. And as you can see by that example, quality is affected by the other three constraints. If you have a limited budget, and who doesn't, there are only so many features that house can contain. Being limited by your schedule of 6 months affects how much you can do in that timeframe which also impacts the quality of the house you ultimately build. The reverse can happen, too. If upon final inspection you find that you're missing a window and the garage is 6 inches narrower than planned, you're going to have to spend additional time and money to correct it. (That is, by the way, why you don't wait until the end to inspect your house, but that's another article for another time.)

So there you have it, everything I know about the pyramids, at least as they apply to project management. Memorize that shape and what it represents, learn to manipulate its points, and I promise your life as a project manager is going to be a lot easier.

And you thought we were going to talk about Egyptians.