

Quantum Mechanics, Buddhism and Projects

by Rolf Goetz

Every once in a while I run into fellow requirements engineers who seem to ignore the fact that the holy project objectives trinity of Time, Budget, and Scope is all about interrelated, inseparable ideas. Why are they ignorant? After I heard about recent insights from quantum mechanics, an explaining theory formed in my head. I will add a little cognitive science and Buddhism to support my argument.

Conclusion: people might have a mental model too simple for covering the actual interrelation present.

"Time, Budget, Scope: pick any two." - Greg Larman

This is a fluffy topic, more fluffy than the concrete principles, rules and processes I usually write about over at [Planet Project](#) and [Clear Conceptual Thinking](#). However, it is an interesting one I wanted to write about for quite some time. Thank you to Richard and Rob for letting me share it.

Quantum Mechanics and Buddhism

Recent results from quantum mechanics could be fruitful in finding an answer. Let us have a look at what the scientists found out.

A neutron consists of 3 quarks of different 'colour'. Say, they are red, green and blue. If you really want, you can separate one from the other two. You will need A LOT of energy to do that, but you can do it. In the same instant you separate the, say, green quark, two things happen simultaneously: Next to the two remaining quarks, a fourth quark comes into existence, a green one. And, next to the separated quark, two more quarks form, one red one blue. In effect, you get two neutrons from the process of splitting one into pieces. (One can argue that splitting must me the wrong word here.)

So it seems we can separate things from one another. However, we can not observe something without observing its environment.

This, however, is also a key contribution of the Buddhist mindset to cognitive science. Everything is bound to everything else, inseparably. You can contemplate about one thing, but in the end, you will see that you cannot ignore its environment. Problems are red, green, AND blue.

Thinking about the world seems to be a complex thing. The world seems to be a complex thing. There are scientists who think the world is of infinite complexity. This is beyond our thinking

capability, at least for most of us, most of the time and in the light of a normal project. If you do think about it, you will one day see clearly, as the Buddhists put it, and end the pain.

Cognitive Science

Back to some more worldly things like projects. In thinking and talking about projects and the subject of projects, we strive for useful models of the maybe indefinitely complex project world. A model is some chosen section of the world that is sufficiently simple and un-complex to let us think about it. We separate green things from red and blue things to be able to act on the insight we gain. The more useful our models are, the more helpful they are for our progress with the project. A model is useful if its complexity is somehow close to the complexity of the relevant part of the world, i. e. the project. In quantum mechanics, the quark model is a way to explain where all the energy goes that you need to separate the quarks. Therefore, it is useful to choose this model. However, if the scientists find some phenomenon that cannot be explained by the above-mentioned model, they try to expand the model somehow. If you cannot ignore things from outside your model, you have to incorporate these into your model.

Projects

In the quotation on top, Greg Larman and many people with him did exactly that. He recognized it does not make sense to separate the different colours, i. e. time from budget and scope, budget from time and scope and scope from budget and time. Of course, he can think about one of these objectives at a time, but he cannot ignore the two others.

Nevertheless, this does not keep people from picking out one or two objectives and ignoring the rest. Their mental model is not complex enough. This simply might stem from their point of view. Maybe it is not useful for some stakeholder to think about cost, as she has nothing to do with the project's budget. Or it's not useful for me to think about time, because I have a heap of other things to do, so why bother about a timely project end. As the requirements engineer however, your model is complex enough and incorporates all of these aspects of project delivery. You have to see some way to provide yet another small or big wonder to your stakeholders ;-)

Thinking about the PURPOSE of the model is the key here. Reflect on the other party's goals in order to figure out why people DO pick out the green quark and ignore the rest, not seeing the red and blue quarks nearby. You can also use the different purposes of your and their model to explain why you need to find a balance and they don't. Or why you cannot fix Time, Budget AND Scope at the same time.

If you are a requirements engineer, business analyst or a method-savvy person in general, read more about project objectives and ways of incorporating real-life models into daily work at my wiki at <http://PlanetProject.wikidot.com>. You're welcome to contribute! Or drop by at my blog

at <http://www.clearconceptualthinking.net>. I'd be happy to discuss this article's topic there. However, you could as well drop me an email: rolf.goetz@gmx.de.

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