Fear of Numbers: the cure might be numbers themselves - used intelligently.

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SUMMARY

Some people fear numbers. Some people love numbers.
I think that some of the people who *fear* numbers, might actually like to use numbers *more*. In fact they might like to use numbers for *reduce* their fears.

Numbers are just a tool for communication of ideas. But like any tool, like a knife, they can be both useful and misused. The fact that they *can* be misused, is not a valid argument for *never* using the tool.

I would like to argue for f*ar more use of numbers*, especially in *planning any projects*, than we currently do.

To be even more specific I would like to argue that all *improvable critical stakeholder values* need to be quantified. I want to argue that the *perceived goodness*, the *effectiveness for our purpose*, of *any* planned 'solution, means, architecture, or strategy' - *should* be quantified. I also think that the 'uncertainty of strategy effectiveness' should be quantified, and that the *credibility* of our evidence and sources for estimates would *itself* be quantified. In summary the risks should quantified.

I would like to argue that a *more-quantified mindset* is a necessity in these times of turbulent technological and economic change. If we fail to use the *quantification tool*, then we will continue with a very high rate of project failure. And we will gain little-or-nothing by *not* using the quantification tool.

I would like to argue that we need to *change the culture* of organizations that plan big projects, corporations, governments, NGOs. We need to change, so that the *really critical* improvement factors, the top-level *critical stakeholder* objectives, are *always* quantified.

In addition to quantification of our 'critical ends' the the expected results of any *means* to those ends, i.e. the strategies and the architectures, are *also* quantified, in the early planning stages; as a 'budget' for comparison against actual future numeric results.

If we fail to quantify both our critical ends and means, then we will also continue to deliver the results our sponsors and other stakeholders rightly expect. We will continue to be a professional failure.

Why people fear or dislike numbers.

Today, in discussion with a professional friend in a government organization, we took a look at their planning process and examples. The vast bulk of the plans (objectives and strategies) at 5 levels (from Minister, to Operations) were the usual 'nice sounding words' (sometimes called management BS). There was only one number in a page of about 25 objectives. The number was

a quantified demand for results, like: '19,000 people handled per year'. This number was considered very unrealistic by the agency, but it was the wish of their political masters. They were at the same time, being fed a lot of money (very quantified) to make this 'impossible' result happen.

My professional friend pointed out that the dominance of 'nice words' was not just a sign of incompetence. Their culture was that they really *wanted* the woolly phrases. *They could hide behind them without taking responsibility for a particular result.*

I am sure many people would prefer to avoid responsibility by being vague. Even when they actually *care* at some level, about the results. Why create potential problems for yourself, unnecessarily?

Behind this is a *lack of motivation* to deliver impressive results, combined with a fear of pain if they commit to specific numeric results.

What can we do to fight this 'weak' requirements culture?

The problem is the *leadership*. The leaders of this agency, and their government masters should, in my view, insist on the following [1, gives practical methods for the ideas below]:

1. **all critical results defined numerically**: to be clear and unambiguous.

2. make a clear distinction between ***desired*** **results** (Wish), and ***committed*** **results** (Goal).

- anybody can 'desire' specific results: even impossible ones, uneconomic results, as well as results that cannot be delivered in the time frames desired.
- but the people who wish for results, need to take responsibility for giving projects the necessary resources to deliver them.
- If the project analysis concludes that they do not have enough resources (money, people, time, technology) then the requirements numbers reflect only a 'desired' result. but *not* a result we can *expect* in practice!

3. Document the *stakeholder source* of every individual requirement: exactly *who* is valuing and sponsoring this requirement? *Responsibility* is the idea.

4. Document the expected long-term values, economic and non-economic, of reaching all required levels. This will help us understand, and justify, the resources, that need to be used, to attain them.

Let me be very clear. In this case I would blame the responsible government minister personally, and the head of the agency personally. I would call them incompetent for their job. The problem is that they are intelligent, educated and well-meaning people. They are, like all others in similar jobs, *victims* of a *second-rate culture of management*: 'led' by our business schools. This problem is difficult to deal with, when most everybody around you is 'equally incompetent'.

Our only hope is that some individual leaders decide to break out of this pattern, and show real 'results leadership'. Shock everyone: change the world! Be *clear* about expected results.

Some reasons why people fear numbers.

If managers fail to distinguish between their *desires* for numeric results, and realistic properly resourced *realistic expectations* of those results, then people will naturally fear being held accountable for unrealistic ('desired' but not sufficiently resourced) numeric results.

If numeric requirements are not treated *seriously* and *logically*; then people will naturally fear them.

In 'Value Planning [1] I have detailed what is meant by '*seriously* and *logically' but here is a summary idea of what is implied:*

- The above-mentioned distinction between *desired* numbers and *committed* numbers is carefully maintained. Between a 'Wish' and a serious 'Goal'.
- Each requirement contains rich 'background' information about sources, sponsors, stakeholders; and their *relations* to the requirements. See [1] 'background information'
- There are clear distinctions with *different* 'required levels'; for critically-different types of people, areas, tasks, and environments: not just *one single* 'required level' for all such cases (see [1] Scale Parameters)

My view is that people rightly fear 'unreasonable misuse' of numbers. So we need to create a better culture where people trust the use of numbers as reasonable.

There are many environments where numbers are normally respected and trusted, in sports, professional ethical media, science, engineering, and statistics. But there is a deep culture of respect for use of numbers which characterize those number-friendly environments.

We need to create such *number-trusting cultures* in areas where such trust is weak, such as government improvement projects, and IT projects.

Some reasons people misuse numbers.

Sometimes misuse of numbers is simply due to lack of appropriate education. We don't know better. I have struggled with this problem all my professional life personally. We all do if we care about truth.

Sometimes people misuse numbers for personal greed and selfishness. But we can fight that to some interesting degree by exposing them in public. And we have numeric tools to fight that misuse.

One subtle reason for problems with numbers is that all real projects have a problem of *multiple requirements at the same time*. These 'multiple requirements' are for values we *desire* to improve, resources we *have to* limit, and constraints - such as 'being legal'.

These multiple requirements are inherently in conflict with one another. Not necessarily a deadly winner-take-all conflict. But a conflict which requires a careful process of balancing things; so that we get *reasonable* values for *reasonable* resources, within *reasonable* constraints.

I know I need to do this **balancing process** using *several* tools.

- The most important one is *quantification* for clarity, and also to permit logical decisions.

- Another important tool is the ability to model all the concurrent competitive requirements one a single summary overview. I use an Impact Estimation Table to model this [1]. Others might use Balanced Scorecards, or Quality Function Deployment; which I think are both weak models, but at least they *try* to see the big picture of the multiple competing forces.
- and finally I will usually need to use a gradual process of partial (2% for example) value delivery incremental cycles, with numeric feedback about values delivered and resources consumed. Then we can dynamically reprioritize, like our body does, to attain reasonable balance [1, Evo method].

If we do not use this set of ideas to deal with the inherent complexity of everyday projects, then we are bound to get stuck with unreasonable fixed numbers of 'expectation', and have no reasonable way to *re-prioritize* things, when new facts and experiences emerge.

The interesting thing about a number is not the fact that it is fixed, but that it *can be changed to reflect the truth*, and and can reflect *change* so well! Numbers, used intelligently, are meant to be our servants, not our masters.

If they are perceived as our 'unreasonable masters', then that is because we have not used them intelligently; it is not because the numbers are stubborn and evil by nature.

How to expose people who misuse numbers

We need a variety of tools to expose the misuse of numbers. Such 'fake news' exposure is preferable to be done 'gently and helpfully'. But sometimes I think violent written-and-oral attack might be necessary, when life, health, and public money, for example, is at stake. To do that you need to be an *idealist*, willing to make enemies. I will happily attack people and organizations that are clearly *harming society* through their *ignorance* or *greed*. Gentle persuasion will not usually be effective in these cases.

But the nicest situation, and I find it all the time with my students, clients, and professional friends; is that good people really do want to learn better, and they will take gradual gentle persuasion.

But how?

My favorite set of advice is my 12 Tough Questions [2].

For example

"If your idea is as good as you say it is, I'm interested. But could you put a number on 'extremely' please?

60% sounds impressive! Could the final result for us, for any reason, be worse? And why?

Would you be willing to put that impressive estimate into our contract on a no-cure no-pay basis?

You seem to have the most amazing product. Could you supply us with more details about the measurements *and the* sources *for the impressive claims you just shared with us?*

People who misuse numbers, will quickly be exposed; and with luck they will decide to play a more rational game with you."

Let them know you are *not* a gullible fool.

How to motivate people to use numbers as a healthy tool.

Reward and praise people for being *honest* and *transparent* about problems: especially at early stage of planning

Give people adequate time to spell out, and to document, the realistic richness of requirements and projects. *Adequate* does not mean massive, big-bang, feasibility studies. I am quite fanatic on *limited* initial startups [3], followed by *early* and *frequent* cycles of value delivery, followed by *confrontation with reality*, and then consequent incremental cumulation of necessary step detail as a project progresses. In short it is smarter to let real detail emerge stepwise than the consider it theoretically in advance.

Pay or reward people in relation to numeric values actually delivered [4].
We have a very unhealthy culture in government and IT projects. We pay people and managers for 'showing up on the job, and putting in the hours'. We pay them for consistent repetitive and large-scale failure to deliver expected results.

Of course, in a culture that does not have *clearly stated numeric values*, there is no basis for rewarding numeric value delivery.

The second problem is that it is too risky, and difficult, to pay for an entire large project on this no-cure basis. It is only practical to reward on a continuous and ongoing basis, of smaller (2%) delivery cycles. This requires a discipline of dividing bigger projects into much smaller value delivery steps [1, Chapter 5 Decomposition]. Most people have not learned this discipline of decomposition into independent value-delivery increments; but my experience is they can be trained 'same day' to understand, and do it in practice.

The Do List of healthy use of numbers.

So here are my suggested actions for 'driving out fear' (Deming) of using numbers to manage change projects.

1. Management must be clear that they *expect* numeric value and quality requirements.
2. Professionals must rewrite management BS into numeric statements, and get management to approve them.
3. Expect *numeric value delivery,* early and continuously, from all 'improvement' projects. This is an easy 'Lean' test of domain-and-technical competence.
4. Contract for numeric stakeholder-value results, and pay well for them, early and continuously.
5. Teach people the simple crafts of *quantification*, *value decomposition*, and *rich requirement background specification*.
6. Do not accept negative nay sayers, who say 'this cannot be quantified' or 'this cannot be decomposed to early small delivery steps'. They do not know how to do these things, and they are so arrogant that they assume it is *unknown* and *impossible*! These people need help.
7. You will probably have a long road to changing your unhealthy numeric culture. But you can more probably improve your project culture, and show a good example. Take local initiatives: just do it on your own daily work.

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