

Smart Decision Making

or

Why Software Organizations Force Smart People to make Dumb Decisions

D R A F T B

C. C. Shelley

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Oxford Software Engineering
9 Spinners Court, 53 West End, Witney, Oxfordshire, England, OX28 1NH
shelley@osel.netkonect.co.uk

ABSTRACT

Smart decisions are elusive (even the meaning of smart is elusive). This paper considers what a decision is, its structure and characteristics, and identifies what is required to make decisions smart.

1. Introduction

Decision making pervades software engineering. But understanding of the decision making process is limited. It will remain difficult to improve decision making capability until it is better understood. The paper proposes a technique for reasoning and analysing decisions, both planned and actual.

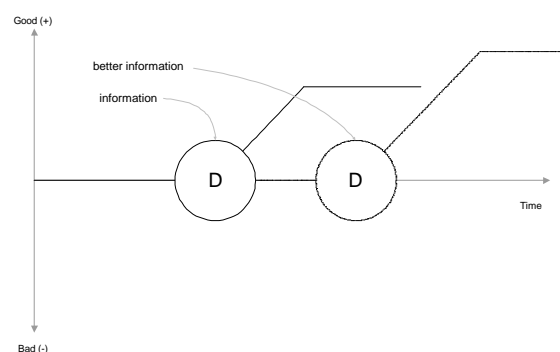
2. Anatomy of a Decision

Decisions are events in time that, from an initial set of conditions intend to change circumstances to a better set of conditions (although from time to time decisions produce no change or circumstances change for the worse). In effect a decision is a conscious, and potentially risky act to make a difference.

This is shown in figure 1. A timeline (set of circumstances or conditions) continues until a decision is made at which time a change to those circumstances occurs until a new stable set of conditions is achieved. In the illustration the change takes some time resulting in an improved situation. This is indicated by the timeline after the decision

being higher than before – higher is better. A poor decision would have resulted in a timeline lower than the resulting timeline or taking longer to reach the new set of conditions. (In addition a better decision is a more predictable, less risky decision, perhaps shown by the degree of resolution of the post decision timeline.)

A really poor decision would be shown by a descending line resulting in a set of circumstances worse than before the decision was made.



Smart Decision Making: Anatomy of a Decision

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Figure 1.

The quality of the decision will depend on the information available. A better decision will be made if better information is available. This too can be shown. In the diagram by waiting for more information to accrue a better decision is made.

Deferred decision making as proposed by lean manufacturing practice is an example of this. However leaving the decision too late can result in a poor outcome.

The analysis of available data can also result in better information, making better decision a making possible. The best information is hindsight, but, for the foreseeable future, this is unavailable for most decision makers.

This simple graphical representation may provide the ability to analyse decisions. Decisions can be compared, with their outcomes, in terms of changed conditions, the time to realize change and perhaps other characteristics made visible and quantifiable. This is show a in figure 2.

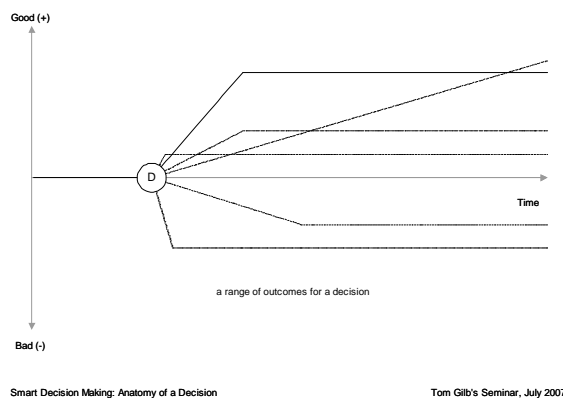


Figure 2

Decision making strategies, planned and actual may be made visible and easier to compare and assess. Is a strategy of few critical decisions, or one with many less critical decisions the best approach? Figure 3 give a hypothetical comparison.

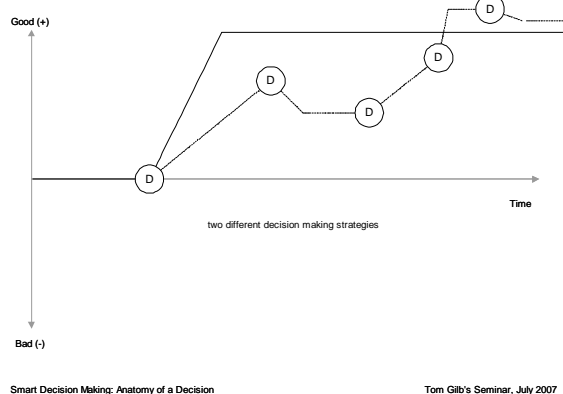


Figure 3.

This ability to visualize 'decision space', using an evaluation of benefits over time suggests elaborations that could present a richer picture. The background to the decision, or decisions, could be illustrated with converging constraints restricting decision making option, conversely visualization of increasing information could show potentially better decision making opportunities. Trigger points and other events could be illustrated too.

(In practice it is very difficult to get good information about the history of decision making in the context of software development. Research in this area has used searches of organizational and project documentation and various filtering techniques to identify decisions and gain an outline of decision making approaches. This appears to show almost all decision making to be concentrated on day to day operational matters with little or no evidence of software process decision making. There is almost no evidence of decision making determining the way software developers work.)

3. Decision Characteristics

The fundamental characteristic of all real decisions is that they are made by people. People are influenced by, and react to, more than just the available information. Circumstances, beliefs and attitudes also play a role in the making of the decision:

Decision characteristics include:

The existence of the decision: has it been made or not. Uncertainty or confusion can result in no decision. The absence of a decision can sometimes be detected as strongly as its presence. (However in some cases a lack of an explicit decision can be wise – masterly indecision – but this is usually because the decision maker has decided not to decide.

Visibility. The visibility of decision making can be important. There are three levels. I can decide and tell you what I have decided (and maybe why). I can tell you I have decided, but not tell you what, and I can decide, but not tell you.

Constraints. In some instances I have no choice. For example, whether or not to pay tax. In this case it is when, rather than whether. Some decisions require the selection of one of two options – when facing a dilemma – this or that. And some require the identification of a way forward – what do I do?

Risk will influence decision making. What are the consequences of a wrong decision? Should a decision making strategy be one major decision that it is crucial to get right, or numerous minor decisions

where corrections can be made if necessary? (Deciding on the strategy is, of course, a decision itself.)

Are decisions made individually or collectively? Does the group have a better decision making capability than an individual – the wisdom of groups, or is it prone to bias and irrational group dynamics, or recklessness due to a lack of individual accountability?

History may influence, or distort decision making: ‘That’s the way we’ve always done it.’, or ‘We’ve invested too much to turn back now.’

Polarization: This is a reaction to others: ‘If they do that then we’ll do this.’ An unthinking or biased response that effectively passes the decision making to others.

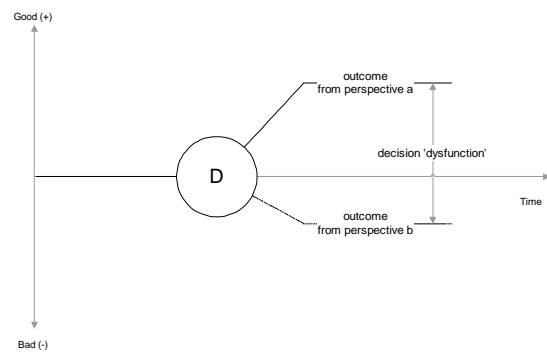
Mesmerized, by numbers. Where information is presented in numerical form, poll results, prioritised lists etc., it often carries far more weight and influence than it deserves. People’s critical faculties can desert them when presented with numerical evidence that they have had no part in assembling or analysing.

These influences and reactions suggest that the context for decision making, and the decision making process itself is complex and subtle. And so perhaps is the outcome:

It has been assumed so far that there is *an* outcome, good or bad that can be compared with the circumstance prior to the decision being made, but with the human element involved the outcome can be viewed from a variety of perspectives and the measure of goodness will vary.

The two primary perspectives are those of the decision maker, and those of the context: the peers, team, managers and organization within which the decision maker works. The organizational perspective will tend to be aligned, at least overtly, to the explicit, analysed, technical aspects of the decision: is it the optimum technical approach. While the decision maker will have considered these aspects, there is another dimension, the personal dimension. The decision maker wants to have made the best decision to serve their interests, bluntly the ‘What’s in it for me’ (WIIFM) factor.

Sometimes these viewpoints conflict, and when they do there is decision ‘dysfunction’. The degree of decision dysfunction is the amount of deviation between the benefits of the decision to the decision maker and the organization.



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Figure 4

This is shown in figure 4. In this case the decision maker has a serious problem. From perspective a, the nominal technical decision outcome is good, but will present the decision maker, perspective b, in a worse position.

This ‘decision dysfunction’ can manifest itself in a number of ways, sometimes quite openly when decision makers and their peers know themselves to be powerless to make the right decisions:

Where the technically correct decision is unacceptable to the organization the decision maker will be inclined to make a technically poor, but politically correct decision. This is the most common type of decision dysfunction. It manifests as a feeling of helplessness by the decision maker and “I know we shouldn’t, but...” [have no choice] is the tell tale phrase.

The opposite dysfunctional decision is where the decision maker does make the technically correct decision, despite its being unpopular. In this case the decision maker risks their reputation and perhaps their job: “I’ll probably get fired for this but...” The sacrifice is often wasted as the decision is usually rejected.

Another type of dysfunction is where the decision maker make a politically acceptable, apparently sound decision, but knows it is not the best technically: “I’d be a fool not too.”

The common element is the different perspectives. The decision making process undertaken by the decision maker in these situations suggests game theory.

Where the decision maker has a different perspective from that aligned to the organization or context within which the decision is made the decision can be ‘corrupted’.

4. Smart Decision Making

To eliminate this ‘gaming’ on the part of the decision maker requires the elimination of the different perspectives and the decision dysfunction.

It would seem reasonable that if the decision maker were accountable for their decision, and the decision was visible – what is decided and why -, and that peers and seniors were engaged in the decision making process; that the decision maker was working with good information and ‘in synch’ with the context within which they worked, that is aligned with the beliefs, norms and values of the environment, then the decision making process is less likely to be dysfunctional, and compromised. It is more likely to be smart, both before and after the decision is taken¹

These characteristics are essentially a sharing of the big picture. The WIIFM and the decision making process are aligned so that WIIFM does not distort the decision a making process.

So a smart decision making process requires:

1. Shared values and principles
2. A known and agreed purpose – why is the decision being make
3. The best analysis of the best available information
4. And a decision using the information, judgement and intuition.

¹ No analysis of what ‘smart’ means is made here. It is assumed that it is the best decision, as assessed both before and after the event.