

# Preceding Problem Structuring: The Nature of Emergent Decisions

Stuart Dillon

John Buchanan

Jim Corner

Department of Management Systems

University of Waikato

New Zealand

[stuart@waikato.ac.nz](mailto:stuart@waikato.ac.nz)

---

## Abstract

This paper examines the nature of decisions made by senior executives in both private and public sector organisations. We focus on the inherent structure in emergent decision problems, and how decision problems come about and arrive 'on the desk' of senior executives. A case study approach is used comprising sixteen in-depth interviews with senior executives, discussing one specific decision problem, with a specific emphasis on the manner by which the executive becomes aware of a decision problem, and the general nature of the problem. Our research shows that decision problems arrive variably, typically unstructured and that executives do little work in structuring them. The nature of decision awareness was captured using three dimensions: top-down/bottom up, foreseen/unforeseen and reactive/proactive. Implications for prescriptive, decision making models are discussed.

---

## 1 Introduction

Much of the existing prescriptive decision making literature is concerned with solving relatively well-structured decision problems and attaining optimal or at least very good outcomes. Relatively little consideration is given to how a given decision reaches the point of being "well-structured" before the more straightforward choice activities begin (Dillon, 2002).

This paper takes a descriptive approach to investigate the nature of decision emergence within the context of real, executive decision situations. A multiple case study approach is used that allows decision making executives to describe the manner by which they became aware of a decision problem and their perception of that problem.

The motivation for investigating decision problem emergence derived from the fact that much of the existing problem structuring literature simply assumes that the decision problem has emerged and that there is no necessary relationship between that emergence and the subsequent structuring process (e.g. Arbel and Tong, 1982; Farquhar and Pratkanis, 1993; Butler and Scherer, 1992). Others (e.g. Pounds, 1969; Schwenk and Thomas, 1983; Lyles, 1981) do give consideration to the understanding and recognition of the decision problem, they again fail to clearly relate the nature of the emergent decision problem to the ensuing structuring process.

Our focus on the executive level of decision making is deliberate. The executive decision-maker is unique in that he or she is generally at the top of the decision-making “food chain”. While still accountable for their actions (boards, directors etc.) executives are not usually able to pass their decisions to somebody higher in the organisation, i.e., the buck stops with them.

We begin by defining the boundaries of the system of which we are interested. In terms of problem structuring—the design phase of Simon’s (1960) model—one boundary is the point at which the (principal) decision-maker first interacts with the problem. Any previous structuring by someone other than the principal decision-maker can be thought of as contributing to the definition of the decision problem; i.e. the outcome of Simon’s (1960) intelligence phase. The nature or state of the initial decision problem, and particularly the decision-makers’ perception of it, has significant bearing on the eventual processes employed by the decision-maker for making an informed choice. These processes include both the preparation of the decision problem (structuring) and the preparation of the decision-maker himself or herself. Also, the familiarity of the decision-maker with the decision problem is an important consideration at the start of the structuring process.

The other system boundary is the point at which structuring concludes and the choice phase commences. This boundary definition presumes a sequential process and distinct start and end phases within Simon’s (1960) three-phase decision-making model.

This research attempts to address the following research question: *In what state are decision-makers 'receiving' decision problems?* The first step in attempting to understand the process and behaviour of naturalistic problem structuring involves identifying the form or “state” in which decision-makers are receiving their decision problems; i.e. the point in time at which the decision-maker is first aware of the need to make a decision, often by being made aware of an issue/problem/crisis (Nutt, 1984). This might be when the decision-maker is informed by a senior member of staff that a decision is to be made. Alternatively, it might be the result of an accumulation of uncertainties such that the decision-maker him or herself recognises that a decision is required. We would not expect all decisions to emerge in the same way. Nor would we expect their appearance to be consistent. We also address some subquestions: *How do decisions emerge? In what form? And most importantly, what influence does that have on the approach taken by the decision-maker in structuring decisions?*

The research involves identifying not only the types of decision problem that the decision-makers are receiving, but also the conditions under which they become aware of the problem and the relative state of those problems in terms of their progression along the decision-making process. Such a progression is likely to be determined by things such as, but not limited to, any previous processing that might have occurred (e.g. by other decision-makers) and the general nature of the decision problem (well or poorly defined, complex or trivial).

## **2 Method**

The selection of decision-makers and, by implication, the decisions for the multiple case study is important. Decision-makers were sought who made non-trivial decisions and decisions that typically arrived unstructured (part of the wider study was recognise and understand structuring behaviour). Contact was made with medium-to-large organisations in the local area, outlining the study and its purpose, and noting the important requirement of a recent,

non-trivial decision for investigation. Of the eighty-three contacts made, thirty-six responded, of which twelve agreed to participate. A further fifteen organisations were then contacted of which four agreed to participate—giving a total of sixteen participants. The four characteristics of the 'ideal informant' posited by Neumann (1994); viz. totally familiar with the culture, currently involved in the field, able to spend time with the researcher, and non-analytic applied to the sixteen participants.

The interview process was pilot tested and a pre-interview information sheet was sent to all participants. Each interview began with the interviewer outlining the purpose of the study and the interview. Confidentiality agreements were approved, questions answered and then the interview proper began. The participant was provided with a simple definition of problem structuring. Specifically: "*Problem structuring is the preparation of a decision; the understanding of the decision problem, the collection of the relevant information and the formulation of that information such that a choice can be made.*" The interviewer ensured, through the course of the interview, that a common set of questions were addressed, although the order was dictated by the specifics of each individual interview.

The issue of decision state, or the form of the decision problem as received by the decision-maker, was addressed at two principal times during the interview. In the first instance, in describing their 'significant' and 'recent' decision(s), each participant was asked to begin their description by outlining how they became aware of the need to make a decision, and in what state the decision problem was when they received it. They were later asked to describe the nature of the decisions they generally had to make within their managerial roles; again how they became aware of the need for a decision to be made and the nature of these decision problems. The nature and adequacy of the information that came with the decision problem was also questioned, as was the associated difficulty in obtaining further information.

To begin, some comment needs to be made regarding the executive decision-makers' familiarity with the emergence and state of their decision problems. Having already informed the interviewer of the decision to be described (via mail before the interview), each interview was begun with the following request being made of the decision-maker by the researcher: "*You mentioned that you have recently been involved in the decision to [Decision]. Can you describe to me how that decision problem firstly came about, that is, how you became aware of it, and then the steps that you followed in making that decision. I am particularly interested in the steps that you followed preceding the actual making of the final decision.*" The first part of this statement was intended to elicit from the participants the various decision problem states and types that were present.

The data gathered in this study is processed and analysed using an adaptation of the data analysis aspects of the grounded theory approach. This adaptation has occurred such that the procedures best match the subject of the study and the theoretical underpinnings of the research and the researcher. The flexibility that permits such an adaptation is prescribed necessary for the successful implementation of the grounded theory approach (Strauss and Corbin 1990).

### 3 Results

The understanding of the manner by which decision problems emerge, and the general nature of them at the point at which they were first recognised, was generally poor. Furthermore, this often required significant coaxing by the researcher so as to help participants recognise the type of decisional cues that first indicated the existence of a decision problem. Once an understanding of what constituted the first instance of a decision problem was gained, description of the decision problem state appeared less challenging.

One of the objectives in addressing the issue of “decision emergence”, or decision problem state, was to determine whether decision problems emerged in a top-down or bottom-up manner in terms of the organisational hierarchy. Did the decision problem get identified by the lower level managers and then get “pushed” up the hierarchy to the executive for him or her to structure? Was it the executive who first became aware of a decision problem and then delegated or “pushed” the processing of it down to whom he or she thought was at the most appropriate decision-making level? In most situations, the executive would prescribe how the structuring would occur, and then have subordinates carry out that prescription. This of course excludes those decision problems which neither move up nor down (i.e. are processed entirely by a single individual). A search of the literature failed to find any specific mention of the upward movement of decision problems within an organisation’s hierarchy. Delegation, however, is widely reported on (e.g. Lee *et al.*, 1999; McConalogue, 1993; Hind, 1991). In general, while decision problems were found to be “pushed” both up and down the hierarchy, it was by far more common that a problem would move up through the hierarchy, often until it could simply go no further, i.e. reached the executive level at which time the executive would prescribe a method of structuring and delegate the implementation of the structuring process. In most cases, this transmission did not occur by accident; rather it was as a result of an existing policy having been put in place instilling such a practice throughout the organisation. For example: “...*there might be an issue that will percolate up.*” This practice occurred in both public and private sector organisations.

The state of these upward moving decision problems varied from the unsolved “I don’t know what to do” end of the spectrum, to those where a decision had effectively been made, but needed rubber-stamping. Bottom-up decision problems were almost exclusively reactive; in response to (often undesirable) situations coming about that needed some sort of directional action. For example, the decision to purchase a new computer system was reactive to the complaints that emerged from the lower level users of the existing system. Conversely, proactive decision problems were typically initiated by the executive and were either processed exclusively by the executive, or defined and partially structured and then assigned to the appropriate decision-maker within the hierarchy below for either complete or partial processing.

Most executives believed they had instilled within their management team a structure of decision-making responsibility, such that the executive only became involved in a decision process that absolutely necessitated it. As one participant stated: “*If I am a good chief executive, I have ensured that there is sufficient responsibility and accountability down the line so that I am not sitting here like Solomon making decisions on things that other people can make decisions for.*”

### 3.1 Top-Down and Bottom-up Decisions

As previously noted, a large number of the participants discussed their decisions in terms of whether they were bottom-up or top-down decision problems. Bottom up decision problems were those that were first identified by a person below the executive within the organisation that filtered up through the hierarchy, for whatever reason. This often occurred when the decision was of significant importance, or was outside the subordinate's jurisdiction. Frequently in this situation, the executive would pass the decision problem back down to whoever gave it to him or her, and ask for some or all of the processing to be done before receiving it later, in a more defined or structured state. For example, one executive described a decision process based upon the development of the strategic goals of the organisation. Five overall goals were identified, and each of his senior staff were required to take ownership of (at least) one so that he was able to decide upon the final makeup of them with the best information available. *"I said to staff, they could be involved with all five, but they had to be involved with one. So everyone has got to take ownership of one, but if you want to, you can be part of the decision-making group for the five. So those people then went back, they have had their series of meetings, their roles have been refined and reviewed and they have been brought back to me. Now at the end of the day, I can imagine there would be very few changes being made by myself as I then present that to the board as the strategic goals."*

Bottom up decision problems were almost exclusively of the reactive, unexpected type described above, and quite often involved dealing with threats or potential threats.

Conversely, while top down decision problems were also generally unexpected, their undertaking was proactive and viewed positively. These were often high-level decisions that the executive had identified in response to an identified opportunity or as part of the ongoing development of the organisation. These decisions were often concerned with new product releases, new market entries, etc.

While a number of the described decision problems could be viewed as emerging in a top-down or bottom-up manner, this appeared to be based on the nature of the decision itself; whether the problem emerged from the top down or from the bottom up did not seem to have any obvious influence on the process employed in structuring it.

Irrespective of whether the decision problem emerged in a top-down or bottom-up fashion, a number of participants outlined policies (sometimes formal, but usually informal) they had developed within their organisations that stated that they did not want to be given unstructured decision problems. The policy did not specify how structuring should occur; it merely outlined who should be responsible for certain activities. They typically wanted one of two things. They wanted the decision to be made for them in a transparent way so that they could follow the process that had been employed, and either accept the recommendation (rubber stamp) or reject and return it for further development. Alternatively, the executive decision-maker might ask for some initial processing to be completed in terms of data collection; the decision-maker would then make the decision his or herself; accepting the frame that the subordinate had placed upon the decision. Most often in this latter case, the executive would prescribe the method of structuring as with the computer system decision described earlier.

### 3.2 Foreseen and Unforeseen Decisions

A quick breakdown of the decision descriptions provided by the participants, and the associated actions that caused them to be aware of the need to make a decision, produced two contrasting types of decision trigger, the foreseen and the unforeseen.

Foreseen decision problems were generally those that were the result of some form of strategising or planning process within the organisation. They related to activities that were initiated by the organisation (or employees of it) and were typically problems that came about in response to opportunities or as part of the ongoing development and growth of the organisation; they were generally proactive decisions. For this reason, such decision problems were typically seen in a positive light. For a decision problem to be classified as foreseen, it either had to have been initiated by the decision-maker or have been an element of the organisation's typical business activities (for example decision-making is an essential element of the typical investment company). Many of the foreseen decision problems described in the interviews emerged through organisational strategising – the process of setting organisational visions, goals, objectives etc. Although these decision problems often had a degree of risk and uncertainty associated, they were typically decisions that were enjoyed and welcomed, at least relative to other decisions that the executives were forced to make.

Another instance of a foreseen decision problem was where the participants' roles in their organisations were to seek out and make decisions. An example of this was a participant who was responsible for acquiring land for commercial development activities. His role was not only to identify prospective properties, but having done so, he was then also responsible for deciding amongst those as to which amongst them should be purchased and when.

Unforeseen decision problems were typically characterised by those that resulted from, and were reactive to, negative events. Whereas foreseen decision problems were relatively enjoyed, unforeseen problem were certainly not. They were usually a result of threats (both internal and external) and were often situations where the eventual decision outcome would not be measured in terms of its success, but in the minimisation of such things as cost, negative exposure and adverse public response. A decision problem defined here as being unforeseen, is not limited to those that occur from “nowhere” and require instant attention; an unforeseen decision problem is any decision that could not be reasonably planned for. For example, the need to hire a new employee because of a resignation could not typically be foreseen. Although staff come and go, it would in most cases be impossible to plan decision-making around anticipated departures. For some of the larger firms, certain policies might exist, however in this study, little evidence of such was found.

A good example of an unforeseen decision problem was that of a flood management problem. The need to make a decision was not foreseen and was certainly not wished for. Another example involved the poor performance of a product and the decision problem concerning whether it should be left in the market or not. An example of an unforeseen decision problem that had more of the characteristics of a foreseen decision (positivity, etc.) was the decision described by one participant relating to dramatic growth in one area of his business. Rather than initiating the development of his organisation from within, it was as a result of external factors (in this case customer demand) that the need for a decision was recognised, yet unlike most other unforeseen decision problems that were observed, this one was welcome.

### **3.3 Positively and Negatively Framed Decisions**

Following each interview and during the transcribing of the interviews, the main decision described by each was classified as being either viewed positively or negatively by the executive. The subjective evaluation of each was based primarily upon the comments made by the participant. A search through the interview transcripts also assisted in determining the executive's desire to be making a decision. Comments such as "this was an opportunity that we could not afford to lose" or "I didn't really want to do this" were examples of statements implying the positivity or negativity associated with the decision. In all, eleven of the described decisions were deemed as being viewed positively, the remaining five were considered to be viewed negatively.

### **3.4 Reactive and Proactive Decisions**

It was observed that for some decision problems, the executive appeared to proactively search for them; for others, their involvement appeared much more reactive. The proactive-reactive dimension is closely related to the positivity or negativity of the decision. It also has some relationship to decision problem being foreseen or unforeseen. Reactive decisions were those that were typically forced upon the decision-maker in response to a negative or potentially damaging situation. They were often concerned with damage control type issues. An example of such a reactive decision was a natural event, i.e. the flood management decision, which caused significant property damage and had the potential to be life threatening if not properly managed. The decision in this particular situation involved making significant trade-offs with which no single affected party would be completely satisfied; yet equally, no single party would be likely to be completely dissatisfied either. This was a decision that the decision-maker neither chose nor wished to have to make, but was forced to nevertheless. It was one of many examples where the decision problem had been transferred to the highest authority decision-making level within the organisation.

Proactive decisions were typically made in response to a perceived opportunity rather than a threat. All such decisions described during the study had been identified top-down rather than bottom-up. These decision problems were then often assigned to others to process. Examples of proactive decision problems include the purchasing of a new piece of equipment to develop a new area of the business, the tendering for a large contract, or the opening of a new branch office. Proactive decisions were more prominent within the private sector than the public sector.

While not intended to offer statistically significant results, based on the sixteen decision problems described by the study participants, there would appear to be a relationship between the expectedness (either foreseen or unforeseen) of the decision and the desire to be making it – in terms of the positivity and negativity associated with the decision. Figure 1 presents a summary of the described decision problems in terms of these two dimensions.

## Expectedness of the Decision

		Foreseen	Unforeseen
		Attitude towards Decision	
Positive	Positive	10	1
	Negative	1	4

Figure 1. Nature of Emergent Decisions

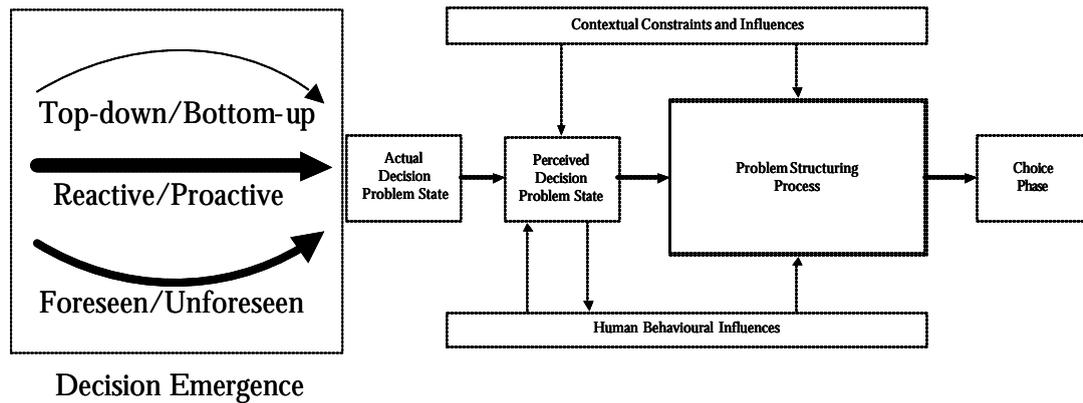
### 3.5 Decision Problem States

It seems likely that the state of emergent decision problems is strongly linked to the manner by which their existence becomes known. Whether the decision is perceived as being an opportunity or a threat does not appear significant, however as one might expect, bottom-up decisions are generally more defined than those that the executive identifies his or herself, or are made known from some external third party. In general, executives are unresponsive to situations in which a decision problem is presented to them in which no prior definition or structuring has occurred. All those spoken to believed most decision problems that emerged from within their organisation needed to be well defined before they received them. They needed to have a good understanding of the real problem and be sure that a decision problem did truly exist. For example, one participant stated: “...a lot is just about them bringing me their ideas and bouncing them off me, and looking for my approval basically. In most situations I just tend to ask some questions to clarify things and they get on and do it.”

Or as another participant put it: “I hope if I have got the managers trained right, they will bring a question but with the answer...don’t give them the decision, but ask them what their decision would be and why their decision would be that and then I would quite often just confirm it.” This participant also said that such an approach requires patience and in his case, requires him to consciously try not to put too much pressure on the decision-maker and give in and suggest an answer. “...once you spit out the answer you have always got to spit out the answer and then the guy comes to you with his brain turned off.”

What appears to be common is that the executive puts in place a framework for structuring or defining decision problems. This framework incorporates the procedures that should be followed, and also some sort of organisational strategy statement that will guide the decision-maker in the initial stages. “...we set the goal posts into the playing field with myself talking through the issues with those key people, and once those goal posts are in place I leave the playing field so to speak...”

Based on the results presented above, a model of decision emergence can now be proposed. Figure 2 presents the proposed model, exhibiting how this emergence precedes the proposed (high level) model of decision problem structuring.



**Figure 2. A Proposed Model of Decision Emergence**

## 4 Conclusions and Future Research

Based on our research, the ways in which decisions first reach executive decision makers seems to vary. They can originate with the executive, or filter up to them through the organisation. If the former occurs, they tend to be framed as proactive opportunities and are viewed positively and are foreseen. If the latter occurs, they usually result from some unforeseen external threat and are viewed negatively. Furthermore, such bottom-up decisions usually come pre-structured, often through the application of established and formalized decision problem structuring rules.

Whatever the case, we have some evidence that how these decisions reach the executive decision maker will have some impact on how the problem is further (or initially) processed by this decision maker. We suggest that this link between the initial received nature of the problem with its subsequent structuring is important and needs further study. Knowing about this link will help suggest appropriate structuring and solution tools to best fit the decision problem, the decision maker, and the organization.

## 5 References

- Arbel, A. and Tong, R.M. (1982). "On the Generation of Alternatives in Decision Analysis Problems," *Journal of the Operational Research Society*, 33, pp. 377-387.
- Butler, A.B. and Scherer, L.L. (1997). "The Effects of Elicitation Aids, Knowledge, and Problem Content on Option Quantity and Quality," *Organizational Behaviour and Human Decision Processes*, 72(2), pp. 184-202.
- Dillon, S.M. (2002). "Understanding Decision Problem Structuring By Executives," Unpublished Dissertation.
- Farquhar, P.H. and Pratkanis, A.R. (1993). "Decision Structuring with Phantom Alternatives," *Management Science*, 39(10), pp. 1215-1226.
- Hind, M.W. (1991). "Effective Delegation," *Management Decision*, 29(5), pp. 59-63.
- Lee, D., Newman, P. and Price, R. (1999). "Decision-Making in Organisations," London, UK: Financial Times Management.

- Lyles, M.A. (1981). "Formulating Strategic Problems: An Empirical Analysis and Model Development," *Strategic Management Journal*, 2, pp. 61-75
- McConalogue, T. (1993). "Real Delegation: The Art of Hanging On and Letting Go," *Management Decision*, 31(1), pp. 60-64.
- Neuman, W.L. (1994). "*Social Research Methods*," London, UK: Allyn and Bacon.
- Pounds, W. F. (1969). "The Process of Problem Finding," *Industrial Management Review*, 11(1), pp. 1-20.
- Schwenk, C.R. and Thomas, H. (1980). "Formulating the Mess: The Role of Decision Aids in Problem Formulation," *Omega*, 11(3), pp. 239-252.
- Simon, H.A. (1960). "*The New Science of Management Decision*," N.J.: Prentice Hall.
- Strauss, A. and Corbin, J. (1990). "*Basics of Qualitative Research: Grounded Theory Procedures and Techniques*," CA: Sage.