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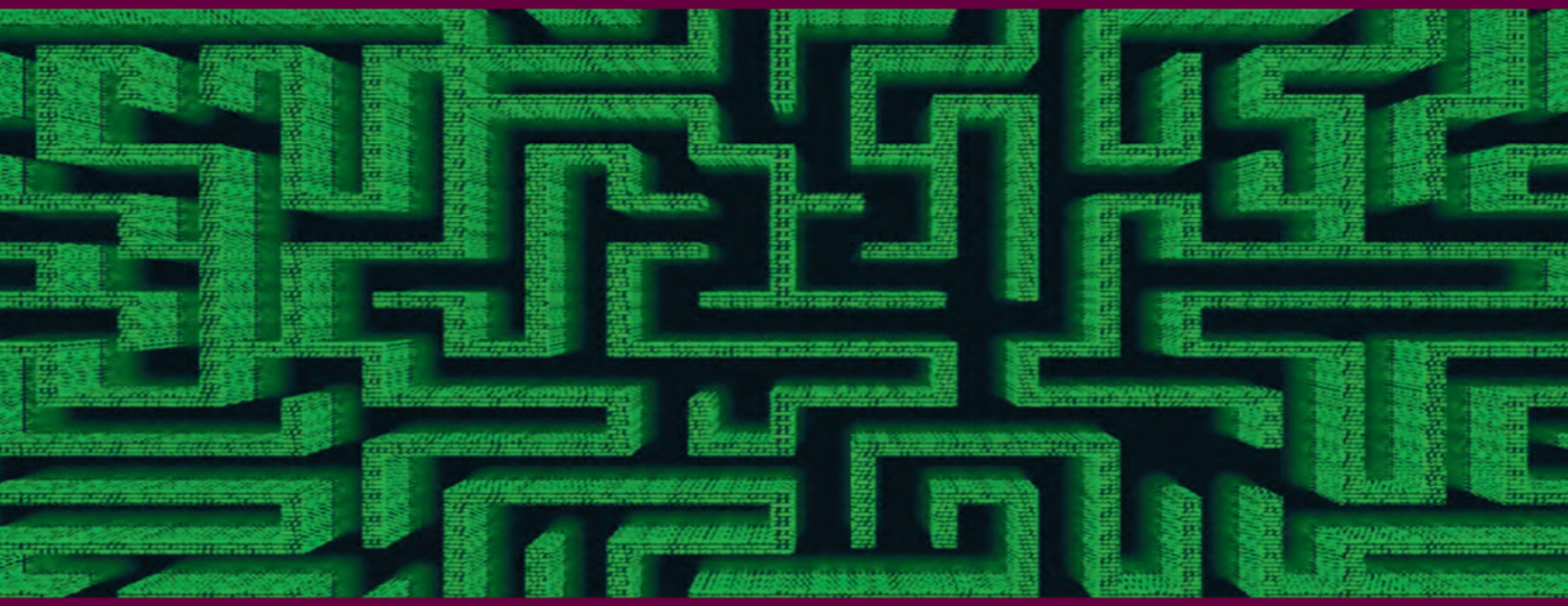

Strategic Decisions and Weak Signals

Anticipation for Decision-Making

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Introduction

VERBATIM I.1.– (transcription of recordings made during consultancy visits to organizations).–

"How can we detect any potential weak signals within big volumes of digital data? How do we interpret the weak signals thus brought to light? How can we train people in the organization to perform this type of task?"

In other words, the question is "What actionable knowledge (methods and computer-based techniques) would you recommend for serving the aforementioned purposes?"

I.1. Anticipative strategic scanning

The study of the exploitation of weak signals in organizational strategy is a challenging business, and one which has only been being practiced in organizations surprisingly recently. The concepts involved are relatively numerous, and the definitions given for such concepts may well vary from one author to the other. The real-world application of these concepts is rarely touched upon in the existing body of literature, and this gaping lacuna is a hindrance to the development of *anticipative strategic scanning*, in commercial companies and public organizations. Therefore, this book aims to introduce working methods and computer-based systems to facilitate experimentation and operational implementation. Chapter 2 of the book presents the state of the art on the topic, gleaned from the publications of academic researchers.

Chapter 3 then gives a presentation of three operational systems and looks at the case studies for their application.

The “scanning” of an organization’s environment to aid in *strategic decision-making* is not really a new idea. The precursor was, undoubtedly, set by F. Aguilar, with his book *Scanning the Business Environment*, which was published in 1967 [AGU 67]. Then, after a period of relative silence on the subject, a clutch of articles and books were published around the early 1980s, such as *Managing Strategic Surprise by Response to Weak Signals* by H.I. Ansoff in 1975 [ANS 75]. Thereafter, there were few new publications on the subject until the late 1990s. A new wave of publications began in the early 2000s and has continued steadily ever since. One of the major reasons for this is the rapid progress of online data-mining technology.

Paradoxically, “environmental scanning” and anticipative strategic scanning have not yet become as widely used in companies as might be suggested by the high number of academic publications on the subject. The explanation for this paradox probably lies in the following two facts:

– The considerable progress in information-seeking technology has led to a real problem of *information overload* both in private enterprises and public organizations; managers are rarely well prepared for *anticipative scanning* of the business environment.

– There is, as we have just seen, an over-abundance of raw information (data), but techniques to *make sense* of these data are not progressing at the same rate, leading to situations of *information overload*. Furthermore, in the area of education, practically no institutions or universities have introduced training courses in the area of anticipative strategic scanning and the use of weak signals in strategic decision-making.

At present, the techniques for mining raw data are continuing to progress faster than techniques and expertise

(particularly those relating to the detection and interpretation of weak signals). However, we have clearly seen a proliferation in demand from managers on the ground, including those formulated above or those expressed by the *verbatim quotes* peppered throughout the chapters. It is this demand that this book aims to satisfy.

I.2. Acknowledgments

The innovative systems presented in Chapter 3 are the product of doctoral research projects conducted at the Centre d'Etudes et de Recherches Appliquées à la Gestion (CERAG), at the university of Grenoble-Alpes, France. Edison Loza Aguirre worked on the TARGETBUILDER project, Alex Buitrago worked on the APROXIMA project and Annette Casagrande worked on the ALHENA project. The authors would like to express their heartfelt thanks and their best wishes for these researchers' work in the future.

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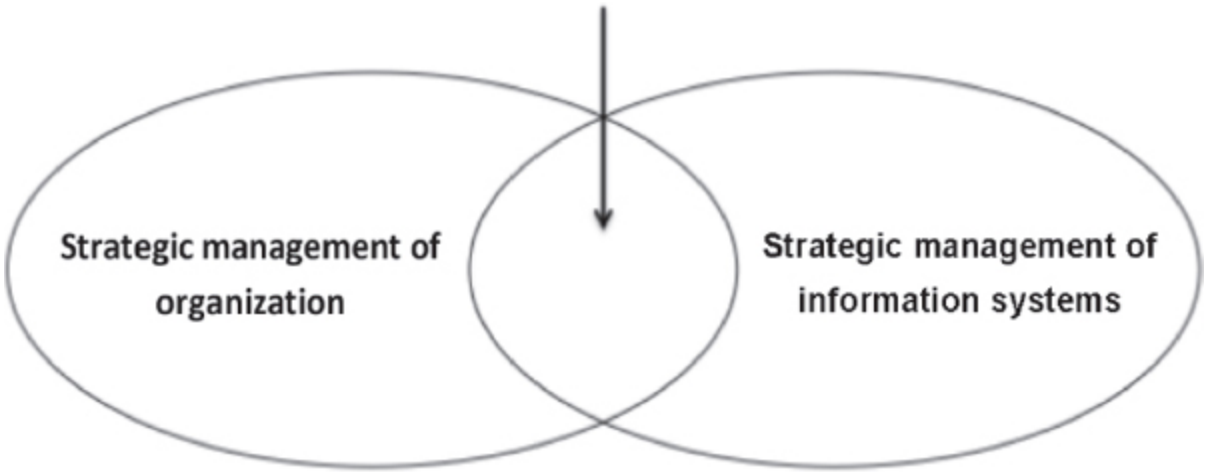
The Subject within the Field of Management Science: Concepts and Issues

Management science aims to help managers in making decisions. Such decisions include information of a strategic nature, and they are the basis of “strategic management”. Decision-making relies, notably, on the use of relevant information. This information is itself produced by an information system (or several such systems). Hence, strategic management of an organization and the management of the information systems are highly interdependent. The interplay between these two fields is illustrated in Figure 1.1.

Figure 1.1. *Field of investigation*



A number of authors have looked into the characteristics of information systems for strategic management. One such

author is D.C. Bernhardt, who expresses what managers want thus: “I want it fast, factual, actionable” [BER 94].

More recently, Xu *et al.* [XU 11] conducted a survey of UK executives. “Three focus group sessions were conducted with a total of 31 middle and top-level executives [...] Most of the participants are at strategic (48%) level and tactical level (39%) and involved in some forms of executive intelligence activities. Each session began with a brief statement on the rationale and objectives, the confidentiality and ground rules for the discussion (e.g. role of moderator, one participant talks at a time and disagreement is welcomed), and the demonstration of the visualization model. Focus group sessions took about an hour to complete. The focus group discussion allows taping [*sic*.] into human tendencies” [XU 11, p. 192].

What information about the organization’s environment do executives want when making a strategic decision? The following results give us a clue:

– “Executives are busy with other activities and have limited time and capacity to scan all possible information, thus an automated information scanning agent may be perceived useful by executives.

– Scanning without filtering could lead to over-abundance of irrelevant information that exacerbates the problem of data overload... On the other hand, executives raised concerns on the possibility of screening out potentially relevant information.

– It is assumed that alerting as a result of intelligent scanning is vital to keep executive instantly informed about strategic issues, thus, is essential to turn the agent system into a vigilant system for executives. Executives may perceive this function useful” [XU 11, p. 193].

1.1. Strategic management and strategic decision-making

Organizational strategy is of prime importance in management science. The word “strategic” may refer to one of two things: the *decision-making process* whereby a strategic plan is drawn up as a guide to action or the actual implementation of the strategic plan on the ground (the “roadmap”). In both cases, time is of the essence: it takes time to draw up a strategic plan, and the action may take place in future years and, therefore, over the course of several or even many years. Anticipation is therefore a prerequisite.

Figure 1.2. *Strategic decision-making is at the heart of strategic management*

One of the main questions that managers (likely) ask themselves is: “What is the strength of my organization today? What will it be tomorrow?”. The answer to this question sheds light on the area in which the manager needs to make the decisions that are vital for the success of the organization both at present and in the *future.*

A strategic strength for today may well no longer be as strategically important tomorrow. It is therefore vital to detect, as early as possible, any drivers of change that might emerge in the organization’s environment, and the *signs* that herald these changes, in order to be able to take account of them in strategic decision-making. Exaggerating somewhat, we might say: “Tell me the ‘driving forces’ behind your organization and I will tell you what the key information is which your organization absolutely must research on the subject of the (internal and external) changes for which it needs to be prepared if you want

sustainable competitiveness". Such information is gleaned from an *information system* for strategic management.

In preparing this book, we conducted interviews with numerous managers; verbatim quotes are given throughout the book. Some managers stated that they were not overly concerned by environmental scanning as such: the *environment* is, in their eyes, too fuzzy a notion to be truly motivating. On the other hand, those same managers appeared more motivated by the notion of a *project.*

EXAMPLE 1.1.– (Petrobras)

"There are many, many challenges at the moment… but we are beginning to see the effects of a completely pragmatic, project-based policy" [THE 13].

As soon as the desire to conduct a project emerges, such managers seek to gather the useful information to facilitate the implementation of that project. The concept of a project is therefore important in terms of triggering and structuring environmental scanning. Nevertheless, it gives us only a partial answer to the question at hand. Indeed, when a project surfaces, it becomes easier to see what information needs to be gathered, but in order to get to this point, environmental scanning needs to be performed first, so as to detect opportunities for projects. Two cases must therefore be distinguished:

– it is the desire to conduct a project that triggers the act of environmental scanning;

– it is the discovery of opportunities that triggers the desire to conduct a project.

The delimitation of the field of environmental scanning is not obvious; it arises from a choice rather than from a prerequisite. Each organization needs to reflect on what it deems important to scan in order to feed into its strategic thinking, and that choice is, in itself, a *strategic decision.* Yet this choice may not always be made in a methodical manner.