Chapter 1
Introduction: Complexity as a Challenge

1.1 Complex Strategic Choice and Systemic Planning

Is robust strategic decision making possible in today's world? Can procedures be provided that can support and add value to the efforts made in this respect? Such questions can rightly be asked after a first decade of the twenty-first century where unimaginable events ranging from the terrorist attack on the Twin Towers in New York in 2001 to the financial crisis not yet overcome in 2011 have given rise to cascades of uncertainty in a still more globalised world. In various ways such 'grand-scale' events are linked to local changes and thereby they contribute to an increasing uncertainty which impacts on decision making. Such a global–local interlinkage that 'complexifies' the decision environment may be captured in one term and referred to as 'glocalisation'.

Not many companies and organisations remain unaffected in this respect but are challenged by glocalisation uncertainty and turbulence as concerns their strategic endeavours. It therefore makes sense to see a complex world as an enduring and growing challenge for planning and strategic decision making. More than a decade ago the Danish communications researcher Lars Qvortrup interpreted rising societal complexity in the following way:

> *We are dealing with an increasingly complex world which is today's big challenge. We are as individuals and as communities exposed to an immense complexity. We are, as the German social critic Hans Magnus Enzensberger wrote some years ago, bystanders to countless civil wars via the media. We are exposed to legislation which before it is problematic in its implications, is problematic due to its impossibility to penetrate. We live in a society—whether we like it or not—which is an integral part of the world community and which cannot be reduced to a distinction between those belonging to the immediate local area versus the others. We are part of a world where currency fluctuation in Singapore is affecting employment in [the Danish region] Zealand* (Qvortrup 2001, p. 50 in transl.).

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1.1.1 *The Idea of Systemic Planning*

The purpose of this book is to present systemic planning (SP) as an idea and method that can be applied with a view to making better strategic decisions. The idea of using systemic planning for strategic decision support is developed initially from generic ways of 'seeing' and 'understanding' into processes and methodology that can assist decision-makers in dealing with complex planning and decision making tasks. In short we can perceive the entire set of proposals from 'ways of seeing' to 'ways of doing' as a framework that will be referred to as systemic planning. In this way the SP framework comprises several levels that are interconnected. The methods and techniques that are finally suggested and exemplified thus link backwards to the more general approach suggested. The naming of this approach as 'systemic' derives from the way 'soft' and 'hard' methodologies are found suitable to be used in combination for what becomes a kind of holistic handling of complex planning problems. The term holistic implies some kind of completeness so that in principle 'everything' is taken into consideration. Evidently this is—and will remain so—an ideal. Where 'known unknowns' can be grasped by different ways of exploration, the 'unknown unknowns' are less easily dealt with. Despite a declared holistic orientation aimed at with systemic planning we must bear this in mind.

The suggested holistic organisation of planning and decision making activities can be perceived as a necessary 'countermeasure' in a world appearing as increasingly uncertain and complex. With hard methods included, systemic planning also comprises the use of systematic method-elements as part of the comprehensive planning process. The term systematic is here used for planning and decision making carried out in a pre-fixed, schematic way. Such planning typically applies to tasks concerning scheduling, allocation, etc., which in organisation's theory is indicated as planning at the tactical and operational levels. It is typical for planning at the strategic level—being the focus of this book—that the change processes are of an open-ended nature. When addressing such open-ended change, systemic planning makes it relevant, as shown later, to combine hard, calculation-oriented methods with soft, more interpretative and creative methods. The interaction of hard and soft methods is one of the important features of the systemic approach to planning.

1.1.2 *The Framework of Systemic Planning*

The overall framework of systemic planning (SP) for strategic decision making consists of the following interlinked levels:

Level 1: Coming to grips with complexity by combining different ways of 'seeing'
Level 2: Designing the SP learning process
Level 3: Specifying the SP toolbox
Level 4: Demonstrating SP on a strategic decision making case

The four levels are treated as follows: Level 1 of the SP framework is treated in Chaps. 2 and 3, level 2 in Chap. 4, level 3 in Chaps. 5 and 6 and level 4 in Chap. 7. This chapter and Chap. 8 respectively serve to introduce the topic of complex strategic choices and to summarise and validate its findings together with some advice on practice for readers who may wish to make use of SP for addressing complex strategic choices. The contents of the chapters are overviewed below.

1.2 An Overview of the Contents

This chapter, "Complexity as a challenge", primarily aims at presenting the purpose of systemic planning and the challenge of strategic decision making in a world that presents itself as complex. Initially systemic planning is set out as the holistic handling of complex planning seeking to include both hard and soft methodology. The chapter ends with taking a first look at complexity by treating what is termed detail, dynamic and preference complexity, which leads to a discussion of different problem types. This provides the background for encircling the possibilities and limitations of systemic planning as a foresight problem handling approach. These issues will be returned to in the final Chap. 8 when the complete SP framework has been set out and is validated and perspectivated.

Against this background Chap. 2 goes into depth with "The condition of complexity". The focus is on the German sociologist Niklas Luhmann and his voluminous work on social theory which often makes a surprising and overwhelming impression on a newcomer to his theory. The chapter focuses on various concepts that can help establish a theoretical basis for a closer understanding of planning as related to complexity and thereby reflected in his universal theory of social systems. This theory offers a number of theoretical findings that systemic planning can make use of for the grounding of its principles and methodology.

The following Chap. 3 on "Linking complexity and simplicity" seeks basic ways of seeing and understanding by introducing and interpreting two basic epistemic lenses we can reflect upon and apply. To judge the relevance of the SP approach it is necessary to be explicit about how knowledge and insight can be gained and this is what epistemology is about. In the theory of science the term paradigm is used for a specific type of cognition and related research designs that have established themselves as being a sound approach—or more technically: to be valid and constitute a relevant approach in the specific context. For illuminating the basic approach behind systemic planning the French science theorist and sociologist Edgar Morin is called upon. Attention is first given to his Simplicity paradigm which may well be said to represent the type of education and training that economists and engineers face in their university years. Parallel to this, with the Simplicity paradigm seen collectively as a particular type of epistemic lens, Morin has also formulated a Complexity paradigm concerning an alternative way of knowledge gathering and creation; also this paradigm can be seen to represent a particular epistemic lens. In systemic planning this Complexity paradigm functions as a complement to the Simplicity paradigm.

Chapter 4 on "The systemic process" introduces the American brothers Hubert and Stuart Dreyfus by treating their theory of learning. With a background in philosophy and in operations research (OR) respectively, they have formulated a learning process into five steps, which deals with what they themselves acknowledge as representing a development from novice to expert. Although apparently not familiar with Morin's Simplicity and Complexity paradigms, they describe a learning cycle which in its progression can almost be seen to build on the paradigm of simplification in combination with the paradigm of complexity. In this context it leads to the idea of designing a kind of systemic, self-organising learning process to be made use of in the set-up of systemic planning.

With the theory outline of systemic planning presented in the above chapter, Chap. 5 on "The systemic toolbox" addresses the more methodical and practical aspects of SP. Specifically a number of useful OR methods and techniques are introduced as a kind of long list for methods of possible relevance for SP. These are categorised and presented in the form of three 'waves', with each new wave—we are still in the third wave since the early 1990s—representing an important new approach direction. From the long list of OR methods seven hard and seven soft methods are identified, which are seen to provide a suitable 'method arsenal' in the subsequent practical adaptation of systemic planning.

In the following Chap. 6 on "Setting up the decision support" focus is set upon applying different modes of enquiry based on the findings in the previous chapter. Next the scoping of strategic choices is addressed and afterwards the assessment of consequences and risks is treated. Emphasis is placed on describing the interrelatedness of scoping and assessment in the process of establishing adequate decision support for complex strategic choices. Based on the specific purposes of scoping and assessment a number of both hard and soft methods are treated. This chapter ends with an outline of what can be seen to characterise a suggested concept of choice intelligence.

The following Chap. 7 on "Company relocation as demo-case" serves to exemplify systemic planning in the form of a description of a complex planning task concerning the relocation of TRANS-IT Consult. The case concerns the application of SP for selecting a new company headquarters location in the Øresund region with many different factors influencing the final choice among a set of eight pre-screened possibilities. The case description includes the various SP steps and considerations leading towards a final strategic decision about the most attractive new location.

The concluding Chap. 8 "A summing up: The challenge of strategic decision making" first reiterates some of the main concepts of SP and afterwards ten cases where SP has been applied are reviewed. This forms the background for a subsequent assessment of the validity and potential of the SP framework. Afterwards complex strategic choices are put into a wider context, where issues about 'known and unknown' and risk-related Black Swan theory are made use of to indicate what types of challenges organisations and companies may face with regard to long-term planning and complex strategic decision making. Finally some conclusions are presented together with a developmental perspective on SP.

The book also contains two appendices giving a more technical description on how cost-benefit analysis (CBA) and multi-criteria analysis (MCA) can be combined in the COSIMA methodology in Appendix A and multi-criteria analysis and risk analysis (RA) in the SIMDEC methodology in Appendix B. The CBA, MCA and RA are all included in the systemic toolbox described earlier in Chap. 5.

1.3 A First Look at Complexity and Foresight Problems

In the presentation of the ideas behind systemic thinking and planning in this book, it is maintained that at least *three types of complexity* need to be taken into account in planning and managerial strategic decision making. These are:

- Detail complexity
- Dynamic complexity
- Preference complexity

These three types play a major role in the way we proceed to formulate the principles of systemic planning concerning how we seek to come to grips with foresight problems. Each type of complexity will be treated below to assess its meaning.

1.3.1 Detail Complexity

Looking at a specific planning problem from the viewpoint of a company for example, we need to demarcate the socio-technical system that the company represents. Basically, we need a certain level of precision about the system we are dealing with, i.e. we need to lay down various issues determining our planning problem with some certainty. To introduce the concept of detail complexity in a somewhat formal way, we may assume just for the sake of symbolic illustration that one of the attributes we need is the length of some system element. As engineering students learn about measurement theory in a physics course, we can determine the length of a rod by making use of still better measurement equipment. Similarly, seeking to determine its weight (or any other attribute) we can refine our approach by adopting a better technique. We try to remove uncertainty simply by getting more precise data. However, if we refer to the work of Benoit Mandelbrot and Helge von Koch, see Gleick (1987), and take a fractal view, we can never determine the length of a coastline, for example. In Fig. 1.1 this has been exemplified by the graph known as the Koch curve, which, in Mandelbrot's words, can be seen as a "rough but vigorous model of a coastline" (Gleick 1987, p. 99).

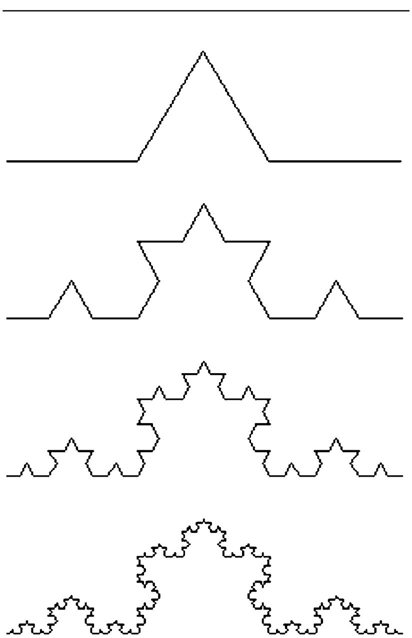

Fig. 1.1 The *Koch curve* as a fractal resulting from an endless process of iteration. The *Koch curve* is made by starting with a side of length 1 and then adding a *triangle* with sides equal to one-third and so on. The length goes towards infinity. Adapted from Buchanan (2001, p. 48)

Detail complexity helps us focus on the influences from the system demarcations and the system components as they enter at an early stage in our examinations and/or models. Seemingly, the system is something that is given at the beginning of a study. This view, however, is much too simple because beneath its mere representation the system is also the result of a history that has 'frozen into' the concrete system elements and their interrelations. To demarcate the system properly, we need to become aware of the details and their possible meaning and influence. This kind of awareness is made explicit to us through the work of physicists on complex systems. One important finding is that so-called critical states are ubiquitous. In socio-technical systems the occurrence of critical states is often what makes problems 'wicked'.

The need to pay attention to the details is well argued in the quotation below from Mark Buchanan, a theoretical physicist now working as a science writer:

> *By studying the natural kinds of patterns that evolve in networks of interacting things under non-equilibrium conditions, we may be able to understand an immense range of natural phenomena, from our turbulent atmosphere to the human brain. The study of complex systems is all about things that are out of equilibrium, and on this task, of course, scientists are really just starting out. So the relationship between the critical state and complexity is really quite simple: the ubiquity of the critical state may well be considered the first really solid discovery of complexity theory.*
>
> *And yet there is another useful way to look at all this. In coming to consider complex systems, physicists seem to have gained a new appreciation of a simple fact: in the immediate world around us, history is important. For living things, which ultimately develop from a single cell, this is obvious. But one cannot even understand the hardness of*

a steel pipe, or the irregular surface of a fractured brick, without referring to the full history of its making (Buchanan 2001, p. 16).

There is no doubt that system demarcation or boundary setting becomes problematic when the presumably 'deep information' contained in the various system elements may or should impact on it, but at the same time it is of utmost importance. Clearly the ubiquity of critical states makes it even more important. Thus there is no right way of doing the system demarcation, e.g. of 'fixing' the dimension of detail complexity; the boundary-setting is a matter of choice and boundaries are partial as described by the well-known systems researcher Robert Flood:

> *Defining an action area from the problem context through sweep-in and unfolding, centres on drawing boundaries around possible clients, and consequently surfacing issues and dilemmas relating to those clients for discussion. Boundary setting is an issue of great importance to systemic thinking. Put succinctly, the questions are, 'Who is embraced by the action area and thus benefits? Who is out and does not benefit? What are the possible consequences of this? And, how might we feel about that?' Boundary setting thus raises questions of ethics, efficiency and effectiveness, in a search for improvement and shows them to be inextricably linked. Boundaries are always open to further debate through sweep-in and are thus temporary. Boundaries are the result of choice. For each choice located by unfolding, there are always other possible options that will arise by sweeping in. Boundaries are therefore partial. The temporary and partial nature of boundary setting is suggestive of improvements to make, for now, but raises the question of how improvement is to be secured* (Flood 1999, pp. 64–65, underlining added).

For these reasons boundary setting becomes a major influence when defining an adequate action area to identify, for example, the possible means to secure improvement. At this stage when presenting the theory behind systemic planning to be applied for providing decision support, it suffices to say that the demarcation of the socio-technical system that we are examining is by its nature 'less given' than first impressions might suggest.

The medium in which detail complexity operates is typically 'space' (covering resources such as persons and their skills, physical facilities, financial resources, etc., which make up the variables in this space). Clearly with many variables—and with each variable possibly having many attributes of relevance and with interdependence between variables—the detail complexity becomes full-fledged. Briefly stated, detail complexity relates to concerns about 'means'.

1.3.2 Dynamic Complexity

If we look at the theories in Peter Senge's *The Fifth Discipline* from 1990, we find that Senge operates with a complexity notion that involves both temporal aspects (complexity associated with 'dynamics') and detail complexity consisting of a large number of variables being relevant but difficult if not impossible to combine and process at the same time. To the surprise of some, Senge and his collaborators

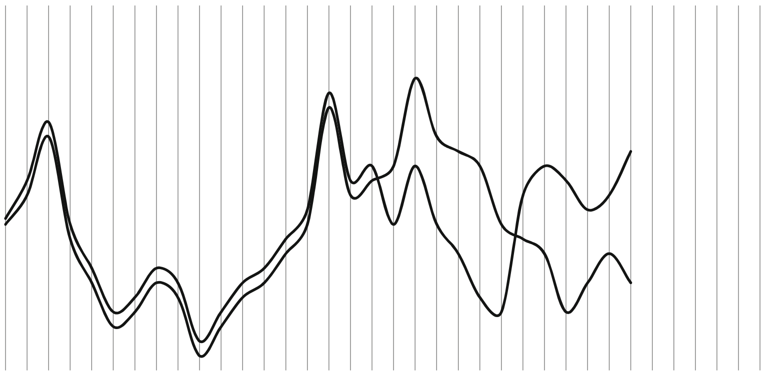

Fig. 1.2 Weather sequences in a computer model: the Butterfly Effect by Lorenz. In 1961 the meteorologist Edward Lorenz found that small differences in starting conditions could mean a considerable change in end result. Thus a storm at one location may be seen as initiated by a butterfly flapping its wings and thereby causing a small disturbance up-stream of the weather pattern propagation that resulted in the storm. Adapted from Gleick (1987, p. 17)

give less attention to detail complexity than to dynamic complexity (Senge 1990; Flood 1999, pp. 13–14).

In Fig. 1.2 the importance of dynamic complexity is illustrated by comparing the development of two weather patterns.

With nearly the same starting point, the two patterns diverge over time and end up with no resemblance at all.

The work of Edward Lorenz in the 1960s was very important in initiating research on chaos in dynamical systems, although deterministic chaos as a phenomenon had been known for many years due to the work of, among others, the French mathematician Henri Poincaré around 1900. The use of computers has come to play a major role in the research that started with the findings of Lorenz.

With the focus on planning and decision making, we have to interpret the importance of dynamic complexity by the way it makes long-term forecasting a highly doubtful undertaking. But many further insights are implied when we examine complex dynamic interrelations—not least if our focus is more on human organisations and their development than on weather pattern propagation. Perhaps in this organisations context we should see the Butterfly Effect as a 'storm' started, for example, by the whispering of a rumour one afternoon at the coffee machine.

The organisations and chaos researcher, Ralph Stacey, has given the following interesting interpretation of organisational time dynamics (speaking in the context of the phenomenon of 'change') by making reference to the so-called leverage points introduced into systems vocabulary by Peter Senge. With a focus on studying business units as complex, dynamic systems Stacey says:

> *The study of complex, dynamic systems provides the insight that the behaviour of a system cannot be understood simply by examining the system's parts. The system in effect has a life of its own. The system itself has a major impact on behaviour and therefore on outcomes. Thinking therefore has to proceed in terms of whole systems, their interconnections, and the patterns of behaviour they may generate. Changes accumulate slowly out of the interconnections between a system's parts. Focusing on snapshots of the parts, looking for cause-and-effect links that are close together in time and space, means missing the slow accumulation of change. Instead of trying to understand quantitative detail of parts, therefore it is far more fruitful to try to understand the qualitative nature of interconnections and patterns of behaviour. It is especially helpful to try to find the points in the system that are most sensitive and amplifying—the points of greatest leverage. By operating at these points rather than trying to control details everywhere, managers can bring about the greatest changes in the system with the least effort* (Stacey 1993, p. 110).

Peter Senge and his collaborators have managed to identify a number of what he calls "archetypes of change", which are dynamic organisational patterns. One of these is the "Tragedy of the Commons", which occurs when two systems operate in the same environment and are rewarded initially by exploiting the environment (Jackson 2000). The tragedy of the commons was originally coined by Hardin (1968) in an article in the journal *Science*, in which he examined individual actions and their cumulative consequences which, in an unwitting way, could be systematically destructive for the socio-economic unit made up of the individual actors. His picture was the medieval English village where each householder made the apparently reasonable decision to graze as many cattle on the commons as possible with the result that the commons would suffer over-grazing, leaving each and every householder in a poorer condition.

There is no doubt that a number of archetypes—Peter Senge operates with around a dozen—communicate what we would like to see as collectively gained lessons that are of importance with regard to interpreting possible development patterns. Clearly, they play a major role for the manager who does not want to embark on some kind of course that may later turn out to be less desirable for some reason. However, downplaying the checking of details cannot generally be recommended, see the quotation above, nor can the belief that a relatively limited number of archetypes is capable of unfolding a larger part of the dynamic complexity relating to change in business units or to change in socio-technical systems in general. As with detail complexity and its means-uncertainty when defining the action area around complex strategic choices, dynamic complexity indicates another major type of uncertainty as a basic condition.

The medium in which dynamic complexity operates is 'time' and stated briefly dynamic complexity relates to concerns about 'path'.

1.3.3 Preference Complexity

The ideas about systemic planning consider *at least* three types of complexities which are important for our understanding of the conditions for future-oriented decision making in organisations. One major influence on these ideas is Herbert

Simon via his writings about organisational decision making (1968) and the sciences of the artificial (1969), the first major exposition of the meaning and consequences of applying the view of organised complexity on organisations as systems. Another major influence is Jürgen Habermas (1979, 1986, 1989) with his elaborate theory on communication. The following quotation by McCarthy from his magnificent book *The Critical Theory of Jürgen Habermas* brings the third type of complexity to the fore, namely what in this presentation is termed the complexity of "interests" (following the German term) or simply preference complexity. Thus McCarthy with reference to Habermas states that:

> *… a precondition of rational consensus is the thematisation of available need interpretations themselves; interests are neither empirically found nor simply posited—they are shaped and discovered in processes of communication* (McCarthy 1981, p. 328).

What the theory of Habermas states here is that preferences ("interests") are tied up with processes of communication and are therefore quite dependent on the issues raised and debated. To deal with the complexity involved and get to grips with the interests that might be associated with the various stakeholders, we need to understand the processes of communication. Normally when referring to theory of communication we have the work of the mathematician Claude Shannon in mind. Contrasting, however, Shannon's theory of communication with the version stemming from Habermas we find that the two theories of communication are completely different. Making use of the complexity notions I have introduced, we might say that Shannon's theory deals with a measurement of message transmission (with the complexity issues involved then relating more to the notion of detail complexity), whereas Habermas's theory examines the basic components of human language and interaction (based on what he calls validity claims). For our purpose the theory of Habermas gives the valuable insight that preferences are not ready-made and accessible for strategic decision making but have to be "shaped and discovered". As can be seen later on this insight has a very practical imprint on the way that systemic planning is carried out, namely as a kind of search-learn-debate process.

The notion of preference complexity can be illustrated as shown in Fig. 1.3 which indicates the shaping of an interest in a symbolic way.

The figure illustrates—in a symbolic way only—the complexity involved when shaping and defining an interest. In part (a) we have all possible fragments and influences which in part (b) have obtained a certain degree of common orientation. What the figure really shows is atomic magnets in a piece of iron: at high temperatures (a) they cannot line themselves up due to thermal jostling, but at lower temperatures (b) they are able to align with the result that the iron becomes magnetic. For the purpose here as mentioned the figure is only symbolic and illustrative. Thus we can perceive the figure as showing a 'heated debate' that may (or may not) be cooling off and lead to clarification and explication of a certain interest, depicted as a change from (a) to (b).

Preference complexity—and the set of related issues to be addressed—has not had its proper role in the development of concepts and tools in systems science

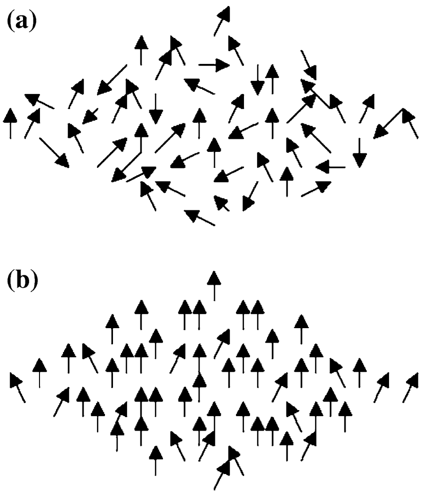

Fig. 1.3 The shaping of an interest, symbolically illustrated by magnets in a piece of iron. At a high temperature (**a**) atomic magnets in a piece of iron cannot organise in a co-ordinated way, whereas this becomes possible in (**b**) at a lower temperature, when the iron functions as a magnet. The *arrows* are here used to illustrate discordance and concordance in a certain type of preference. Adapted from Buchanan (2001, p. 73)

(Leleur 2008). This may be due to the main professions involved in its development over the five-to-six decades since the Second World War, with scientists, engineers and economists dominating with regard to theory and practice on the basis of the terms and premises of their educational background. However, similar to detail and dynamic complexity when defining an adequate action area around complex strategic choices, preference complexity is an important issue.

The medium of preference complexity is 'mind' and briefly stated, preference complexity relates to concerns about 'ends'.

In this way we have obtained complexities that operate in space (detail complexity), in time (dynamic complexity), and in mind (preference complexity). Later on—after dealing with the basic theories behind the complexities—we will be able to see that exploring complex strategic choices relates clearly to all three concerns: 'means', 'path' and 'ends'. A main theme of the book is the attention decision-makers in general will have to pay to complexity issues. I agree with Senge in believing in the importance of dynamic complexity, but pay at least as much attention to detail complexity. I pay attention to preference complexity, because I have come to believe that insights into this type of complexity have a special role to play when addressing strategic decision making. The theories and methods that are presented in the following chapters all relate to the impact that complexity has on the way decision support can be provided.

In the following section I end this introductory chapter by addressing a general classification of problem types of relevance for planners and decision-makers. In the final chapter of the book this classification will be reconsidered to take account of the ways in which the systemic planning approach set out can be seen to add value to current knowledge about ways of qualifying the process and methodology relating to making complex strategic choices.

Table 1.1 Problem types relating to the configuration of means and ends

Problem types	Four different configurations and related approaches	
Means/ends	Certain	Uncertain
Certain	A: Computation	C: Compromise
Uncertain	B: Judgement	D: Chaos or 'Inspiration'

Adapted from Khisty and Mohammadi (2001, p. 22)

1.3.4 Categories of Problems

So far, planning problems of managerial and professional concern have been addressed as one common category. However, we can take a closer look at them by considering the means-ends configuration shown in Table 1.1:

In the A situation, where we have certainty about both means and ends, our problem type is one of computation. Input can be stated and by using a proper algorithm we are able to obtain a solution to our problem. A very simple example here is a journey from one location to another: we can go by car, bus or train or some combination, and we know the time when we want to arrive. By consulting a travel schedule website, for example, we can obtain a selection of the best travel schedules, maybe including modal shifts, and we can decide which possibility is the most attractive from the calculated number of minutes for each alternative and its cost. We can even take comfort issues, etc. into account and obtain a best solution in accordance with our trade-offs between time, costs and other issues we handle in an implicit way.

As soon as uncertainty characterises either means or ends, things start to get complicated: our choice may incline towards the car because we know that the public transport means, bus and train, operate only with some certainty in the peak hours for example. Or we may be in a situation where we are a little bit uncertain about our end point because, for example, we may want our recreational trip to take us to a place where fishing is good—and if not, we want to be able to continue to another location and so on.

On a scale we may see A as a conventional planning problem, whereas B and C represent stages towards the D situation, which I will characterise as a full-fledged *complex planning problem*. In this book we will be concerned with all four situations, but the applicability of a systemic approach to planning and strategic decision making is first and foremost relevant with situations on the way to being a complex planning problem or one which already is a complex planning problem, characterised by situations B, C and D, respectively.

Table 1.1 gives quite important information about the challenges of strategic decision making in a complex world, where *at least* detail, dynamic and preference complexity are of influence. At this stage of presenting systemic planning as an approach to handling foresight problems we may state that type A problems in many cases are handled well by using hard operations research methodologies for optimising, scheduling etc., whereas type D are the utmost challenges as it includes also 'black holes' of the future representing 'the unknown unknown'. With this in mind there might be something to add to our planning and decision making capabilities for the foresight problems categorised by B and C. Awareness of what characterises A and D will be of utmost importance in this respect.

In summary of this introductory chapter we may state that the scope of this book is to provide decision analysts and planners with concepts and tools to support decision makers facing complex strategic choices that are dependent on judgement, compromises and inspiration.

Main points and findings of this chapter

- Complexity is a *real* concern for understanding today's challenge of strategic decision making.
- Three types of complexity are described: Detail complexity, dynamic complexity and preference complexity. Each type is illuminated by a symbolic example to highlight the radical uncertainty that they—separately or collectively—can inflict on strategic decision making.
- Ordinary concepts in planning such as means, path and ends are under the perspective of strategic decision support influenced respectively by detail complexity, dynamic complexity and preference complexity.
- Looking at different problem types a finding is that conventional planning—generally in the book referred to as systematic planning—should be reserved for some well-defined problems, whereas other problems should be approached on the premises of their complex nature. This makes it necessary to come to grips more generally with the *condition of complexity*, which is the purpose of the following chapter.

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