EVALUATION AND ORGANIZATION OF FUTURES RESEARCH METHODOLOGY—V3.0

by

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Abstract

This paper focuses on how to create value and meaning for users of the Millennium Project's *"Futures Research Methodology – Version 3.0"* report. The concept of a boundary object is used to provide a structuring focus throughout this paper. Boundary objects have a tangible form, and they belong to the material culture of an organization. They work, implicitly and/or explicitly, as a common point of reference, and guide common points of view in an organization. Futures research methods, or any other method in an organisation's strategic process, have this property. In this paper the evaluation and organization of Millennium Project's *"Futures Research Methodology – Version 3.0"* is executed according to the nature of all possible understandings of the system methods can deliver, and the best means of directing the systems the methods offer to a user. This aims at improving our understanding of the wide range of knowledge domains, practices, and assumptions these methods convey, and improving our ability to learn about futures, and to expand our horizons of futures knowledge.

Keywords: futures research, methodology, strategy, sense-making, boundary objects.

Methods as Boundary Objects

Often strategic work in organizations is executed in the form of some kind of method, or at least the methods have a significant role in the analysis that organizations use to assist the strategy process. In many cases, the methods are a vehicle of intervention that can involve hundreds or thousands of people. This paper pinpoints the role of futures research methods in organizations' strategic processes that limit or help people learn, imagine, and be creative about the future. (Aaltonen 2005, 2007, 2008).

Methods provide boundaries, and boundaries provide a simple way of aggregating people into layers as well as constraining people's interaction. People can only interact with people who belong to the same boundary, i.e. who use or are allowed to use the method or information, and can therefore participate in the strategy or visionary process. (C.f. Dervin et al. 2002, Mitleton-Kelly 2003, Aaltonen & Barth 2005).

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Within this point of view, it is legitimate to see methods as boundary objects. Boundary objects belong to the material culture of an organization, they correspond to concrete instances, and they cannot be described only as ideas, values, and norms. (Star & Griesemer 1989, Bowker & Star 1999, Dourish 2000, Aaltonen & Barth 2005, Aaltonen & Sanders 2006). Boundary objects are products of, and simultaneously can produce, as methods can, an interactive process of instantiation.

Boundary objects are based on shared assumptions, knowledge, and practices. In this paper assumptions, knowledge, and practices relate to how a visionary or strategic process should be built, or how futures knowledge should be created. These shared assumptions have led to the dominance of some methods, and diminished the use of others, but they are also an object of change, and they have changed over the years.

The path that boundary object approach takes towards knowledge is not to try to unravel or code tacit knowledge, nor to ask how knowledge may be stored, shared and patterned, but rather to understand how the selection and construction or co-construction of objects, e.g. methods, can serve to prototype bundles of various virtual resources in a physical space. (Dourish 2000, Barth 2005).

These bundles of resources are relevant for seeing the complex dynamics in agglomerates; items that exhibit in a co-active space - such as organization, city or any other concentration. This is because the links they convey with the external environments create affordances for co-construction of reality by actors with different expertise and experience, with different situated knowledge. (Haraway 1991, Preziosi & Farago 2004).

The co-construction of boundary objects, or even the co-enhancement of reality by boundary objects, that divide and connect practices and artefacts in non-random ways is considered an important issue in the organisational change management (Jacucci 2005, Schmidt & Wagner 2005) and clearly also for knowledge management.

When the concept of boundary object is coupled with futures research methods involving the coupling of:

1. Artefacts and practices, with
2. Actions and events.

Two things happens at the opposite ends of a phase transition, i.e. the use of method:

1. Bringing together parts of previously non-existing whole, and
2. Achieving the threshold that mobilizes a critical mass of users. (Barth 2005).

The two thresholds are similar in patterns, but situated at the opposite ends of a phase transition: the first one at the entrance, i.e. in the beginning of the use of a boundary object, in this case a futures research method and the latter one at the exit, i.e. when finishing the use of a boundary object.

A necessary commentary for the purposes of this paper is that the function of boundary objects as a common reference point does not have to be based on common assumptions, knowledge and practices, i.e. they will work as "points of reference" and "points of view", and frame (e.g. Sarr & Fairhurst 1996) the situation, whether the embedded assumptions of the used boundary objects, i.e. methods, are shared and acknowledged by the people using them or not. It is not rare when using a specific method that its actual consequences remain open and unspecified, or they are beyond the initial conditions of the visionary or strategic process. (C.f. Bowker & Star 1999, Barth 2004).

Our ability to make sense of and imagine futures is becoming more important than the present knowledge we possess, and therefore the methods that challenge our strategic thinking are as important as those that reduce ambiguity in strategic decision-making. An embedded, present or absent, requirement of a futures research method, is that it should facilitate or enhance strategic learning. (Aaltonen 2007 & 2008).

A Reformulation of the Model of Analysis

For Niklas Luhmann (1990) calling a system or the world "complex" is a dead end. Only after talking about differences between a system and its environment, or the earlier analysis and the new one, complexity becomes meaningful. In this paper, as perhaps Wittgenstein (1956) and Searle (1969) would say, applying language and models in different and novel way is a vehicle for innovation.

The recent business rhetoric talks more about instabilities and discontinuities than it has done ever before. The rapidly changing competitive environments are seen unforgiving of those who delay, and the steady pace of competence-destroying changes has made companies to reinvent them time and time again. Companies have moved from uncertainty reducing strategies to uncertainty absorbing strategies and increased their sensitivity towards their environment with teams and networks. (Mintzberg & Waters 1985, Hamel & Prahalad 1994, Brown & Eisenhardt 1998, McGrath & MacMillan 2000, Boisot 2003). Vast cognitive and methodological challenges face managers when linear developments are constantly interrupted by nonlinear developments. Emerging technologies, unexpected user patterns, and complex interactions between variables produce unforeseeable outcomes. New futures thinking and research is requested.
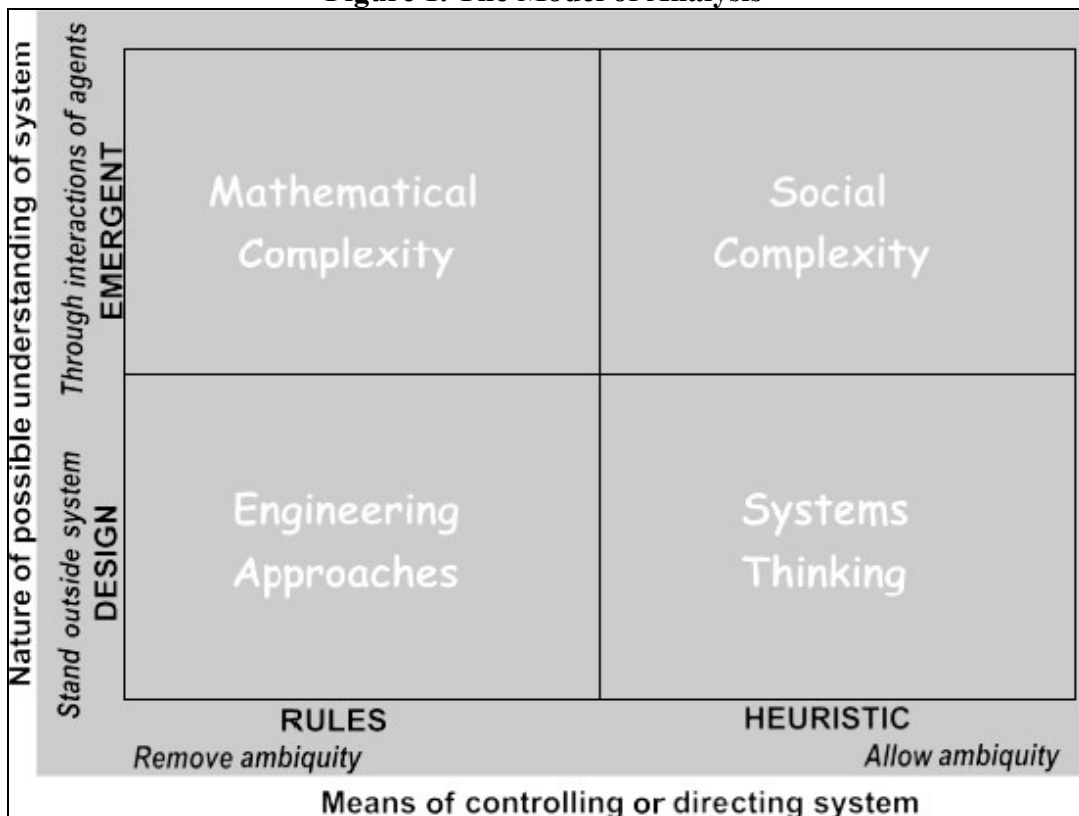
This paper claims that much of the sensitivity of an organisation is derived from its people and their ability to apply different theories and methods flexibly. Executives need to pay more attention to theory, and understand how the theory, even when implicit, and the methods they use, significantly influences the way they see their environment and the outcomes of their strategic process. That should be done rather than paying attention to simple recipes derived from a superficial understanding of past practices in other organisations "in the naïve belief that if a particular course of action helped other companies to succeed, it ought to help theirs too." (Christensen & Raynor 2003).

According to Hammer & Champy (1993), the dominant approach to strategy and management science in the 20th Century was based on engineering approaches (rule based design) in which the leadership of the organisation determined objectives and designed processes to achieve those

objectives, together with clear measurements of success and failure. Although this movement can be traced back to Taylor's creation of the term "scientific management", its most recent manifestation is found in the business process of re-engineering.[2]

The matrix in Figure 1 seeks to describe the landscape in which futures research methods are used, and show the variety and distribution of those methods related to the described qualities. It identifies four distinct types of landscapes, two of which – engineering approaches and systems thinking – have a long history, are used widely and currently dominate thinking and practice in strategic management. The other two – mathematical complexity and social complexity – are not yet widely used, and they represent both a contrasting and a complementary view of how the future emerges[3].

Figure 1. The Model of Analysis[4]

[2] The "dominance" of engineering approaches is arguable. Different and complementary views on paradigms in strategy and management science can be found e.g. from Gibson Burrell and Gareth Morgan´s *"Sociological Paradigms and Organisational Analysis"* (1979), Ingemar Arbnor and Björn Bjerke´s *"Methodology for Creating Business Knowledge"* (1997), Henri Mintzberg, Bruce Ahlstrand and Joseph Lampel´s *"Strategy Safari"* (1998), and Kaarin Holstius and Pentti Malaska´s *"Advanced Management Thinking"* (2004).
[3] Acknowledgements are made for the insightful comments and work of Dave Snowden of the Cognitive Edge Ltd, c.f. also "Innovation as an objective of knowledge management. Part I the landscape of management." (2004).
[4] The EU report *"Business Knowledge Management: A study on market prospects, business needs and technological trends"* (2005) seeks to provide strategic assessment of organisational knowledge management in Europe, and to present an initiative - Knowledge Management Made in Europe (KMME) - to support Lisbon strategy, describes the past trends that have have transformed society into knowledge-based economy, and future trends that will transform it further according to Figure 1.

The differences in the basic assumptions between these four approaches can be clarified: The vertical dimension looks at the nature of our possible understanding of the system, and the horizontal at means of controlling or directing that system. In the vertical dimension design is contrasted with emergence, while engineering approaches and systems thinking represent design, and mathematical complexity and social complexity represent more emergent processes.
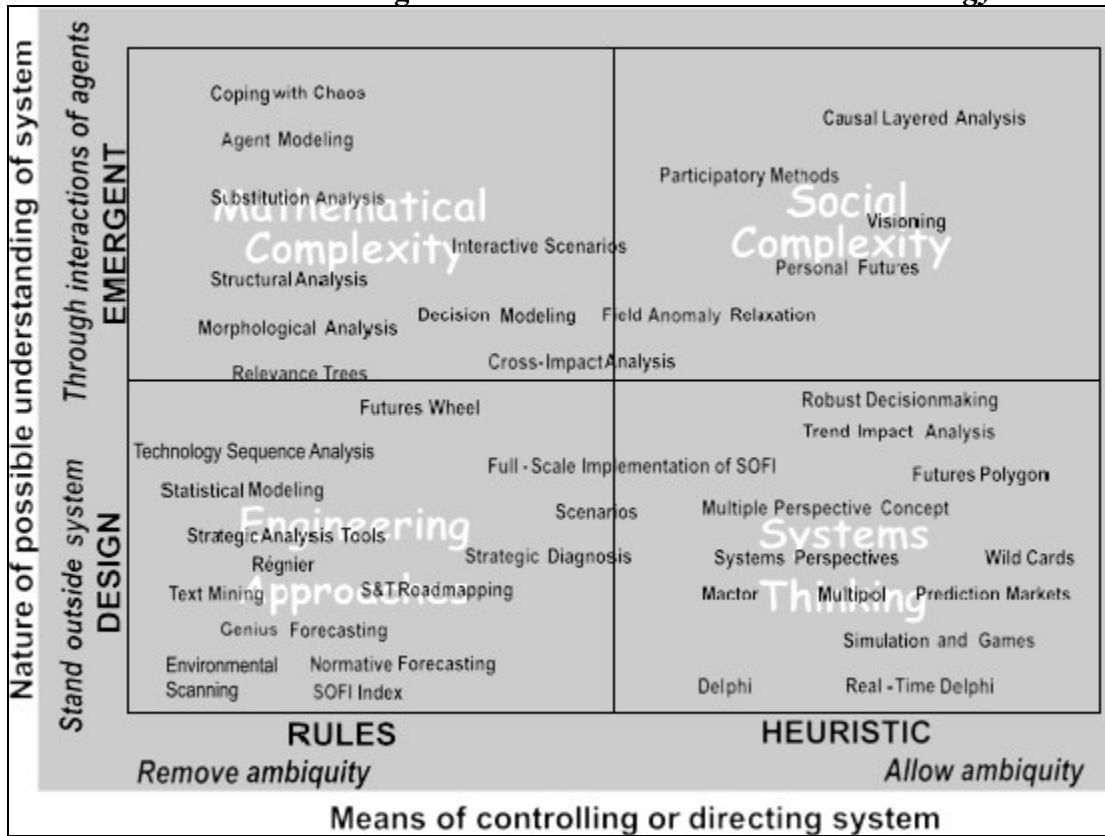
How sense-making is accomplished, and what kinds of solutions are provided in moving across time and space is at the heart of the model of analysis. By design, we mean the ability of a manager, leadership group, expert or researcher to stand outside the system and design the system as a whole. With emergent systems, the system cannot be understood or managed as a whole by a manager, leadership group, expert, and researcher or by anyone at all, because the system emerges through the interaction of the agents (people, processes, technology, government etc.) that act on local knowledge and their own principles. In the horizontal dimension we contrast rules (which could be restated as "process") which remove ambiguity; with heuristics (which could be restated as "values") that provide direction with a degree of ambiguity that can adapt to different and changing contexts. There is a design element to emergent systems, but not in the same way as earlier, because there are various ways to influence the evolution of such systems, but they cannot be led by any agent.

Evaluation and Organization of Futures Research Methodology – Version 3.0

Analysing *Futures Research Methodology – Version 3.0* is a great challenge that raises the question: How is it possible to find any general properties that could be attached to the diversity of the methods? No wonder "no agreement exists on the proper way to organize futures research methods". Several assumptions embedded in the methods differ from each other: What is the nature of reality? Orderly or Chaotic? What is the nature of human beings? Rational or muddled? What is the nature of knowing? Objective or non-objective? And further: What suffices as an explanation of how reality works? What kind of causalities are assumed to exist? How is the movement from past to present and towards a future considered? (Arbnor & Bjerke 1997, Stacey 2001, Dervin et al. 2002).

By using a "fuzzy logic" the methods are placed in the sense-making model. The model works as an effective communication tool that aims at delivering a large amount of information about the whole methodology of *Futures Research Methodology – Version 3.0*, the properties of the methods in the *Futures Research Methodology – Version 3.0*, and the relationships between the methods.

Figure 2. The Evaluation and Organization of *Futures Research Methodology – Version 3.0*

The analysis reveals that most of the methods presented in *Futures Research Methodology – Version 3.0* are designed to remove ambiguity and they concentrate on knowing, or to be more precise, on delivering more knowledge into a decision-making process. Most of the methods are also used outside the system in order to bring new information into the system. Other types of frequently used methods are those that seek to create an awareness of possible futures and what they convey. The embedded conception of causality, of how things happen, is that there is an actor, that is capable of finding the causalities and able to design interventions that lead to a desirable future.

There are methods that rely, even if implicitly, on different causal assumptions about how things happen. The methods placed in the upper half of the model share the belief that things happen through the (local) interaction of agents. The movement towards a future is seen to depend on the other actors, the adaptive moves of a single actor influencing other actors' strategies by creating new possibilities and constraints. By counting the number of methods that habituate the upper part of the model, this approach would seem to be less popular among futurists than the previous one. However, some methods are made with the aim of removing ambiguity and simulating emergent possibilities. The smallest number of methods lies in the social complexity corner. The methods that try to provide direction with a degree of ambiguity and in a not always orderly environment are few. (E.g. Juarrero 1999, Stacey & Griffin & Shaw 2000, Shaw 2002, Aaltonen & Sanders 2006).

Ideas and Insights

In this paper the evaluation and organization of Millennium Project's *"Futures Research Methodology – Version 3.0"* is based on engineering, systems thinking, mathematical complexity, and social complexity perspectives.

We assume that the qualities of a method derive at least partly from assumptions about the basic nature of organisational life. The answers to these assumptions reveal three important properties of each method: how the method stands in respect to whether or how much managers are or should be in control, how ordered or chaotic the landscape where the actions take place is or will be, and finally what are the means offered for creating the future?

Linear thinking, and researchers and strategists, who act based on that, tend to simplify the world and search for right answers. However, it might be more pertinent to assess those issues that are not under our control – not the known, but the unknown, not the certainty, but the uncertainty, not the linearity, but the non linearity – and improve the methods that work under these assumptions and in those landscapes, and simultaneously to create new methods to better catch and imagine new futures under conditions that are not stable and linear. This would create more sensitivity and innovation, especially if an organisation uses multiple methods in its foresight. Some examples of possible combinations are described by Glenn and Gordon (2003), and a system for creating new ones is also presented. "One could explore a new combination by asking in each cell of this matrix: How can the methods in the first column create new and improved uses of the methods listed in the top row of the matrix. A third dimension of the matrix could list new conditions or technologies, such as globalisation, nanotechnology, virtual reality, ubiquitous computing, etc." Of course knowing the existing ones and understanding their properties is a requisite for this kind of work.

It is perhaps correct to claim that methods presented in the lower left-hand corner of Figure 1 are, or have become well-known and that they are also relatively easy to use. In the upper left-hand corner the methods are much more sophisticated, they often need some mathematical background and programming skills. Despite their sophistication there exist some serious doubts concerning their capabilities for offering anything else other than engineering approaches. In the lower right-hand corner, systems approaches, handles ambiguity better than more design-orientated approaches, and offers more stability than emergent approaches, but only works well in conditions where there is a limited number of interactions and the system can be designed. Finally, in the upper right-hand corner, social complexity, is here presented as a not yet wholly used field of possibility. It has not been widely adopted because its main capability is limited to dealing with poorly understood emergent, nonlinear phenomena, and creating explanations and providing an understanding of a system's direction without being able to control that system. (C.f. also Snowden & Boone 2007).

One more argument can be added to the earlier presented arguments, namely that the business environment is becoming ever more complex. And one conclusion to be drawn from this should be that companies need to shift from ambiguity reducing strategies to ambiguity absorbing ones. All this requires developing theoretical and methodological tools very different from those we use now. It is a promise founded on the possibility of incorporating emergence into our

understanding of strategic processes and the possibility of a new kind of order arising from, or being found hidden within a complex phenomena i.e. an order based on the tools and methods by which people make and unmake ordered/unordered worlds.

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