

MIKA AALTONEN<sup>1</sup>

# Multi-ontology, Sense-making and Management

## ABSTRACT

**T**his paper argues that the main source for increasing relevance and accuracy in sense-making and management derives from the explicit recognition that there are different types of systems in which different causal assumptions apply. The paper demonstrates how the different systems can be recognised and shows how this recognition, the ontological analysis, should influence the tools, techniques and methods we use in order to make sense of each situation and determine the management interventions we choose to make.

**Key words:** Multi-ontology, time, sense-making, decision-making, effectiveness

### Distinguishing Different Types of Systems

Planning, management, leadership, strategy, sense-making and foresight are all disciplines for improving decision-making. We use these ways of thinking, and the practical tools that go along with them to manage our time, to allocate our resources, to launch projects, and to set targets and goals. These ways of thinking shape the

decisions we take now and play a role in what happens next. And naturally, the quality of the life we live today is partly influenced by past and present decisions. (Miller 2006).

This article claims that the fundamental determinant of the quality of our decision-making depends on whether we see the data, attend to what we see and if we act on what we see in appropriate manner. Additionally, both issues,

---

<sup>1</sup> Mika Aaltonen is Head and Chairman of the Board of StraX (the research unit for strategic intelligence and exploration of futures) at Helsinki University of Technology.

MIKA AALTONEN,

Helsinki University of Technology • e-mail: mika.aaltonen@tkk.fi

# DISCUSSION

sense-making and management, gain their effectiveness not from tools, techniques and methods alone but from the fit between the tools, techniques and methods and the type of system in question.

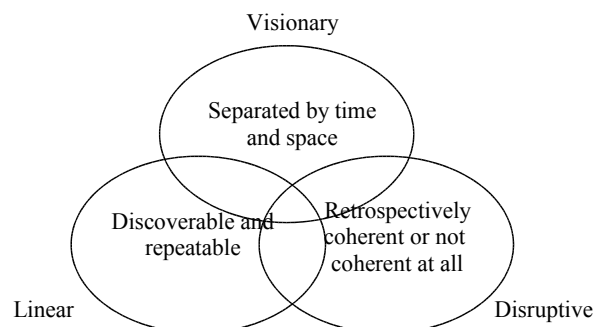
Firstly, we need to take one step back and consider how, in Western societies, for hundreds of years, we have been taught to think, or we have been conditioned to think that order is good and something that must be maintained. The preference for order is accompanied by the assumption that the very nature of the strategic landscape is order. In brief, we assume a single ontology<sup>2</sup> – that of order. (Aaltonen 2007b). Consequently, if we assume something, it is only natural that we behave, i.e. make sense and manage accordingly.

The fundamental issue that influences our sense-making and management is the way we think of relationships between cause and effect. This article suggests that instead of assuming a single ontology, that of order, we should be explicitly more sensitive towards the properties of the strategic landscape and assume multi-ontology, which means recognizing that there are different kinds of systems in which different causal assumptions apply. (Aaltonen 2007b).

The different systems have different causal assumptions which apply. In a linear system cause and effect relationships are discoverable and repeatable, in a disruptive system they are retrospectively coherent or not coherent at all, and in a visionary system they are separated by time and space from the present moment. This recognition should precede the selection of tools, techniques and methods in our sense-making and management decisions and choices (Aaltonen 2007a).

When the figure 1 is presented to business people as a discussion point, they are perplexed. A significant minority claim that they do not understand what it means. However, a majority of managers and directors feel immediately, intuitively comfortable with the framework and are able to place themselves and aspects of their life inside of it in a natural way. In fact, they are able to explain and make sense of their lives in a comprehensive way, as well as to find a place for issues that have been difficult to deal within the linear system.

I have asked people to give a word, or say a sentence or a metaphor that depicts each domain. In many work shops the discussions have been enlightening. We have dealt with wide



**FIGURE 1. Different systems have different causal assumptions.**

<sup>2</sup> Scientific is used here in a minimalist fashion as an analysis based on explicit methods that test hypotheses pertaining to a particular subject through inter-subjective evaluation.

TABLE 1. Examples of issues in different systems

	Linear	Disruptive	Visionary
People	Germans	Swedes	Finns
Mountain	Pyhätunturi	Etna	K2/Himalya
Occupation	Architect	Artist	Dreamer
Person	Matti Vanhanen <sup>3</sup>	Mr. Bean	Bill Gates
Sense	Hearing	Feeling	Sight
Way of knowing	Measurable	Multivariable	Predictions

ranging, varying concepts with the assistance of the framework. The table 1 presents some of the insights.

These kinds of results will certainly not satisfy the yearning for the scientific<sup>4</sup> consideration of the knowledge, for example the discussion about people was accompanied by much laughter, and it is indeed difficult to judge whether they are correct or incorrect, but one thing is sure, the framework creates a common platform for communication, learning and the questioning of the fundamental beliefs and assumptions that guide people's lives.

## Relevance of Time

With a little effort we can move a step further from the ideas presented in figure 1. Next we want to create a coherent model that takes into explicit consideration the two significant elements involved i.e. ontology, or the nature of the phenomena under investigation, and time.

Time is considered to be historically and culturally specific. This means that situations are rooted in a particular moment and place and seen through the perspective of a certain set of

lenses. Different historical periods, different cultures, and different stages of the lifecycle all display different relationships to time. The challenges people face have natural time-spans (days, weeks, months, years, decades, generations), which need to be taken into consideration. And if we are about to develop a temporal and situational awareness, we must also recall that when change happens over time, particular challenges can be situated in time according to people's values and expectations. (C.f. Miller 2007).

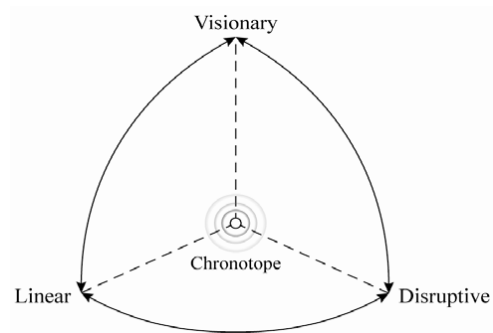


FIGURE 2. Chronotope space.

<sup>3</sup> Finnish Prime Minister 2007.

<sup>4</sup> Scientific is used here in a minimalist fashion as an analysis based on explicit methods that test hypotheses pertaining to a particular subject through inter-subjective evaluation.

## DISCUSSION

The shape of the chronotope space in figure 2, has a clear structure and is based on specific motivations. In the left corner where the arrows meet, there is the present moment at its most linear state; there the cause and effect relationships are clearly repeatable. If we go further in time, even in a very linear situation, the curve starts to bend to the right, because as we move further away from the present moment the amount of uncertainty increases. In the right corner where the arrows meet, there is the present moment in a state of chaos. The line bends to the left, because when the chaotic situation lies further away in the future, the likelihood of a future event or a condition coming into being can be changed by policy consideration – if work is begun on it in the present, and the policy consequences can be forecasted. The top corner presents the furthest relevant time horizon that varies according to the challenge.

Furthermore, the reason why the line below, from left to right, is not straight, like the imaginary line of the present moment would be, is because under the imaginary straight line is the history of the relevant events. This shape thus allows space for hindsight analysis.

A coherent model must enable us to reflect on the ontology of the situation and the specific time-span of the situation. The chronotope space in figure 2 enables a socially constructed analysis of the situation with the assistance of the old Greek concept of chronotope, literally a place in time. For example, in figure 2, the chronotope is situated approximately in the middle of the figure. This means that the situation lies further in the future, probably in the near future (from one to three years) and it is not completely linear, nor affected by excessive disruption. At this particular chronotope, certain sense-making tools work at best and cer-

tain management interventions are appropriate. These can be seen in the figures 3 and 4.

If the ontological analysis was different, the preferred tools and interventions would also be different.

### Sense-making and Management

Often sense-making in organizations occurs, explicitly or implicitly, in the form of methods. We use a blueprint, written or not, to guide our efforts and we construct reality through the lenses gained from those methods. Many of these blueprints work, but they work within boundaries. Figure 3 illustrates how the ontological analysis is made with the aid of the chronotope space in order to discuss how approximate boundaries within certain methods work and also to demonstrate what kind of knowledge it is possible to gain with the use of certain methods.

The methods in figure 3 stem from futures studies, French prospective thinking, US complexity and intelligence communities, and, of course, from management science. Generally, it can be said that the traditional futures studies methods present the future, and are able to present the future, as a continuation of the present. Many of these methods are therefore placed in the upper left hand side. The same applies very much to French prospective thinking; however there are differences in the used methods, even if the basic ontology behind them remains similar. US complexity and intelligence methods have a different underlying philosophy, which allows for uncertainty and is based more on the emergent aspects of the future. Accordingly, they are situated more on the right side. In contrast, traditional management methods are placed lying in the low left side as they concentrate on the present moment or on

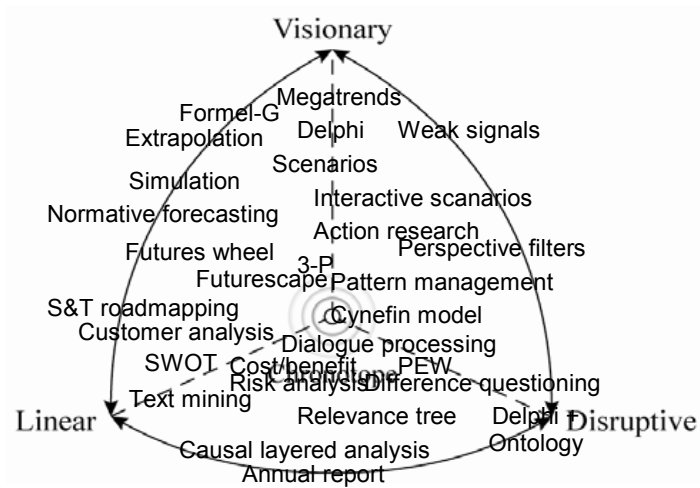


FIGURE 3. Sense-making in chronotope space.

the near future. They are often representative of a single ontology and do not even discuss other possible ontologies. (Glenn & Gordon 2003, Kurz & Snowden 2003, Godet 2006, Aaltonen & Sanders 2006, Aaltonen 2007, Sanders 2007).

Most of the methods represent a single method, but Formel-G (the foresight model for evaluating long-term growth), Futurescape,

Cynefin model, 3 – P (platforms, pieces and probabilities), and PEW (political early warning) are compilations of several methods. Causal layered analysis and annual reports stand as examples of several methods used in sense-making that focus on hindsight, that which has happened.

Figure 4 below discusses the relevance and accuracy of management theories. It en-

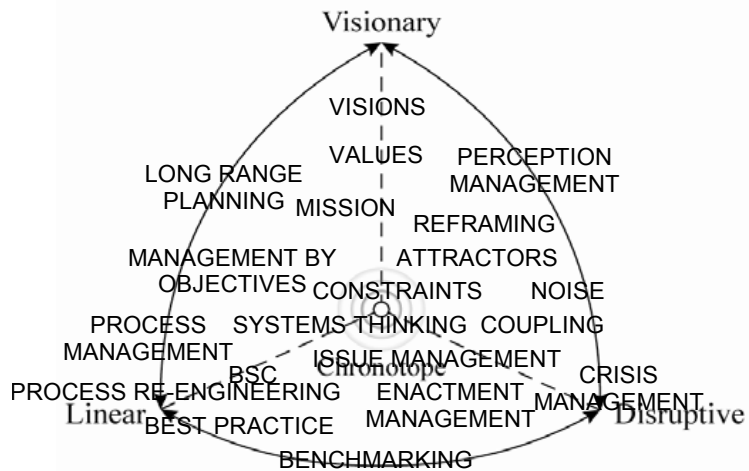


FIGURE 4. Management according to chronotope space

## DISCUSSION

riches our understanding of how management theories are enacted in different systems and provides a rich foundation for explaining the boundaries for influential management. (Näsi & Aunola 2001, Kurz & Snowden 2003, Lichtenstein et al. 2006, Surie & Hazy 2006, Aaltonen 2007).

For example the boundaries for process re-engineering, best practice and benchmarking consist of systems where cause and effect relationships are discoverable and repeatable. Crisis management, enactment management or even more generally authoritative management are most appropriate in disruptive situations. The first group works poorly when applied to situations better suited to the second group, and vice versa. In addition all the theories mentioned here would probably produce poor results in managing the situation further in the future, even if that situation would be knowable, a situation found more on the left side or disruptive, a situation found more on the right side.

### Conclusions

The starting point for this article was to clarify that there are different types of systems where different causal assumptions apply. These systems were defined as linear, disruptive and visionary. So there exists not just one ontology, but several, hence the name multi-ontology. The paper further claims that the system dictates which tools and interventions are most suitable.

An ontological analysis matters because sense-making in its various forms, conscious and unconscious, volitional and non-volitional, shapes the decisions we take, the way we manage the situation.

This article suggests that the ontological analysis should always be conducted explicitly

and presents a method for doing this. The first step is to use a chronotope space to make sense of the trade-offs between time frames and the nature of the strategic landscape. This leads to the second step, which determines the use of appropriate methods, and the third step, which matches the appropriate management interventions to the situation. ■

### References

- AALTONEN, M. & SANDERS, T.I. (2006) Identifying systems' new initial conditions as influence points for the future. *Foresight*, Vol. 8, No. 3, 28–35.
- AALTONEN, M. (2007a) *The Third Lens. Multi-ontology Sense-making and Strategic Decision-making*. Ashgate Publishing Limited. Aldershot.
- AALTONEN, M. (2007b) Chronotope Space – Managing Time and the Properties of Strategic Landscape. *Foresight*. Vol. 9. No 4, 58–62.
- GLENN, J. & GORDON, T. (2003) *Futures Research Methodology*. AC/UNU Millennium Project Publication.
- GODET, M. (2006) *Creating Futures. Scenario Planning as a Strategic Management Tool*. ECONOMICA. Paris.
- KURTZ, C.F. AND SNOWDEN, D. (2003) 'The new dynamics of strategy: Sense-making in a complex and complicated world', *IBM Systems Journal*, vol. 42, No 3, 462–483.
- LICHTENSTEIN, B.B. ET AL. (2006) Complexity leadership theory: An interactive perspective on leading in complex adaptive systems. *E:CO*, Vol. 8 No. 4, 2–12.
- MILLER, R. (2006) From trends to futures literacy. Reclaiming the future. *Centre for Strategic Education. Seminar Series Paper No. 160*, December 2006.
- MILLER, R. (2007) Futures literacy: A hybrid strategic scenario method. *Futures* 39 (2007), 341–362.
- NÄSI, J. & AUNOLA, M. (2001) *Yritysten strategia-prosessit. Yleinen teoria ja suomalainen käytäntö*. Jyväskylä. Gummerus Kirjapaino Oy.
- SANDERS, T.I. (2007) *Strategic Thinking in a Complex World*. Washington Centre for Complexity and Public Policy Press.
- SURIE, G. & HAZY, J.K. (2006) Generative leadership: Nurturing innovation in complex systems. *E:CO*, Vol. 8, No. 4, 13–26.