



Københavns Universitet

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Kristiansson, Michael

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Short Views and Hints on Information, Knowledge and Scenarios

Introduction and Problem Statement

The present article discusses selected problems relating to information and knowledge in scenario planning. At least three problem areas relating to planning can be identified that are associated with knowledge and information.

First, you can never achieve certain knowledge about the future; "structured uncertainty". Consequently, all planning takes place in an atmosphere of uncertainty and involves a risk of being wrong and making wrong decisions.

Second, the planner's and the decision-maker's mental models¹ can be a problem in terms of being able to spot development trends; "bounded Rationality". The reason is that mental models serve as reading principles with some objects and phenomena becoming distinct whereas, at the same time, other become invisible and are neglected.

Third, a tradition and consensus-oriented organizational culture can be a problem when it comes to identifying or detecting new trends, if participants constantly confirm each other that the world looks or appears in a particular way; "group-think".

Scenario planning attempts to tackle the aforementioned problem areas. The question raised here is: what type of information is included in scenario planning and what knowledge does it produce? And can it be described in more detail?

First, I will briefly present scenario planning. I will then describe the scenario method and technique; "scenario narratives" or just "scenarios", the scenario workshop and the iceberg model. I will continuously discuss what kind of information is included in scenario planning and what type of knowledge the scenario technique produces. Finally, I intend to sum up and discuss the relations between information, knowledge and scenarios.

I have previously written about scenario planning and scenario techniques and approaches, cf. Gaml & Kristiansson (2006); Kristiansson (2005, 2007a, 2007b, 2008). The present paper draws upon the above articles and van der Heijden (2005). This article is intended for educational use. The analysis does not provide an exhaustive answer to the issue mentioned above, but it should be seen as a clarification of the issue and in that sense the article represents an elucidation of scenario planning.

¹ When we try to understand the world we do so based on our horizon i.e. the experience and knowledge we have. In scenario planning, this horizon is discussed using the label "mental models" (Wack, 1988) or "schemas" (van der Heijden, 2005: 133).

Scenario planning

This paper is based on "scenario planning" as described by van der Heijden (2005). "Scenario planning" was introduced by Pierre Wack² in the Royal Dutch / Shell Group, Shell in 1960, based on Herman Kahn's scenario thinking; see Kahn & Wiener (1967) cited in van der Heijden (2005). "Scenario Planning" can be understood as a particular planning paradigm known as "the processual paradigm" and is presented in van der Heijden, (2005: 21-50) as an alternative to two other planning strategies: a) the "rationalist" and b) the "evolutionary paradigm" respectively. In contrast to the other two planning strategies, "the processual paradigm" or "scenario planning" is characterized as particularly suited to handle the unpredictability, complexity and uncertainty. "Scenario planning" attempts to tackle a dilemma that can be put as follows: on the one hand, no one can predict the development, and, on the other hand, you can only see the actual developments in a historical perspective.

Thus, characteristic to "scenario planning" as a planning paradigm is the reliance on an assumption about structural uncertainty, complexity and unpredictability in the planning situation. Structural uncertainty means that society is influenced by a number of hidden social drivers affecting each other in a relatively cumbersome way – a situation or state that produces complexity. Unpredictability means radical uncertainty in relation to planning. Hence, the challenge is address and handle complexity and uncertainty in a qualified manner and to include and recognize this uncertainty in the planning situation.

The object of scenario-based planning is to provide a basis for decisions that are robust as possible in facing an unpredictable future. The dilemma is that planning cannot be undertaken on the basis of certain information being aware, however, that it is necessary to plan and make decisions based on incomplete information.

Scenario planning is about being able to interpret developments in the surrounding world in the optimal way, i.e. in the most qualified manner: *"One of the most important objectives of scenario based planning is to make the organisation a better observer of the environment"* (van der Heijden, 2005: 148). Being more precise, it is more about being able to spot the weak but important signals about changes in the environment. Thus, scenario planning implies establishing an information system that is able to identify change and make that change meaningful at the organizational level.

Van der Heijden, (2005: 111) observes that scenario planning is instrumental in handling uncertainty in three different ways:

1. *"They help the organisation in understanding the environment better, allowing many decisions to be seen not as isolated events but as part of a process of 'swings and roundabouts'. In this way scenario-based planning helps managers to avoid undue conservatism, by allowing 'calculated' risk taking*
2. *Scenarios put structural uncertainty on the agenda, driving home to organization what sort of 'accidents are waiting to happen'. In this way scenario-based planning helps managers to avoid taking undue changes,*

² Cf. Wack (1985a,b)

3. *Scenarios help the organisation to become more adaptable by expanding their mental models of the business environment and thereby enhancing the perceptual capabilities needed to recognise unexpected events and take proactive action”.*

It then follows that scenario planning is about how to get policy makers realize 1) that the world is constantly changing, 2) that this transformation can be a threat to the organization and 3) the need to act proactively. Scenario planning can both provide valuable insights into society and get decision makers to recognize the necessity of and the quality to be achieved by continually pursuing innovation in line with societal changes.

Consequently, scenario planning serves as an eye opener, but in addition, the scenario approach can be viewed as an instrument that is capable of creating action readiness in relation to unexpected situations; scenario planning helps creating a system for proactivity. This action readiness is created by generating a kind of artificial memory or experience about the future. Through a kind of simulation process exercises are being made to face and tackle possible future situations, a process which in principle serves to increase one's possibilities for facing, addressing and in some cases even counteracting unexpected situations.

Through conceptualization and effective internal communication and by training oneself to cope with change at an early stage, the organization has the possibility to respond quickly to unexpected events.

Scenario planning also allows those involved the possibility to train themselves to cope with risky situations as well as to assess the opportunities for innovation, an issue which is not discussed further in this article.

In general, decisions will be more robust and the organization more flexible.

The term scenario planning is a little misleading. Scenario planning has, in fact, more to do with learning than with planning. Scenario planning is about at least three types of learning: accommodative, 2) lifelong and 3) institutional learning.

- Re 1) accommodative learning³ is here defined as the establishment of a new perception of the outside world and developments in the surrounding world. This is done by breaking down stereotypical mental models about the world and by constructing another model that allows those observing to spot several trends of development
- Re 2) lifelong learning, which brings about a permanent openness to change, where you develop the ability to constantly ask new questions and be wary of solutions and answers to questions by continually asking new questions for example the question "what if"
- Re 3) institutional learning, which should prevent group-think

Narratives are thus the key source of information in scenario planning - the so-called scenario narrative or scenarios.

Scenarios

Scenarios are the tool you use in scenario planning in order to identify and interpret changes in the environment. Narratives are able to structure information that is fragmented and create mental order in a fragmented reality. In other words, scenarios are helpful in organizing a series of diverse and distinct

³ And transformative learning cf. Illeris (2006)

elements so that they can be transformed into a meaningful whole and thus make sense in a confusing world. One of the main objects of scenario planning is that organizations should become better observers of their surroundings. The mental models must be challenged and extended. Thus, the core function of the scenarios is to create meaning between the organization on the one hand and developments in the outside world on the other:

“Scenarios... a bridge between the existing understanding and new alternative views or frameworks that can be used to interpret what is happening in the outside world” (van der Heijden, 2005: 146).

Van der Heijden (2005:133) writes that scenarios could prevent us from maintaining a “one-track mind” in relation to the future. Just by making many different scenarios, each of which depicting alternate possible futures or future situations we are made aware that we cannot reliably predict future developments. In this way, we avoid falling into the trap of “one-track mind”. We recognize the necessity to incorporate uncertainty as an essential element in the planning process

The assumption is that decision makers find it difficult to detect weak but important signals about changes in the environment. The idea is that decision-makers' mental models are extended through the so-called scenarios where function of the scenario is to get the information that is easily overlooked to light and make it clear. This is done by creating different frames of reference in terms of scenarios; in a particular frame of reference some information makes sense whereas in another context, or frame of reference, that specific amount of information does not make sense.

Therefore, one scenario narrative is never enough; many scenarios represent several different trends of development: *“Therefore scenario planners need to incorporate a wide range of outside opinions in the scenarios”* (van der Heijden, 2005: 148). This is done by producing many different scenarios that represent a diversity: *“A set of scenario stories is an effective means of capturing and organising a wide range of external ideas and making them stick.”* (van der Heijden, 2005: 148). With multiple scenarios available, we can train ourselves to face alternative future possibilities and thus enhance the overview of and the insights into eventualities, while at the same time widening our horizon. If those concerned with the planning, design and implementation of scenarios succeed in having different models representing the surroundings embedded in the organization as a collective mind the organization will increase its awareness of changes in the environment.

A plurality of scenarios is distinctive in several ways. 1) They direct the attention towards structural uncertainty, 2) they coordinate knowledge from many different disciplines to form a multi-disciplinary (or trans-disciplinary) understanding of the world, 3) they do not introduce and lay down a theory about the nature of the world but serve to illustrate the opportunities and threats in change and complexity, cf. van der Heijden (2005:139).

An effective narrative scenario has a direct influence on the organization's vision. A good scenario narrative is a story that on the one hand appears both relevant and plausible and, on the other hand, includes an “element of novelty” and “surprise” on the other side. The scenarios must be relevant in order not to be neglected. The scenarios, which deal with what worries people - that which makes them to lie awake at night – will typically be perceived as interesting and important. (van der Heijden, 2005: 145-46).

Hence, a good and effective scenario is both plausible and gives rise to unorthodox thinking along with innovative approaches. The value of a scenario narrative lies in its contribution of reflection and thinking and how it represents the relevant trends of development and the future. As you cannot express yourself for sure on the future you will have to evaluate each scenario story solely on its contribution to reflection and innovation. Just because no one can comment on the future with certainty the best thing to do is to present and do training and exercises concentrating on producing as many effective and good scenarios as possible. In this way - by practicing on many scenarios - in principle you increase the chance that a scenario will become a reality at a later stage and you can react faster in a familiar situation than if you would have to respond to an unknown or unfamiliar situation. A test of a scenario can be the newspaper trial: if you read dailies, using scenarios as glasses, and begin to notice trends of development not observed before, the scenarios have had an effect.

In scenario planning, the scenario should be accepted as they are, as narratives, and not as predictions. For instance, if a scenario concludes as follows: in a few years, paper books will no longer exist, but only digital publications will be available, and it turns out to be incorrect then it is a wrong prediction but not necessarily a bad scenario. The scenario should be measured and judged on the basis of the reflection it causes and whether it has resulted in informed decisions and not on whether it has come true.

A criterion for the scenarios is not whether they are right or wrong, but whether reliance on these tools has led to better decisions. The scenario story must constitute the bridge between the existing understanding and new alternative views; the narrative should provide the framework which can be used to interpret what is happening in the outside world. This is the biggest challenge for any scenario narrative. The point is to find the right balance between the familiar and the novel; writing scenarios is more "art" than "science"(van der Heijden 2005: 146-47).

Scenarios create meaning about future events similar to the manner in which historical explanations make sense about past (van der Heijden 2005: 134). Scenarios create what Ingvar⁴ calls "memories of the future" – that is a kind of artificial memory or experience for a future, which you've never visited but have only imagined in fantasy. The point is that you accumulate knowledge about an imaginary future situation by examining it through a sort of simulation process. If the situation then arises, you have recalled the situation.

Scenarios thus serve as a tool for reflection, analysis and learning.

The Scenario Workshop

The stories are produced in the scenario workshops based on the iceberg model, as discussed below.

The scenario workshop aims to produce scenarios. Narratives are developed through a structured discussion among participants in a workshop or workshop series. In composing the workshops, participants can be selected using a variety of principles such as for instance a composing approach allowing directors, employees, stakeholders and experts to attend respectively, or a composition with these categories grouped together. In the workshop, participants represent knowledge about the organization and its environment. A scenario workshop is conducted as a structured conversation among participants with a neutral moderator who organizes the discussion. In the scenario workshop, participant's knowledge is

⁴ Cf. Ingvar (1985) cited in van der Heijden (2005:133)

externalized; i.e. the workshop session is instrumental in making the participant's knowledge visible to certain extent to the other participants. This is typically done by having the discussion recorded, summed up and "hung up on the blackboard." Participants draw up a number of scenarios together. The stories represent a common framework of understanding along with a language-mediated context and instrumentality reflecting the organization's position in relation to changes occurring in their surroundings.

The nature of the scenarios partly depends on the composition of participants in the workshop – their experience and professional and subject-specific skills, competences, etc. - and partly on the way the discussion is organized. Some scenarios are choreographed and conducted by community experts, but this does not mean that these scenarios are better than those produced solely by the laity.

In the workshop, the iceberg model is relied on as a tool.

The Iceberg Model

The scenarios are developed based on a model that can be illustrated as an iceberg. The assumption relating to the iceberg model is that events, etc. cannot be identified as random but are determined by basic social drivers that cannot be seen. The scenarios are portrayed as a deductive process emanating from and taking into account selected drivers. In this way a discussion framework is identified, where the discussion aims to fill the framework; the outcome is available as consensus scenarios.

The Iceberg model can be illustrated as follows: That which is above the waterline - that which can be observed - represents the visible matters, for example, events and other phenomena. That which is located just below the surface represents trends that are blurred and are only just visible. That which lies deeper represents the underlying or fundamental structures – driving forces – that are hidden.

The assumption that observable events are determined by basic structures does not imply a parallel assumption about a causal relationship that can be mapped through the scenario process. Structures are considered so complex that modeling is not possible (structural uncertainty). Consequently, an attempt is not made to predict the future by identifying the causal relationships of structures and events. Hence, the iceberg model should not be viewed as an attempt to create a description of along with a theory on community development. In contrast, the iceberg model represents an attempt to establish a qualified discussion and reflection tool in order to spot or detect something you have not thought of before. The model paves the way for seeing new opportunities or taking heed of something.

Thus, the iceberg model serves as a basis and structure for a conversation about the future. A large number of drivers are identified that you believe will have a decisive influence on the development and thus the organization. The drivers selected constitute the foundation for a conversation about the future that is typically driven by the question "what if?". For example, "what if " oil prices rise? Or "what if " oil runs out? Or there will be instability in the Middle East? What are the implications and what does it mean for our organization?

It is considered necessary to build on what appears relevant to the participants, i.e. in their mental models. Only then, only at that stage, the broad societal drivers are interesting to work with. Therefore, the participants' task is to identify the relevant drivers. An important task in the scenario workshop therefore is to identify the drivers regarded as significant by the participants - those they believe rule or control the development - and which they believe are critical to the organization and its future. Participants are asked

to identify drivers with the following three characteristics: 1) those with the greatest impact on the future of the organization, 2) those which the organization does not have control over - an independent variable - as opposed to for instance economic and financial priorities as determined by the organization itself and 3) the driving forces, whose impact and perspectives are most unpredictable. For example, the technological development is a driver, which has typically generated considerable awareness and been identified as a key driver within a library context. This is because (referring to 1) trends in information and communication technology have had decisive effects on developments in libraries over the past 20 years; (referring to 2) that this is a type of driver, on which the library itself has no influence and (referring to 3) that the implications of information and communication technologies on the library are perceived as difficult to predict, e.g. the appearance and impact of social media like Facebook.

The Discussion of the Iceberg Model

The Iceberg model is not used to find definitively correct answers: it is not a method for identifying patterns in the basic structures; nor is it a set of instructions facilitating the isolation of causality or the design of societal models. The iceberg model is therefore not about theory, nor should it be viewed as an attempt at a comprehensive ontological description of the community. This is not about understanding and explaining reality. Scenario planning cannot be compared to a puzzle where the pieces must be identified and placed in a certain way. On the contrary, in one sense or another scenarios reflect participants' understanding of society and community affairs. A variety of scenarios invite reflection, learning and innovation.

The nature of the scenario process and scenarios depends on the way in which participants in the scenario workshop interpret fundamental societal forces and fill the frame. One can therefore argue that the process - e.g. what one identifies as driving forces - and the result itself - the scenario narrative - is arbitrary.

Each scenario story represents different interpretations of the complexity of the various structures. They represent, however, an attempt to penetrate the deeper structures and have them called up or "lifted" to surface level in the form of narratives and thus making them subject to actions. Hence, the scenarios in their diversity represent several possible interpretations, views, ideas and images of the future and action opportunities. They represent a mental openness to development and underline the necessity of lifelong learning.

Summary and Conclusion

The question raised initially - what type of information is included in scenario planning and what kind of knowledge does it produce? And can it be described in more detail? - can be addressed as follows:

Scenarios are the primary information source or information asset in scenario planning. Scenarios are produced in workshops with the nature of the scenario sessions depending on the range of participants and workshop process.

Scenarios should not be assessed on whether they are right or wrong but whether they lead to better decisions. We know that unfortunately only in hindsight. Whether a scenario narrative represents relevant trends and developments and the future is difficult to assess ex-ante but easier to tell ex post.

What remains to be said is that a good scenario narrative is a narrative that surprises with unconventional thinking and innovation and thus brings about visions and suggests follow-up action. A variety of good

scenarios can sharpen our awareness of community development and open our eyes to the potential threats and opportunities. But one should never forget that scenarios are stories and not predictions. Scenarios are typically related to current reality to build commitment. Scenarios are also related to future in the sense that fundamental societal drivers usually work over a long time. But conditions can change and those who have "figured it out" or rather casually prepared themselves for this situation has an edge over others who have not done so.

The conclusion is that in order to achieve an acceptable informational basis in scenario planning you should produce a greater number of scenarios based on a multiplicity of different drivers as represented in the iceberg model and the individual scenarios be both credible and capable of contributing optimally to learning and innovation. The key is to operate with a multitude of opportunities and views of the future and not dwell on a single one. The task and challenge is to constantly develop and present new ones.

Scenarios can be applied for several purposes:

- Recognize the necessity and quality of continuous innovation in a world in constant change. Learn about the development in progress: a) the complexity of outside world, b) that there is constant change in the outside world and, as a consequence, realize the need for continuous innovation
- Detect catastrophic situations (fear scenarios)
- Spot opportunities
- Create action-centered readiness in relation to unexpected situations - be proactive - by simulation: create artificial experience / memory about the future. Remember practicing and training to cope with future situations, increase one's preparedness

This is not an exhaustive explanation of how information, knowledge and scenario planning are linked. Rather this is meant as an attempt to clarify the scenario technique in relation to the information involved and the knowledge it produces. I have tried to describe the problem so that students and others can continue working on their own.

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