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Filters in the Strategy Formulation Process

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Abstract: In the fast moving businesses the ability to be flexible and adaptive to change is crucial. When monitoring their operating environments for weak signals and for other disruptive information companies face filters that hinder the entry of the information to the company. We are discussing three filters: mentality filter, surveillance filter and power filter. Each filter has a logic of its own that hinders effective knowledge flow. We introduce a software tool that helps to overcome these filters especially in a strategy formulation process.

Key Words: Strategy process, filters, weak signals.
Category: J.4 Social and Behavioral Sciences

1 The Importance of Knowledge to a Company: An Introduction

The importance of knowledge to business increases and there are few signs that the pace would slow down. This is due to the fact that more and more of the added value companies create is built on the tacit and explicit knowledge that individuals collect, possess and create. The purpose of a company is, by its existence, to produce more value than individual actors operating alone. One of the characterizing features of the new economy as a system is the fast feed back loops that create an emergent order for the economy [d'Aveni 1994, Brown and Eisenhardt 1998]. The literature suggests that flexibility is the best means to compete in this context [Sanchez 2002]. The key competence of an organization is its capability to capture the external information and then to build up proactive strategies or innovations for the changing environment.

The above implies that one of the major challenges that the managers are facing today is how to take full advantage of the knowledge that individuals within and outside the company have and transform it into organizational collective knowledge.

We aim to present theories that clarify the obstacles in the knowledge creation process of strategy formulation. In the worst case, the obstacles can prevent the utilization of existing knowledge that lies within the reach of the company. We also present a tool that can be used to overcome some of the obstacles. The tool collects signals for strategy formulation and innovation processes.

2 Flow of Knowledge into the Company

Nonaka [1995] described how knowledge flows into a company: It flows in having a tacit form along with individuals after which some of it is made explicit and by

explication it becomes an organizational explicit knowledge asset. Organizational knowledge becomes a true competitive asset only when it runs through a strong sensemaking process [Weick 2001] and it takes a tacit form in the interactive process and it is embedded into the structures of the company and its ways of operation. This applies to all knowledge entering the company. External stimuli entering the sensemaking process creates the potential for the change stimulus and this way the nature of the sensemaking process will have a strong impact on organization's flexibility. The effects of success or failure in the knowledge flow process are most meaningful to the strategy formulation and thus to the success of an organization [Sanchez 2002].

3 Obstacles for Acquiring Filter-Free Knowledge

Sensemaking includes both explicit and implicit mental processes of scanning, framing, interpreting, and constructing a concept of the situation at hand. Sensemaking, that precedes decision-making, plays a significant role in defining the scope of forthcoming decisions [Woodside 2001].

The theoretical frame we are following here is from Karl Weick [1995, 2001]. It provides us with seven properties of sensemaking; identity, retrospective nature of sensemaking, enactive of sensible environments, social process, ongoing nature, focus on extracted cues and driven by plausibility. The core of sensemaking is the continuous process of redefinition of identity. The organizational identity defines which stimuli are extracted as a cue for a sensemaking process. Ability to extract cues from external stimuli is better if the participants in the strategy process have various identities.

According to Weick action is a precondition for sensemaking. The choice of the stimulus affects the choice of what action means and both choices are heavily dependent on the situational context. Extracted cues are simple, familiar structures that are the seed from which people develop a larger sense. Cues are context dependent but they need a reference from our earlier experience. Context defines which stimulus is extracted as a cue and then context affects how the extracted cue is interpreted. So we create meanings looking back to our memories and synthesize the action to all the other meanings we have. The meanings we create are path dependent, as individuals interact with their environments and build cognitive frameworks. [Abelson 1976, Fiske &Taylor 1991, Bogner and Barr 2000].

The conscious cognitive processing of external stimulus takes place if the cue can interrupt the ongoing process. There are two basic types of interruption that trigger sensemaking and cognitive change: new event is not expected (unusual, novel) or something expected does not happen (discrepancy in actions). This creates ambiguity in organization. Ambiguity requires attention and sensemaking process begins. The objective of this process is to reduce the tension that uncertainty creates.

Strategy process is a specific type of sensemaking process that the organization runs. It is one of the few frequent and standardized external cue-capturing processes (other examples are customer surveys etc.). Successful sensemaking process produces a corporate strategy that is a strong-shared cognitive scheme [Hendry 2000] that defines the scope of organization's actions. Strategic decisions represent a

response to managers' needs to structure their perceived environment [Hendry 2000, Weick 1995, Laroche 1995] and reduce its complexity [Ansoff 1984].

To gain competitive advantage, a company requires novel knowledge and its refinement for proactive action [Juvenel 1967:1, Bell 1987, Ansoff 1984 p. 22]. In the strategy process, we define objectives for the vision building process and choose the way it is to be run. The choices of objectives, methods and quality of the participants have several implications on sensemaking process.

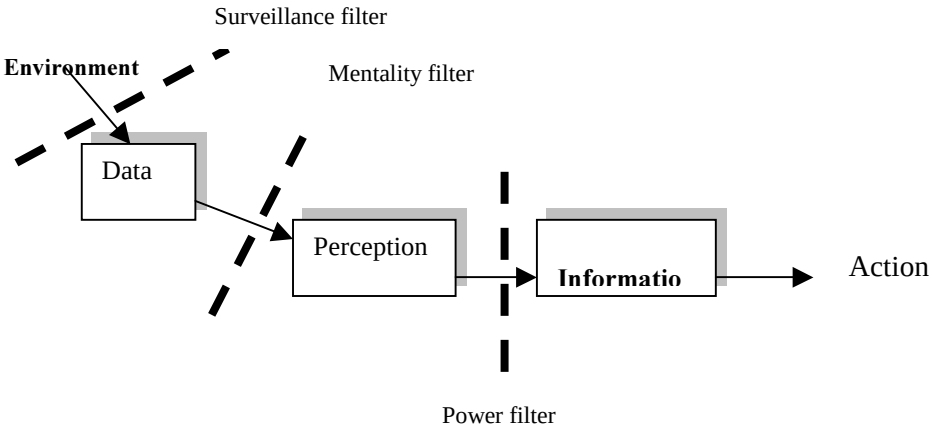

Figure 1:Filters of information [Ansoff 1984]

One potential way to analyze the prerequisites or hindrances of this information flow is the framework of Igor Ansoff [1984]. He described for the first time the barriers that the novel information in an environment has to pass in the strategy process. He states that all environmental surveillance and analysis techniques can be viewed as filters through which information must pass on its way, to have an impact on the firms operations. Ansoff classified these filters into three different classes: surveillance, mentality and power filters. [See Fig. 1]

The surveillance filter defines the field of observation. It is the first of the obstacles the novel information meets. To be efficient, the sensemaking process has to be focused and the focus is usually based on previous experiences. We observe our current market and pay attention to those features that have succeeded in disturbing our processes before [Weick 2001]. If the objective is to increase the organization's flexibility, this orientation is not beneficial, because at their early stages [Ansoff 1984] the discontinuities of the operating environment seldom appear in the traditional market, but come from other fields. The current surveillance system may filter out appropriate data. The management has a capability to observe only those issues that they have observed before. In turbulent environments, extrapolative systems filter out important discontinuity information [Ansoff 1984].

How to open the surveillance filter? The diversity of participants of observation processes is an obvious way to open the surveillance filter. Participants' identities,

roles and differences in their value orientations have a strong effect on their scope of observation [Weick 2001]. It guides how they set categories in their sense making process. Also the way participants are briefed is essential. The less restrictive the focus of the information gathering process is, the more diversity will be achieved in observation [McCaskey 1982, Ansoff 1984]. If the nature of observation is allowed to be in the form of a paradox or contradiction, this facilitates a more diverse outcome. In the sense making processes organizations receive more explicit information than is ever analyzed. Similarly, there is an unknown amount of tacit information that is left out of analysis. According to Nonaka [1992] the knowledge flows into the organization so that tacit knowledge can be passed to each other only in face-to-face context and the explicit knowledge that we are exposed to is only internalized through a process of embedding it to the structures of the organization.

The mentality filter. The magnitude of information and signals from the environment that managers receive is usually inoperable [Ansoff 1984]. There is an urgent requirement for reduction. In the sense making process, the reduction criteria are based on managers' experiences and their reference points. When information does not support the current mental model, the acceptance of new ideas is hindered

How to open the cognitive mentality filter? Explicating the mental model that is used can open the cognitive filter. When the model is visible [Ansoff 1984], the organization is able to identify the 'empty' areas of information and analyze the fit of collected information with current strategic goals. [Senge & al.1999]. The sense making process can be improved also by relaxing the argumentation requirements [Weick 1995]. Detailed argumentation results in a strong cognitive filter. The cognitive flexibility [Sanchez 2002] in sense making process is higher and the mentality filter is more open if multiple interpretations and the use of symbols and metaphors are in use within the organization.

Power Filter. The novel information that is captured from the operating environment may cause changes in the power structure. In the knowledge intensive organizations the power is based on expertise not so much on the position. The nature of power filter is stabilizing. The experts whose importance could be reduced by the discontinuities may try to neglect vital information in order to maintain their current position [Ansoff 1984].

How to open the power filter? Presenting ideas that are out of current context can risk one's status as an expert. Anonymity of participants in a process of acquiring novel information is a way to open the power filter. Ideas that may cause changes in the formal power structure or the prestige structure of expertise can be presented [Kuusi 2000]. One way to open the power filter is to avoid formal, well-defined measurement systems when assessing the results of a strategy or innovation process [McCaskey 1982]. Also multiple voices are more likely when the decisions are made at a late stage in the process. If decisions are made at a very early stage, the cultural perception filter [Ansoff 1979 p. 105] and the shared rules [Levitt & March 1988] result in a single common voice.

4 A Tool for Signal Collection

We present a tool that is developed for those organizations that operate in complex turbulent environments where there is constant need for monitoring. The tool is designed to overcome most of the filters described in the previous chapters. It is important for the leaders in this kind of environment to identify potential discontinuities as early as possible, at the stage of weak signal that [Ansoff 1979]. The flexibility for change – and the capability to be the first mover in the market [Brown and Eisenhardt 1999] is essential competitive factor.

The logic of the tool is based on the theories presented above. It can be used via Internet in order to cover as a wide group of respondents as possible to gain novel insight. With this tool, multinational organizations have succeeded in opening filters both in strategy formulation processes and in product innovation.

The tool is used in three stages: collection, evaluation and analysis of weak signals.

1. Collection of signals with a minimal surveillance filter and power filter. The respondents are heterogeneous and anonymous. For the analysis, background variables are gathered. [See Fig. 2].

Each of the signals has to have a capability of arousal/interruption in the sensemaking process [Weick 1995].The input provider is explicating his/her thoughts as a narrative. Kuusi [2000] has analyzed different formats of weak signals or innovation ideas and has found out that a story format is able to carry meanings in the multi step sensemaking process. The tool has three different templates for signal collection. One for rational ideas accepted in our analytical cognitive models. The second one is for randomly chosen questions that have no direct links to the theme under investigation. The third one is used to trigger thinking and encourage the respondent to give up the analytical thinking with the help of 'distant thinking models'.

With 100 participants we can easily collect 500 signals of potential discontinuities or weak signals. With the tool we are challenging the traditional cognitive filter of strategy process, which is the group of experts or management team that has previously evaluated what is essential and what is not. The second challenge that the tool aims to overcome is the qualitative format of the signals. Efficient continuous monitoring requires quantitative material. The transformation is made in the next stage.

2. Signal evaluation. Respondents evaluate the data. The tool provides each respondent 30-40 randomly chosen signals for evaluation. The signals are authentic and the evaluator is able to read the narrative. No one has used his or her mentality filter for classifying, choosing or editing the material. The method of evaluation is a simple application of a cognitive map [Miles and Huberman 1994], where the respondent is asked to position the signals according to their relevance vis-s-vis the reflection point that is the theme of the survey [see Fig. 3]. Argumentation of one's own views is not required and thus the mentality filter stays open.

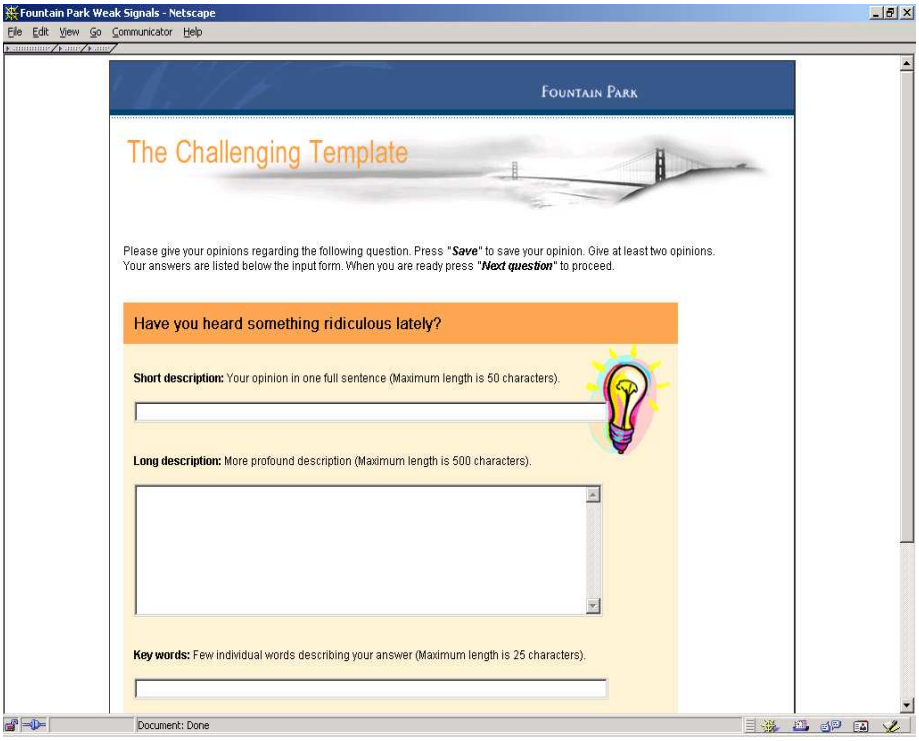

Figure 2: One of the input templates used in the signal collection stage

3. Analysis of evaluated signals. The reporting structure forces the analyzing group to overcome the mentality filter by explicating also such potential weak signals that do not fit within current mental model. In the context matrix [see Fig. 4] that is using Ansoff's [1984] classification of weak signals, the tool is explicating the mental model of the participants. Elaborating all cognitive maps with equal weights opens the power filter. The grid report [see Fig.5] is indicating the potential weak signals – those considered low in relevance and high in deviation i.e. some find them to be very important. The analyzing team is faced with signals that do not fit into their success model [Ansoff 1984]. When these potential weak signals are analyzed e.g. with Policy Delphi methods [Kuusi 2000], the cognitive filter of the team is opened temporarily and some of the potential discontinuities outside the current mental model are identified. Power filter is kept open by treating all signals equal as long as possible in the process.

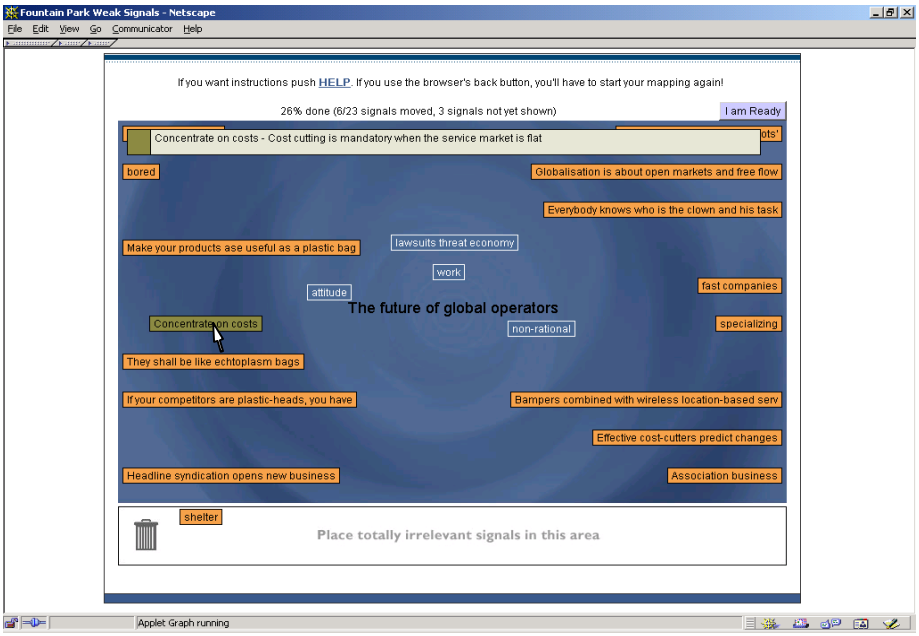

Figure 3: Cognitive map for evaluation of the relevance of signals

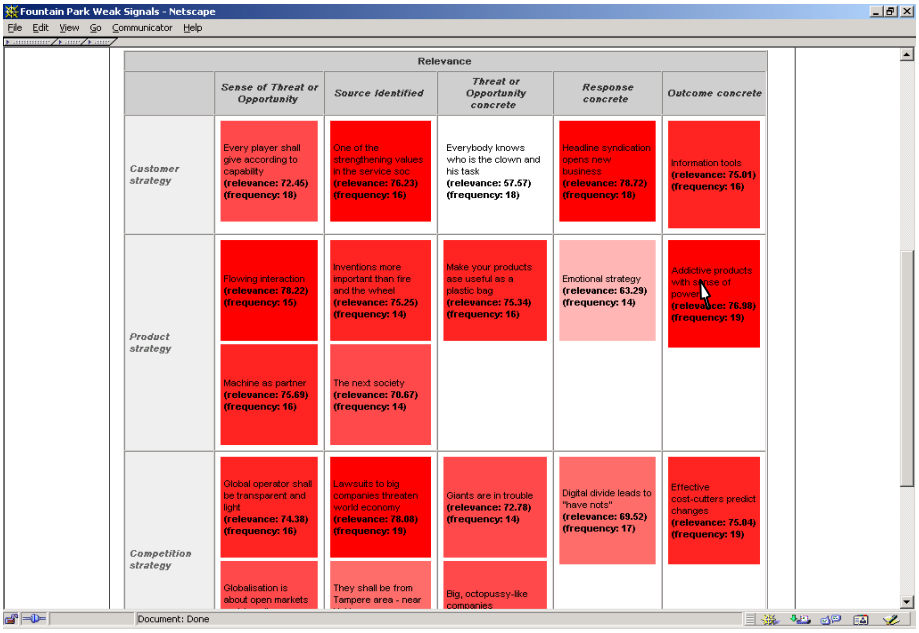

Figure 4: Content matrix that explicates the mental model of the analysis team

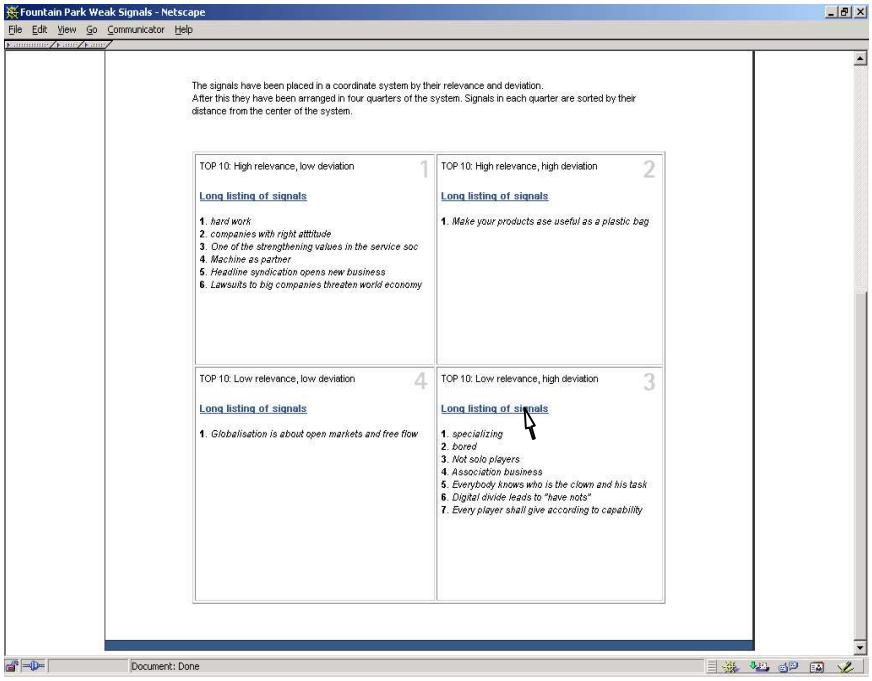

Figure 5: The result grid that presents the weak signals

5 Conclusions

The application we presented has been created to overcome some of the barriers [filters] identified in monitoring processes of the operating environment. We presented theories that clarify the obstacles in the knowledge creation process of strategy formulation. We have combined two theories, sensemaking theory Karl Weick and strategy filter theory by Igor Ansoff.

One of the key issues for the top management for organizations operating in the turbulent environment is flexibility. When the organization is too stable the management should open the organizations sensemaking flow for change signals. That requires identifying and opening the filters described above. The openness of knowledge creation process is not a value as such but it is contingent to the situation of the company. On one hand there are occasions when the organization needs some stabilization, e.g. after an acquisition when the filters have to be managed (closed) in the way that information flow will lead to a strong sensemaking process.

On the other hand when we are looking for weak signals for the formulation of a new strategy we need all the knowledge available within and outside the company in to the process for further evaluation. By understanding how the filters work as obstacles we have a chance to bypass them. The tool that we introduced is one way to try to bypass them especially in the process of unearthing weak signals.

References

[Abelson 1976] Abelson, R.: ”Script processing in attitude formation and decision making”, In: *Cognition and Social Behavior*, Eds. Carroll, J. S. & Payne, J. W. Erlbaum, Hillsdale, NJ, 1976.

[Ansoff 1979] Ansoff H. I.: “Strategic Management” Macmillan, London, 1979.

[Ansoff 1984] Ansoff, I.: 1984, “Implanting Strategic Management”, Prentice Hall International, New Jersey, 1984.

[Bell 1997] Bell W. Foundations on Future Studies, Transactions Publishers, New Jersey, 1997.

[Bogner and Barr 2000] W. C. & Barr, P. S.: ”Making Sense in Hypercompetitive Environments: A Cognitive Explanation of High Velocity Competition”, *Organization Science*, Vol. 11, No. 2, March-April 2000, 212-226.

[Brown and Eisenhardt 1998] Brown, S. and Eisenhardt, K.: “Competing on the Edge: Strategy as Structured Chaos*”;* Harvard Business School Press. Boston, 1998.

[D’Aveni 1994] D´Aveni, R.: Hypercompetition: Managing the Dynamics of Strategic Maneuvering. Free Press. New York, 1994.

[Ericson 2001] Ericson, T.: Sensemaking in organizations – towards a conceptual framework for understanding strategic change, *Scandinavian Journal of Management 2001: Mar, Vol 17:1, pp 109-131m Elsevier Science.*

[Fiske and Taylor 1991] Fiske, S. and Taylor, S.: “Social Cognition”. McGraw-Hill. New York [1991].

[Hendry 2000] Hendry, J.: Strategic decision making, discourse and strategy as social practice *Journal of Management Studies 37:7 November 2000.*

[De Juvenel 1967] De Juvenel B.: The Art of Conjecture, Basic Books, New York, 1967.

[Kuusi 2000] Kuusi, O.: Expertise in the Future use of Generic Technologies, Government Institute for Economic Research, Helsinki, 2000.

[Laroche 1995] Laroche, H. [1995] From decision to action in organizations decision-making as social representation *Organization Science 6:62-75.*

[Levitt and March 1988] Levitt B & March J.: Organizational Learning, Annual Reviews Sociol. 13, pp 319-340, 1988.

[McCaskey 1982] McCaskey M.B.; “The Executive Challenge, managing Change and Ambiguity” Pitman, Boston, 1982.

[Miles M.B. and Huberman A.M. 1994] Miles M.B. & Huberman A.M. Qualitative Data Analysis 2nd ed., Sage Publications Thousand Oaks, 1994.

[Nonaka 1995] Nonaka, I. and Tacheuchi, H.: "The Knowledge-creating Company"; Oxford University Press, New York, 1995.

[Weick 1995], Weick, K.E.; "Sensemaking in Organizations". Thousand Oaks, CA: Sage, 1995.

[Weick 2001] Weick, K.E.: "Making Sense of the Organization", Blackwell Publishers, Oxford, 2001.

[Woodside 2001] Woodside, A. G. [2001] "Editorial: Sense Making in Marketing Organizations and Consumer Psychology: Theory and Practice", *Psychology & Marketing*, Vol. 18 [5]: 415-421.

[Sanchez 2002] Sanchez, R.: "Understanding competence-based management: Identifying and managing five modes of competence"; [Journal of Business Research] 5726, 1-15, 2002.

[Senge et al 1999] Senge P., Kleiner A., Roberts C., Ross R., Roth G. and Smith B.: The Dance of Change , Nocohals Brealey Publishing, London, 1999.