

Designing Knowledge Strategies

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Abstract. *The purpose of this paper is to analyze how managers should design the company's knowledge strategies. That is a new dimension of knowledge management and it can be performed by using design thinking and the theory of knowledge fields and knowledge dynamics. The analysis is based on a critical literature review and on the known-unknown matrix developed at the individual level and then extended at the company's level. Knowledge strategies deals with the intangible resources of any organization and becomes more important in the knowledge intensive business services (KIBS). Designing knowledge strategies follows a different approach than that known for business strategies. Their purpose is to design a thinking framework in the absence of knowledge that generates uncertainty and psychological difficulties in making decisions. Knowledge strategies do not follow the Porter's principle of competitive advantage, but they are designed following the known-unknown dynamics within an organization. From designing thinking perspective, they adopt abductive thinking instead of induction or deduction. The main categories of knowledge strategies resulting from the known-unknown dynamics are knowledge exploitation, knowledge acquisition, knowledge sharing and knowledge exploration. Knowledge exploitation aims to use efficiently all the available knowledge within an organization; knowledge sharing implies a process of increasing the knowledge entropy of a given team or organization that leads towards increasing innovation; knowledge exploration aims at reducing the absence of knowledge by creating new knowledge. Knowledge exploration reduces the uncertainty and increases chances for better decisions.*

Keywords: knowledge management, knowledge exploitation, knowledge acquisition, knowledge sharing, knowledge exploration, knowledge strategies.

Introduction

Designing strategies has always been a challenge for army generals (Bose, 2004; Nonaka & Zhu, 2012; Sun Tzu, 1971), for great achievers or for business managers (Mintzberg, Ahlstrand & Lampel, 1998; Porter, 1998; Whittington, 2001). Strategies represent designed patterns of decision making in order to achieve some specific objectives. There are hundreds of definitions for the concept of *strategy*, but all of them reflect the essence of designing a possible path of action toward achieving a well-defined objective (Bratianu, 2002; Bratianu & Lefter, 2001).

It is important to understand that strategies are a result of long term thinking that is different from the operational management. While operational management is unfolding every day in the present time, strategic management is designed for the future that is considered usually to span 4-5 years. The main difference comes from the quantity and quality of information and knowledge managers have at the time of their decision. It is well-known from our experience that the quantity and quality of knowledge decrease when we depart from the present time, increasing the level of uncertainty. Decision making under uncertainty is always much more difficult than the situation when decision makers dispose of enough information and knowledge (Syrett & Devine, 2012; Watkinson & Konkoly, 2023).

Spender (2014) is taking a process view of decision making and strategy design such that he is focusing on the action of *strategizing* instead of the result of it. "Thus I define strategizing as the judgment or imaginative response to what is NOT known, to the surprising, unexpected,

incomplete, or illogical nature of what arises through our practice” (Spender, 2014, p. 21). It is clear how Spender (2014) is focusing on the absence of knowledge and the need to reduce uncertainty in order to increase chances for a workable strategy. He shows how business strategies need to incorporate knowledge strategies and how uncertainty is ultimately a state of lack of necessary information and knowledge: “This is the field of strategy – finding a knowledge absence to plunge into” (Spender, 2014, p. 21).

Uncertainty generates risks and understanding them can be helpful in the process of decision making (Bratianu, 2018; Bratianu et al., 2020). Managers are usually afraid of risks and design different measures to reduce their likelihood. However, in business risks should not be avoided completely because they force our imagination to find solutions for such destructive events and create value. As Watkinson and Konkoly (2023) remark, “The real winners take calculated risks with supporting cleverness. Rather than try to avoid failure at all costs, the world’s foremost investors, entrepreneurs and leaders accept it as a necessary ingredient for greater success. They see uncertainty for what it is – our greatest source of opportunity” (Watkinson & Konkoly, 2023, p. 31). While business strategies are designed to achieve strategic objectives in a future full of uncertainties, knowledge strategies are designed to reduce knowledge absence by creating new knowledge or exploiting efficiently the available organizational intellectual (Bratianu, 2007, 2014; Andriessen, 2004; Edvinsson, 2002).

The aim of the present paper is to perform a critical literature review on the subject of designing knowledge strategies and to reveal their relevance in the practice of designing and implementing business strategies.

Literature review

Designing a literature review depends on the purpose of doing it. For the present paper, the purpose is to examine different perspectives and approaches in designing knowledge strategies and to propose a systematic approach in their analysis. It is of interest to remark from the very beginning that although there is a rich literature dedicated to business strategies, there is a scarce literature focused on knowledge strategies. Also, the logic of designing business strategies is totally different than that used for designing knowledge strategies.

Time is an implicit variable in any strategic thinking, and its perception determines the design of a strategy. There are three fundamental axes of space orientation for a stationary observer: backward – forward, left – right, and top – down. In the European culture, people consider the future to be positioned in front of them. Thus, we can see the future like we see the mountains we intend to climb. However, there are other cultures like Aymara, where people consider their future being positioned backward and the past being positioned in front of them. For the Anglo-saxon culture, people perceive the flow of time from left to right, like their writing. However, for Arab culture, the flow of time is in the reverse direction. For many cultures, on the vertical axis, the future is up; for some other culture, the future is positioned downward. All of these different interpretations play a significant role in designing strategies (Bratianu, 2022; Casasanto & Jasmin, 2012; Santiago et al., 2007).

Let us consider the backward – forward axis of time direction. When people position the future in front of them, then they travel toward it like we travel in space from a starting location toward another one, in a continuous way. It is like the future appears as an extension of the present. Designing a strategy in this time framework means to define a strategic objective to be achieved in a couple of years and then to choose the best way of getting it done. That is the classical way of designing a strategy. It is called the deliberate mode, and it is done based on the

known knowledge at the beginning of the whole process. It is almost an extension of the planning activity taken from the operational management. However, when there is a crisis, it is like the future comes over us with unpredictable events. Covid-19 global crisis is just a recent example. Most managers get lost and many businesses go bankrupt. The solution is to consider from the beginning an open mind for all changes happening in the external business environment and to adapt the strategy to the new conditions by incorporating new knowledge in the initial framework. That means to develop an emerging strategy component and to integrate it with the deliberate component. Designing emergent strategies is more difficult than designing deliberate ones, but it can be done if managers consider from the very beginning the complexity of time dynamics (Bolisani & Bratianu, 2018).

The classical approach to strategy design is based on rational knowledge and rational thinking. Chandler (1962), Ansoff (1965), and Sloan (1963) are the main strategists of that stage of strategic thinking. For instance, for Chandler a strategy is “the determination of the basic, long-term goals and objectives of an enterprise, and the adoption of a course of action and the allocation of resources necessary for those goals” (Chandler, 1962, p. 13). For Alfred Sloan who used to be a former president of General Motors, a strategy should allow some stepwise corrections with respect to the initial design: “the strategic aim of a business is to earn a return on capital, and if in any particular case the return, in the long run, is not satisfactory, the deficiency should be corrected or the activity should be abandoned” (Sloan, 1963, p. 49).

Michael Porter enlarged the perspective of designing strategies by focusing on the competition in the market. In his view, operational management should focus on the internal business environment within the company, but strategic management should cross the interface of the company and focuses on the competition with other companies which put on the market similar products and services. He introduced in the strategic thinking the new concepts of *competitive advantage* and *competitive strategy* (Porter, 1998). Porter demonstrates that the purpose of any strategy should not be profit maximization, but achieving competitive advantage with respect to other competitors on the market. From this perspective, “A strategy is an internally consistent configuration of activities that distinguishes a firm from its rivals” (Porter, 1998, p. xvi). From a practical viewpoint, top managers should identify and act upon the firm’s strategic resources and its dynamic capabilities (Barney & Hesterly, 2012; Teece, 2009).

While managers design business strategies considering tangible resources, the design of knowledge strategies is focused on intangible resources. Knowledge represents the most important intangible resource of companies in the knowledge economy. Tangible resources are physical objects with well-defined geometries, mass, and economic costs. They obey linear operations and laws. Intangible resources have no geometrical forms, no mass and no substantial consistence. They cannot be touched and seen. They obey nonlinear operations and laws. Because industrial management is based on tangibility and linearity, it cannot be applied to intangible resources. Knowledge management emerged as a necessity of that situation (Hislop, 2005; Massingham, 2020; Nonaka & Takeuchi, 1995, 2019). Knowledge management is the managerial process focused on knowledge creation, acquisition, sharing, transfer, storage and retrieving, and knowledge utilization. In a synthetic mode, knowledge management consists in managing knowledge dynamics within an organization. Knowledge management is an integrated part of the organizational management and it is a necessary link between operational and strategic management. Knowledge is considered by most researchers *a strategic resource*, and thus designing *knowledge strategies* is based on that property (Grant, 1996; Zack, 1999, 2003).

For Spender (2014), designing knowledge strategies should be focused on absence of knowledge: “My first proposition is that strategic work addresses the knowledge absences at the interfaces between identity, intention, and context. All are fluid-uncertain. No uncertainties, no strategic work, no innovative activity, no learning experience” (Spender, 2014, p. 28). Therefore, instead of using the deterministic thinking that is specific to operational planning, managers should use probabilistic thinking that is suitable for exploring the uncertain and unpredictable future. Probabilistic thinking helps managers in dealing with uncertainty (Lindley, 2006; Syrett & Devine, 2012).

The traditional design of business strategies considers only rational thinking because it is suitable to the economic principles and metrics. However, knowledge is a complex concept that can be better understood using the theory of knowledge fields and knowledge dynamics (Bratianu, 2023; Bratianu & Bejinaru, 2023). According to this theory, there are three fundamental fields of knowledge: rational, emotional, and spiritual. *Rational knowledge* is the result of rational thinking and it is expressed by explicit knowledge. It is expressed by using a natural or symbolic language, and it is the knowledge we learn in schools and universities. Rational knowledge is objective and reflects the objects and events from our reality. It is the knowledge used in science and technology (Nonaka & Takeuchi, 1995). Because Management incorporated many ideas and principles from Economics, and Economics is considered a science, rational knowledge has been considered by academics the only knowledge to be used in decision making and strategies design. However, researchers from psychology, sociology, and neuroscience demonstrated that for human beings emotional knowledge and spiritual knowledge are also important in decision making (Damasio, 2012; Kahneman, 2011; Rocha, 2021). *Emotional knowledge* is a result of experiential learning and it is wordless. It reflects the emotional states of a human being within a given context and it can be expressed using body language. Emotional knowledge is processed by emotional intelligence and supports the fast thinking (Kahneman, 2011). Emotional knowledge is subjective. *Spiritual knowledge* contains cultural values which become guidelines in the process of decision making. Knowledge dynamics means the process of transforming one form of knowledge in any other form of knowledge (Bratianu, 2023).

Design thinking is basically a neutral activity and it gets direction and meaning from the contribution of spiritual knowledge. If we consider goodness, fairness, beauty and other similar attributes as positive values, or just values, then their opposites will be negative values or anti-values. While positive values lead to performance in management, negative values lead to non-performance and toxic leadership. Therefore, in judging the importance of design thinking and design strategies, it is important to understand the theory of knowledge fields and knowledge dynamics (Bratianu, 2022; Bratianu & Bejinaru, 2023).

Methodology

This is a conceptual paper that is based on a critical literature review. We studied significant papers indexed in Web of Science, Scopus and other databases focusing on knowledge dynamics, knowledge management, strategic management and design strategies. Also, we studied the most representative books for those topics, because they offer the conceptual support for all the ideas we critically analyzed.

Results and discussions

Knowledge strategies have a different goal and design than business strategies. If business strategies' goal is to create a competitive advantage with respect to the other competitors on the market (Porter, 1998), knowledge strategies' goal is to reduce the absence of knowledge and make use efficiently of the available knowledge. Achieving this goal will contribute to the goal of the business strategies. A knowledge strategy constitutes the core of any business strategy (Bratianu, 2022; Zack, 1999). Based on the critical literature review performed we analyze in the present paper *the generic knowledge strategies*, i.e. those strategies that can be designed for any company, regardless its profile. They have a different design and interpretation than those developed by Porter (1998) for business.

We start designing the generic knowledge strategies with the explanation of the *known-unknown* dynamics (Dalkir, 2005). The story of that dynamics is related to a press conference delivered by the former Secretary of Defense Rumsfeld: "Reports that say something hasn't happened are always interesting to me, because as we know, there are *known-knowns*; there are things we know we know. We also know there are *known-unknowns*; that is to say, we know there are some things we do not know. But there are also unknown-unknowns – the ones we don't know we don't know" (Rumsfeld, 2002; italics added).

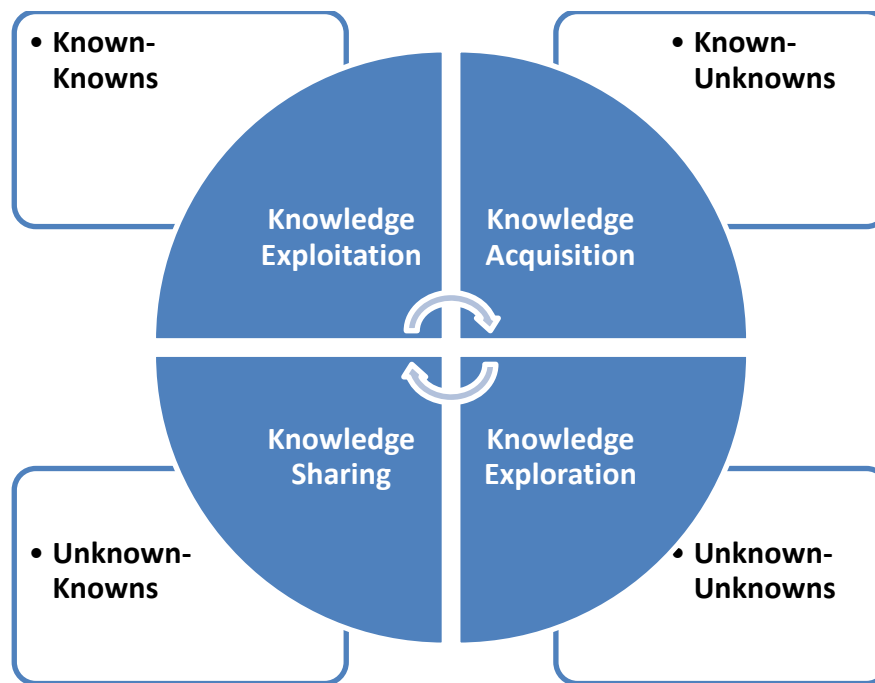


Figure 1. Knowledge strategies

Figure 1 presents in a synthetic way the structure of known-unknown matrix combined with the adequate design of knowledge strategies. The *known-knowns* domain is the simplest and the most frequently used for designing knowledge strategies because there is no uncertainty. It is the domain where managers consider they know everything. For this stage of knowing, managers should design *knowledge exploitation strategies*. That means to make use efficiently of the available knowledge at the individual and organizational levels. The individual knowledge is

incorporated within the framework of the organizational knowledge by organizational nonlinear integrators like technology, managers, leaders, organizational culture. It is important to underline the fact that knowledge is nonlinear and it cannot be added up linearly like physical object. It must be integrated. While technology and industrial management focus on rational knowledge, leadership and organizational culture focus on all three forms of knowledge (i.e. rational, emotional, and spiritual). *Known-unknowns* domain is a complementary one for *known-knowns*. Knowledge space is considered finite and managers can identify what they need to know from what is known in other companies or elsewhere. For this case, managers design *acquisition knowledge strategies*. In this domain the focus is also on rational knowledge.

The next two domains, positioned on the bottom line, are much more complex. They reflect an integrated knowledge spectrum containing rational, emotional and spiritual knowledge, or in the simplest formulation, explicit and tacit knowledge (Nonaka & Takeuchi, 1995). *Unknown-knowns* reflect the fact that our tacit knowledge is processed by the unconscious zone of our brain and we cannot be aware of how much knowledge we have. Also, in any organization there is a non-uniform knowledge field with very few knowledgeable employees and many others with a lower level of knowledge and understanding. For this situation, managers should design *knowledge sharing strategies* to increase the average level of knowledge and the organizational knowledge entropy.

The most complex domain is that of *unknown-unknowns*. We don't know what it will may happen in the future because of absence of knowledge. The only way of reducing the uncertainty generating by this absence of knowledge is to design *exploration knowledge strategies*. They are valuable strategies for mitigating the impact of business crises. Next, we shall explain each group of strategies presented above.

Exploitation knowledge strategies

These strategies should be design in any company because the available data, information and knowledge represent the raw material for knowledge processing. The major strategies used by managers are knowledge codification and knowledge mapping. *Knowledge codification* means to use different codes for knowledge presentation and usage. "Knowledge codification implies transforming cognitive, emotional, and spiritual knowledge into messages that can be understood by all employees of a certain organization. It occurs inside the organization, but its consequences should be observed in both internal and external environments" (Bolisani and Bratianu, 2018, p. 153). Designing knowledge codification strategies should consider both social interactions of individuals and the human – technology interaction. The new AI applications create new challenges for these kinds of strategies. Although the strategy of rational knowledge is dominant, we may have also codification for emotional and spiritual knowledge. For instance a dress code is integrating rational, emotional and spiritual knowledge.

Another knowledge strategy is *knowledge mapping*. Managers can create maps of knowledge distribution throughout the company which are very helpful in finding fast the necessary sources of needed knowledge. "A knowledge map portrays the sources, flows, constrains, and sinks (losses or stopping points) of knowledge within an organization" (Liebowitz, 2005, p. 77). Today there are many software applications to help managers in mapping organizational knowledge and using them efficiently. The knowledge mapping strategy constitutes an extension of the brain maps used in workshops to stimulate creativity.

Acquisition knowledge strategies

When managers know what they need and don't know, they design *knowledge acquisition strategies* which can be grouped into knowledge purchasing and knowledge capturing strategies. Managers can purchase knowledge that is stored in books written by experts, business reports prepared by specialized companies, papers in scientific and professional journals, or in many specialized software applications and databases. Also, knowledge can be purchased from consulting companies through training programs or some specific analyses. Knowledge can be purchased by hiring talented people for performing challenging jobs like experts in artificial intelligence programs or intelligent robots.

Knowledge capturing refers to those processes in which people try to capture high level of knowledge from experts to use it in constructing software experts systems, like those for playing chess or go, or those dedicated to business decision making. In this case, it is important to design the questions for the experts and to create the necessary motivation for them to share their expert knowledge.

Knowledge sharing strategies

Knowledge is owned by individuals and it is their decision how much of that knowledge they would like to share with others. Knowledge sharing helps to increase the knowledge entropy of the company and stimulate innovation. However, knowledge sharing may have negative consequences for the person who shares his knowledge, especially in those cultures where there is fierce individual competition. "Typically, employees may not want to share what they know, fearing that once they share their specialized knowledge, they may not be needed" (Thatchenkery, 2005, p. 16).

Designing a knowledge sharing strategy implies a good understanding of the organizational culture and of the leadership style. Also, the design should consider the motivational system because knowledge sharing needs an excellent motivation. The opposite of knowledge sharing is knowledge hiding. There is a dynamics between knowledge sharing and knowledge hiding and the result of that depends on organizational culture, leadership style and the motivational system. Designing knowledge strategies involves in some large companies creation of a series of communities of practice (O'Dell & Hubert, 2011). A community of practice is a social construct of people who have similar ideas and activities, and who are willing to share their knowledge hoping to learn from other members of the community as well.

Knowledge exploration strategies

When the absence of knowledge is high and making decisions becomes a challenging process, managers should design strategies for knowledge creation. Knowledge is created at individual level and then amplified through the social context and integrated at the organizational level (Nonaka & Takeuchi, 1995, 2019). Knowledge creation can be achieved through different methods which stimulate creativity and lateral thinking (De Bono, 1970).

For many companies, managers design knowledge strategies for open innovation, based on ideas coming from outside of the company. Customer knowledge management is a new branch of knowledge management aiming at stimulating customers to share their ideas concerning new products and services. Designing strategies for knowledge creation should be based on knowledge dynamics because in any creation process emotional and spiritual knowledge play a significant role next to rational knowledge.

Conclusions

Designing knowledge strategies became in the last decades a complex activity due to its relevance in designing business strategies. The present paper aims at revealing the structure and the variety of possible knowledge strategies which can be designed in order to reduce the absence of knowledge and the pressure of uncertainty in making decisions. Also, it shows that in the managerial process of decision making it is necessary to consider the whole spectrum of knowledge composed of rational, emotional and spiritual knowledge. Classical theories of decision making are built only on rational knowledge and rational intelligence.

Designing knowledge strategies is related to the known-unknowns matrix and its dynamics. For the domain characterized by the expression of *known-knowns* it is suggested to design knowledge exploitation strategies, like codification and mapping strategies. They help managers in using efficiently the available knowledge within the company. For the domain of *known-unknowns* it is suggested to design knowledge acquisition strategies. Purchasing knowledge through different methods managers can enlarge their knowledge wealth and improve the whole business activity.

For the domain of *unknown-knowns* it is suggested to design knowledge sharing strategies. Knowledge sharing contributes to increase knowledge entropy of the company and to stimulate innovation. However, knowledge sharing is a voluntary process and its success depends on the organizational culture, leadership style and motivational system. Between knowledge sharing and knowledge hiding there is always a dynamics that should be well-understood. For the domain of *unknown-unknowns* it is suggested to design knowledge creation strategies able to achieve a significant reduction of uncertainty. Managers should switch from close innovation to open innovation and developing customer knowledge management.

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