Exploring Managerial Decision Making through the Lens of Knowledge Dynamics

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Abstract. *The purpose of this paper is to explore the process of managerial decision making through the lens of knowledge dynamics. Decision making constitutes the kernel of the managerial process, and its consequences may strengthen or not a specific managerial decision style. Because management is based on economic thinking, and economic thinking is rational, managerial decision making is based mostly on logical reasoning. When uncertainty and time constraints define the operational context, many managers use heuristics and their intuitive thinking. Rationality and intuition are supported by the two different system thinking, which depends on the balance between conscious and unconscious mind role. The theory of the two thinking systems developed by psychologists cannot explain the transition from intuitive to the rational mind and from tacit to explicit knowledge. That transition is very complex and requests a new perspective on knowledge understanding, structure, and processing. The purpose of the present paper is to explore this transition phase conceptually and to demonstrate that the new theory of knowledge fields can bridge the gap between intuition and rationality. While the theory of tacit and explicit knowledge is based on the iceberg metaphor and different versions of the stocks-and-flows metaphor, the theory of knowledge fields is based on the energy metaphor. According to that metaphor, knowledge is considered as a field, and knowledge manifests in three basic forms: rational knowledge, emotional knowledge, and spiritual knowledge. Each of these forms can be transformed into any other kind, generating a new type of knowledge dynamics. This knowledge dynamic can explain the transition from intuitive to rational thinking in a better way than the previous models used for representing managerial decision making.*

Keywords: *decision making; rationality; bounded rationality; intuition; knowledge dynamics.*

Introduction

Decision making represents the core of the managerial process (Drucker, 1993; Goodwin & Wright, 2004; March, 1994; Mintzberg, 2004). A *decision* represents a choice between two or more alternatives for the solution of a problem, and *decision making* constitutes the whole process of thinking and deciding when solving a problem (Baron, 2000; Heath & Heath, 2013). According to Baron (2000, p. 8), "Thinking is, in its most general sense, a method of finding and choosing among potential possibilities, that is, possible actions, beliefs, or personal goals. For any choice, there must be purposes or goals, and goals can be added to or removed from the list". Decision making includes the phase of judgment, which represents the "evaluation of one or more possibilities with respect to a specific set of evidence and goals" (Baron, 2000, p.8).

Most academics and managers consider decision making as a rational process since *rationality* is the basic hypothesis of economics and management (Goodwin & Wright, 2004; March, 1994; Robbins & DeCenzo, 2005). However, when there is a high level of uncertainty and time constraints, many managers use their *intuition* to find a reasonable solution to the given problem (Klein, 2003; Simon, 1987). Intuition is fast but it does not lead necessarily to an adequate solution. It must be checked when time allows it with a logical mind. In practice, rational and intuitive thinking should be used in concordance with the dynamic context and complemented each other as much as it is possible. As Gladwell (2005, p.147) remarks, "When we talk about analytic versus intuitive decision making, neither is good or bad. What is bad is if you use either of them in an inappropriate circumstance".

The two types of decisions are supported by cognitive science which demonstrates that people use two thinking systems (Kahneman, 2011). System 1 is fast and reacts immediately to any potential risk from the environment. It is an unconscious reaction based on intuition. System 2 is slow and logical. It is the system we develop through education, and for many researchers and managers, it is the only one that counts in decision making. However, it is not clearly explained how our mind is making the transition from one mode

of thinking to the other one, i.e. from intuition to rationality and vice versa. This transition can be understood within the framework created by the theory of knowledge fields (Bratianu & Bejinaru, 2019). It is the purpose of this paper to explore conceptually this transition in our thinking by considering knowledge dynamics. The structure of the paper is as following: discussing rationality and bounded rationality, intuition, and finally showing the role of knowledge dynamics in decision making.

Rationality and bounded rationality in decision making

Management science incorporates economic thinking, which is dominantly rational. As March (1994, p.1) remarks, "By far the most common portrayal of decision making is one that interprets the action as a rational choice. The idea is as old as thought about human behavior, and its durability attests not only to its usefulness but also to its consistency with human aspirations". *Rationality* is an idealistic thinking process when all possible alternatives and their consequences are known and the decision-maker performs an algorithmic approach to find out the best solution for a given problem. Rational decision making is *consequential* and *preference-based* (March, 1994). It is consequential because the action depends on the anticipated consequences managers consider for the choice made, and it is preference-based because each possible solution is analyzed in concordance with a set of criteria and values. The logic of consequence can be synthesized by answering to the following questions with respect to a given problem:

1. What are the possible solutions? That is the question of *alternatives*.
2. What are the possible consequences of each alternative? That is the question of *expectations*.
3. What is the expected value of each alternative with respect to a set of criteria? That is the question of *preferences*.
4. What is the rule to be applied in choosing the final solution? That is the question of the *decision rule*.

These questions can be detailed in a logical pathway, as shown in Figure 1.

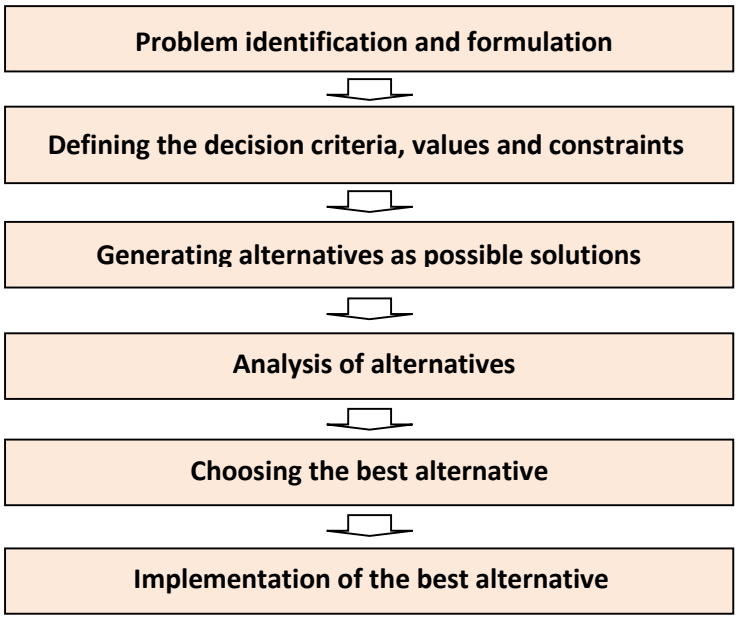

Figure 1. *The main phases of rational decision making*

We have to remark the fact that Figure 1 presents the main phases of the decision process in a linear way for simplicity, but in real-life the whole process is nonlinear and there is a feedback reaction from each phase to the previous one.

Problem identification and formulation. For most of the managers, problems should be identified as gaps between what it is and what ought to be in a specific situation. Problems identification and formulation depend on the experience and intelligence of managers, their understanding of the organizational processes complexity and the dynamics of the business environment. Managerial practice demonstrates that most of the problems are badly defined, with incomplete information and fuzzy objectives definition.

Such kind of problems cannot be solved, and managers must transform them into well-defined problems, with clear and unambiguous objectives. Even so, problems are context-dependent and their solutions require knowledge about the business environment dynamics, which is always incomplete. If one adds to this situation the pressure of uncertainty upon managers and time constraints, it becomes evident that in real life rationality has a limited spectrum of knowledge and action. "Although decision-makers try to be rational, they are constrained by limited cognitive capabilities and incomplete information, and thus their actions may be less than completely rational in spite of their best intentions and efforts" (March, 1994, p. 9). Simon (1979, 1996, 2000) introduces for such kind of situations the concept of *bounded rationality*. One of the main features of bounded rationality is that managers are not looking anymore for the *best* solution, but for a *good enough* solution which satisfies the requirements of the criteria and values system considered.

Defining the decision criteria, values, and constraints. Criteria are factors that are relevant in a decision process. They are like the dimensions of a reference system, which help managers to measure the complexity of the problem. For instance, in promoting a new product manager may use as criteria: investments in new technologies, designing and production costs, marketing costs, customers' needs, market dimensions and so on. Criteria are not equally important in the judgment of the alternatives. They are more or less important and that is taking into consideration by associating to each criterion a certain weight. Values reflect the vision, mission and ethical standard of the organization. They should not be reduced only to the profit and financial performance of the company. Values are embedded in the organizational culture and working spirituality. Constraints may have any nature, from time to money, or workers' knowledge. They are introduced usually by the specific context of problem formulation. Initial conditions and constraints can change the potential solution.

Generating alternatives as possible solutions. Decision making requires at least two alternatives. At the limit, these alternatives could be *to do or not to do* a certain action. In practice, managers try to generate more alternatives for the potential solution to the given problem. The more alternatives, the better the chance of finding a good enough solution. De Bono (2004, p. 33) emphasizes the importance of *lateral thinking* in generating alternatives, and in constructing a large set of possible solutions: "Yet very often, difficulty in making a decision stems from a failure to produce sufficient alternatives. We need to shift some emphasis away from the decision between alternatives to the generation of alternatives". *Analysis of alternatives*. This is a rational process based on the weighted criteria and the values system taken into consideration from the very beginning. For complex problems managers can use a series of computer programs that integrate applications of artificial intelligence.

Choosing the best alternative. This represents the essence of the decision-making process. It is the most important step in the whole process of solving a problem. It gives the performance level of a manager since it is the most specific managerial action. The best managers are those who are able to find always the best solutions. However, we should consider a "best solution" within a given organizational framework and a given set of initial conditions and constraints. As March (1994, p. 9) explains, "Studies of decision making in the real world suggest that not all alternatives are known, that not all consequences are considered, and that not all preferences are evoked at the same time. Instead of considering all alternatives, decision-makers typically appear to consider only a few and to look at them sequentially rather than simultaneously". Thus, managers do not consider all the possible consequences of the alternatives involved in solving a problem. Instead of searching for *the best solution*, they are looking for *a good enough* solution. That means to replace the *rationality paradigm* with that of *bounded rationality*.

Implementation of the best alternative. The implementation phase means action and sometimes changes in the organization. Managerial practice demonstrates that implementing a decision could be sometimes difficult due to inertia forces or lack of sufficient motivation from workers. The implementation phase should contain provisions for supporting a successful action and a metric for evaluating the result of implementing the solution. The decision-making process presented above can be simplified when managers deal with routine or programmed decisions, which means that many steps are well-defined and formalized in working procedures. For instance, implementing *Total Quality Management* is based on developing procedures for all repetitive activities within an organization. When the context is changing and new problems appear, managers make non-programmed decisions, which follow almost entirely the structure presented above.

Intuition in decision making

Rational decision making takes time and needs a very good understanding of the logical model to be used in analyzing the alternatives. When there is a time pressure or a high level of uncertainty, managers must use their previous experience and imagination in providing a solution. That opens the way for *intuition* or *intuitive decision making* (Dane & Pratt, 2007; Gladwell, 2005; Kahneman, 2011; Klein, 2003; Simon, 1967, 1987). "I define intuition as *the way we translate our experience into action*. Our experience lets us recognize what is going on (making judgments) and how to react (making decisions). Because our experience enables us to recognize what to do, we can, therefore, make decisions rapidly and without conscious awareness or effort" (Klein, 2003, p. xiv).

Because intuition is a result of the cognitive unconscious it is very difficult to explain accurately how intuitive decision making happens (Betsch & Glockner, 2010; Price & Norman, 2008). "Intuition presents itself in a continuum. At one extreme is the instantaneous, purely emotional, often irrational reaction to a situation. At the other is intuition that complements and augments fairly thorough analytical reasoning about the options available to the decision-maker, based on his or her experience and learning about relevant issues" (Patton, 2003, p 989).

A simplified illustration of intuition is presented in Figure 2.

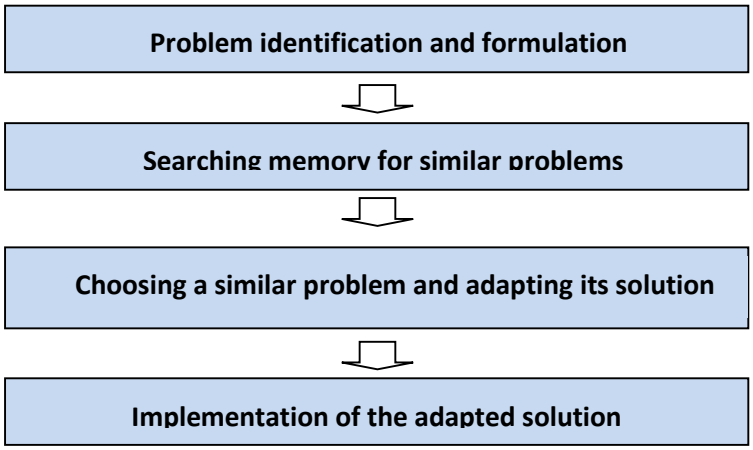

Figure 2. *The main phases of the intuitive decision making*

Problem identification and formulation. This phase is similar to that described for rational decision making. The difference comes from the fact that time becomes a constraint and managers are not looking for more information to reduce uncertainty or for a better formulation of the problem. They react directly to the challenge of finding a solution for it, even if the problem might not be well-defined.

Searching memory for similar problems. Experience is stored as tacit knowledge and searching for similar problems is done unconsciously. According to Dane & Pratt (2007, p.35), "Intuition has long been viewed as involving a form of information processing that differs from rational, or analytical processes". It is not an algorithmic search based on a logical scheme, but a spontaneous and fast search done probabilistically. Gladwell (2005) calls this model of searching and judging "thin-slicing". It is not a step by step search, but a random one. "Thin-slicing refers to the ability of our unconscious to find patterns in situations and behavior based on very narrow slices of experience" (Gladwell, 2005, p.24). Some researchers consider that this model can be applied by those people who gained significant experience in that specific domain. It is called the expert intuition (Simon, 1987; Gladwell, 2005; Dane & Pratt, 2007).

Choosing a similar problem and adapting its solution. Intuition is a process of pattern recognition and adaptation of a solution to the new context. By comparison with the logical model presented in Figure 1, intuition is a fast process because it does not analyses alternatives and their consequences. It suggests a solution as if that is the only possible solution. "Snap judgments are, first of all, enormously quick: they rely on the thinnest slices of experience. But they are also unconscious" (Gladwell, 2005, p.51). From this point of view, intuition is not always a reliable way of making decisions. In practice, intuition should be combined with rationality to increase the relevance and reliability of the chosen solution. As Klein (2003, p.9) remarks, "Instead of a pointless debate about which is right, intuition or analysis (always trust your intuition, versus never trust your intuition), we can see that both are necessary. The real challenge is not

whether to trust intuition, but how to strengthen it to make it more trustworthy". *Implementation of the adopted solution*. This phase is similar to that of rational decision making. The most important thing is to identify possible barriers and to reduce their effect. That can be done also by evaluating the intuition contribution and strengthening it.

Knowledge dynamics

We introduce now the concept of *knowledge dynamics* and then use its framework to analyses managerial decision making. There are two interpretations of knowledge dynamics: a) knowledge variation in time and space, following the Newtonian logic, and b) knowledge transformation from one form into another one, following the logic of thermodynamics. The second interpretation is related to the theory of knowledge fields (Bratianu, 2018; Bratianu & Bejinaru, 2019), and it will be used in the present analysis.

The theory of knowledge fields is a construct based on three basic ideas revealed by the energy metaphor: a) knowledge is a field; b) knowledge manifests in three different forms – rational knowledge, emotional knowledge, and spiritual knowledge; and c) one form of knowledge can be transformed into any other form. It is distinguished from the standard theory of knowledge, which is based on the iceberg metaphor and only two forms of knowledge: tacit knowledge and explicit knowledge (Davenport & Prusak, 2000; Nonaka & Takeuchi, 1995).

Rational knowledge represents the result of rational thinking and conscious mind. It is the knowledge that can be expressed by using a natural or symbolic language. It is the knowledge we acquire through education in schools and universities. It is the only form of knowledge considered for centuries by most of the philosophers, starting with Plato. As Russell (1972, p.153) explains that view, "It follows that we cannot know things through the senses alone, since through the senses alone we cannot know that things exist. Therefor knowledge consists of reflection, not in impressions, and perception is not knowledge".

Emotional knowledge is a result of our senses reacting to factors from the internal and external environment (Bratianu & Orzea, 2013). It is a wordless knowledge, which can be expressed by using our face and our body. It is body language. Perception is the basic mechanism of creating emotional knowledge.

Spiritual knowledge contains our moral and ethical values and refers to our existence. "We have to learn to see aspects of the world around us: stones, people, trees, sky. Equally, we have to see meaning and value in the world around us, in our environment, in events, in human actions and lives" (Maxwell, 2007, p.274). Corporate social responsibility is based on spiritual knowledge. Individual knowledge dynamics can be scale-up to the organizational level (Bratianu et al., 2011).

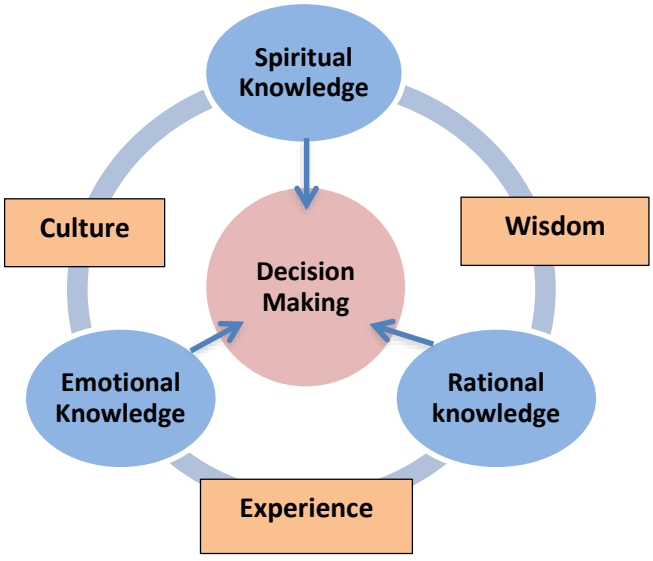

Figure 3. *The knowledge dynamics model and decision making (Source: Bratianu & Bejinaru, 2019)*

In management and marketing, decision making is not a process based solely on rational knowledge, as economists teach us. It is a complex process that includes rational, emotional and spiritual knowledge, and their dynamics. For instance, underlying the importance of emotional knowledge in decision making, Hill (2008, p.2) remarks: "Breakthroughs in brain science have revealed that people are primarily emotional decision-makers". Also, they make decisions within a value framework, which is based on the dynamics of rational and spiritual knowledge, as it is the case of corporate social responsibility and sustainability paradigm. Bratianu and Bejinaru (2019) show the multiple correlations between rational knowledge, emotional knowledge and spiritual knowledge and decision making in Figure 3.

The knowledge dynamics model has been tested empirically, and the results obtained validated the above hypotheses (Bratianu & Vatamanescu, 2018). The model should be introduced into the curriculum of students in business education and in improving academic leadership (Bratianu & Bejinaru, 2017; Bratianu & Vatamanescu, 2017).

Conclusions

Managerial decision making is considered in the literature a rational process, based on economic values and principles. In practice, when time becomes a constraint and the level of uncertainty is rather high, managers use intuition, as a fast reaction. However, intuition is a result of pattern recognition done unconsciously, without any analysis of possible solutions with their probable consequences. From this point of view, intuition is not a reliable process. Although psychologists demonstrate that our brain works with two thinking systems, a rational and an intuitive one, there is no explanation of the mechanism of switching from intuition to rationality. The present paper presents a conceptual model based on the theory of knowledge fields and knowledge dynamics which can explain the way in which decision making is a result of contributions coming from all forms of knowledge and their dynamics. Thus, if intuition is based mostly on emotional knowledge, the transition to rationality is done through the transformation of emotional knowledge into rational knowledge and spiritual knowledge. Understanding this perspective can help managers in improving their decision-making style, and academics in improving their business education for students.

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