THE INTERACTION BETWEEN RATIONALITY, POLITICS AND ARTIFICIAL INTELLIGENCE IN THE DECISION-MAKING PROCESS IN INFORMATION TECHNOLOGY GOVERNANCE

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Abstract

In the context of information technology governance (ITG), this study delves into the connection between political, rational and technological approaches in the decision-making process (DMP) and their influence on enterprise governance. The primary objective is to explore the interdependence of these approaches and assess their impact. The study employs a literature review that analyzes the relationship among rationality, politics, and technology, including artificial intelligence (AI), machine learning, and business intelligence. The research addresses the question of how these various techniques can be integrated into the decision-making process. It also provides a theoretical framework for implementing each of these models.

The authors propose that situations involving AI, rationality, or politics are the basis for the decision-making process. After proceeding with a literature review, a correlation between the actions of certain managers who used Big Data and machine learning in their decision-making process and rationality has been found. However, the research did not find any correlation between these commitments and political models. In conclusion, this study highlights the importance of understanding the interplay between rational and political approaches in the decision-making process within ITG.

1. NAVIGATING THE COMPLEXITIES OF ORGANIZATIONAL DECISION-MAKING: THE CONVERGENCE OF TECHNOLOGICAL ADVANCEMENTS, RATIONAL THINKING, AND POLITICAL CONSIDERATIONS

Political behavior and power, modern technologies, such as artificial intelligence, machine learning, Big Data, rationality, strategic thinking, and emotions all of this influence the decision-making process in organizations. For a company, to develop, and bring good profits and success, it is incredibly important to consider all these factors, to see the connection between their interaction with each other, since each action brings either profit or loss, and only by analyzing and making an informed decision is it possible to avoid a crisis get out of it without complicated consequences (Kozioł-Nadolna & Beyer, 2021).

Firstly, before starting to analyze the interaction of impact between each of the dimensions it is important to investigate their influences separately. Evidently, decision-making is a dynamic and interactive process incorporating a sequence of events from the time when decision makers recognize the need to solve a problem until the time when they authorize a course of action it (Moghaddam, 2017). Concluding, it can be argued that the factors influencing the decision implementation process cannot always lead to the final decision of the immediate decision-making, as these two concepts are different, but at the same time, they have a certain correlation between them. The whole process can be divided into stages: when information is first collected, so modern technologies are actively involved here, since it is necessary to analyze and predict the data, and then the process can be divided. It depends on whether there is an influence of political behavior and external power or, if not, then the decision becomes rationally made.

Furthermore, the reliability of collected and processed in ITG, in which these decisions should be normalized and integrated into the appropriate information model, is what many researchers pay attention to when studying this topic in the context of top management risks. Therefore, a crucial task for companies' executive committees is to increase the efficiency of business processes, in other words, to

systematize and standardize solutions in the field of information technology management. This is an area that needs more detailed study.

The technological conception of the decision-making process is followed by the rational model. It is generally accepted that this model is based on strategic or tactical decision-making inception. Aiming to protect the procedure from the political model, administrators should not only care about the company's goals by openly discussing their interests and preferences with each other but also negotiate among group members in order not to influence the decision with their power and influence. Rational choice theory is the most used theoretical framework for explaining decision-making processes.

Nevertheless, political dimension is one of the most overriding domains in the decision-making. Decisions made based on deep analysis contribute to the satisfaction of the personal interests of people and therefore are considered rational. Also, it is this approach that clashes with the principles of common sense, prudence and unemotionality, which cannot be said to be political decision-making, which seldom follows these points. People lack consistency in their opinions, use information incorrectly, are overconfident in their own choices, fail to adapt existing evaluations in light of new information, draw unwarranted conclusions from insufficient data, and express prejudiced opinions. Moreover, political decision-making, in particular voting, is only weakly related to actual self-interest (Staerklé, 2015; Lagerspetz, 2012).

All in all, power and politics is perhaps the most pertinent topic in enterprise management, but at the same time, one of the least discussed. Power in a technical sense can be interpreted as the ability to do work in general, as well as the amount of work. In a social sense, power is the ability to get others to do it, regardless of people's desires. When we think of all the project managers in ITG, who are responsible for the decision-making process but not having the authority, and who must seek support through influence rather than command power, then we can understand why political aspects are the most important topic in this area is (Yourker, 1991).

Technological, rational, and political concepts of the decision-making process play an important role in digital governance. But the way in which these three models interact with each other has not been explored so much. For example, the dynamic interaction between rationalism and politics unfolds under the influence of great progress. Based on the cases of various researchers, it can be assumed that at the beginning, the use of modern technologies is the most significant step of decision-making, since we study and analyze information thoroughly, while further, political decision-making is more widely used and there is a transition from it to rationalism. Without the influence of politics, rational decision-making becomes dominant in this system. But in the modern world, the latter aspect and the use of new technologies complement each other quite strongly, which casts doubt on

the indispensable role of the rational way of making decisions and its weightiness. Just like politics and governance also become influenced by machine learning or artificial intelligence which gives room to question the force of Big Data use.

Basically, researchers study the influence of each of the factors separately on decision-making, but, unfortunately, there are not yet so many studies comparing their relationship. The rational conceptual perspective explores how questions can be broken down into structured decision problems. It assumes that problems can and should be solved by analyzing and considering alternatives and their possible outcomes before planning. The political perspective looks at decision-making processes marked by power, negotiation, and mutual influence. It concentrates on making decisions that are guided by the interplay between individual and group interests (Kolbe et al., 2020).

In general, it is assumed that decision-making can be based on both technological and rational as well as political levels. Moreover, it may include the interaction of all three of these factors at various stages of decision-making, which may include their combination, both simultaneous and parallel (Elbanna, 2006). From this perspective, the literature argues that innovative decision-making processes are dynamic, complex, and non-linear, and intertwine with each other in an interconnected process over time (Gavetti & Levinthal, 2000). However, there has been no research in this area for many years, and to date, it is still relatively scarce. Two recent studies have focused on the interaction between rational and political decision-making in the aggregate (Kolbe et al., 2020; Brinkerink & Bammels, 2018).

2. HOW POLITICAL FACTORS CAN AFFECT DECISION-MAKING IN THE GOVERNANCE OF INFORMATION TECHNOLOGY?

In this context in the field of management and decision-making, the term politics is used in cases where it is necessary to emphasize the prudence of some subject or the use of manipulation by him to achieve any benefits. When the term is used in this sense, it usually acquires more either positive or negative associations. Power is the second rather important term that comes next to politics and means the ability to subjugate people. Governance and power are related to each other as form and content. The concept of management itself focuses on the achievement of certain goals, while power focuses on resources of influence, structures, and mechanisms for their subordination. Moreover, communication plays an important role in the political decision-making model. There is nothing that can communicate as quickly or emotionally as a negative decision that affects many people in the company (Kollasch, 1970).

The literature review showed us that when using the political decision-making model in IT organizations, namely, considering

the factor of power, one can hypothesize that people with it and people without will differ in their willingness to take risks. As we know, any taken decision entails certain endangers. But if in the case of a rational model, they are lower, then here, the risks increase. In addition, such a hypothesis is based on the observation that people with high and low power perceive gains and losses because of decision-making differently (Sekścińska & Rudzinska-Wojciechowska, 2021). The study by Lammers and Burgmer (2019) shows that influential people tend to selectively attribute success to their hard work, while failure is an external factor independent of them. Thus, we can conclude that power in the political model of decision-making manifests a stronger egoistic side in managers.

Many studies also show the relationship between the political concept of decision-making and the emotions or nature of managers. For example, one of the main differences between people with high self-esteem and low self-esteem is how they react to the bad results of their decisions (Sekścińska & Rudzinska-Wojciechowska, 2021; Wojciszke & Struzynska-Kujalowicz, 2007). The former respond in ways that counteract the potential negative impact of such experiences by focusing on their strengths and positive feelings about themselves (Di Paula & Campbell, 2002). And people with low self-esteem focus on their weaknesses and shortcomings after failure. Also, power in the political decision-making model leads to excessive confidence in the accuracy of one's knowledge, thoughts, and beliefs (Macenczak et al., 2016). It can be assumed that being in states of power and anarchy affects decision-making, including risky ones. However, as far as we know, this issue has not been studied before.

3. THE IMPACT OF TECHNOLOGY ON DECISION-MAKING: OPPORTUNITIES AND CHALLENGES OF AI AND MACHINE LEARNING

Technology has drastically changed the decision-making process, especially in IT companies, where managers rely on vast amounts of data to make informed decisions that align with business goals. With the advent of artificial intelligence and machine learning, managers can process complex information quickly and accurately, saving valuable time and resources. However, there are still some challenges, such as the accuracy and reliability of data, which can undermine decision-making processes.

The utilization of technology in decision-making offers a considerable advantage in its ability to process large amounts of data. Decision-makers can employ statistical methods and logical checks to analyze vast quantities of information, which facilitates timely and informed decisions. Additionally, technology provides a means of saving time, allowing decision-makers to generate useful datasets and respond to inquiries that will impact future decisions.

Despite the benefits of technology, some managers remain skeptical about its use in decision-making, citing concerns regarding the reliability and accuracy of the data. A third of company managers surveyed believe that this skepticism stems from the fact that the provided data is sometimes insufficient or inaccurate. However, AI-based systems function with significant amounts of data and algorithms to develop the most effective solutions to tasks, resulting in nearly instantaneous decision-making.

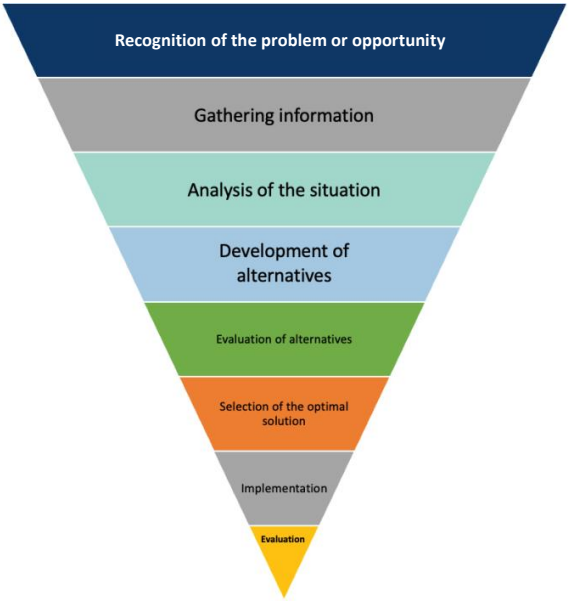
Furthermore, AI decision systems demonstrate remarkable flexibility and can reveal multiple outcomes of a particular decision based on changes in parameters. This capability permits businesses to make the best choice from a range of options aligned with current growth objectives and strategies. Business intelligence is a decision-making technology that incorporates knowledge from applied data science, social sciences, and management sciences, enabling ITG managers to make decisions that correspond with the prevailing political and social mood. This technology operates with qualitative and emotional factors, empowering managers to make more objective and personalized decisions that respond to human requests and expectations.

In conclusion, technology has had a significant impact on the decision-making process within IT companies, increasing its speed, efficiency, and accuracy. However, it is critical to ensure the reliability and accuracy of the data used to make informed decisions that align with business goals. By integrating business intelligence, managers can make more personalized and objective decisions that reflect the needs and expectations of society.

4. CONCEPTUAL FRAMEWORKS

The figure below illustrates the stages involved in the rational decision-making process of organizations. The process begins with the recognition of a problem or opportunity that requires attention, followed by the gathering of relevant data and information related to the issue. The information gathered is then analyzed, and various courses of action are evaluated. Decision-makers generate and develop several potential solutions or alternatives to address the problem or opportunity, followed by the evaluation of each alternative's feasibility, potential risks, and benefits. Based on the evaluation of alternatives, the most feasible and effective solution is selected, and an action plan is developed to implement it. Finally, the outcome of the decision is evaluated, and its effectiveness is assessed.

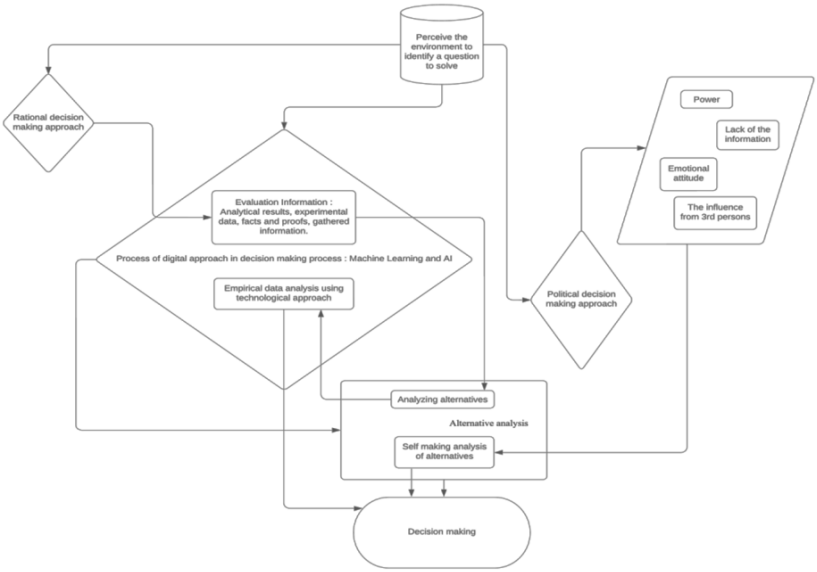
Figure 1. Steps in the rational decision-making process



Source: Authors' elaboration.

It is important to note that the stages may not be linear, and decision-makers may revisit previous stages based on new information or unforeseen circumstances. Additionally, modern technologies play a crucial role in assisting decision-makers throughout the process, from collecting and analyzing data to evaluating and selecting alternatives.

Figure 2. Conceptual framework of variables' interaction



Source: Authors' elaboration.

The figure above shows the decision-making process and its influencing factors. Managers perceive the environment and use technological methods like machine learning and decision intelligence to gather and analyze information. They then evaluate this information, sometimes incorporating emotional factors, to identify the best alternatives. The political decision-making model, which is influenced by the quantity and uncertainty of information, the manager's power or influence, and personal behavior, can also affect the process. Technologies, business intelligence tools and AI are used to analyze Big Data and help make strategic decisions. The chosen alternative is validated by IT executives using a combination of rational and technological approaches. This process is outlined in a study by the University of Massachusetts (UMass) Dartmouth (n.d.), which emphasizes the importance of considering all dimensions to make effective decisions.

5. CONCLUSION

In organizational management, decision-making is a crucial process that involves selecting the most suitable alternative to solve a problem. The rational model is a widely-used approach to decision-making that employs objective, formalized methods to justify decisions. Nevertheless, many experienced leaders tend to rely on informal information and

a political model to make decisions, which may not be objectively justifiable. Machine learning and neural networks can provide accurate predictions and automate complex analytical problems to facilitate decision-making. The quality of a decision is contingent upon the quality of initial information, rationality, and timeliness of the decision. However, empirical studies on the effectiveness of these indicators on decision-making in information technology governance are relatively scarce, necessitating further research, particularly in the context of Big Data/AI and DI in enterprises.

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