

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

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Abstract

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This review paper delves deeply into the intricate correlation between rational and political strategies in the decision-making process of information technology governance (ITG). The core focus is to understand how advanced technologies like artificial intelligence (AI), machine learning, and decision intelligence, when juxtaposed with traditional political decision-making methods and rational conceptualization (Cohen & Comesaña, 2023), coalesce within the ITG framework. The authors posit that while ITG's decision-making can be influenced by AI, rationality, or politics, there's a discernible alignment of managerial actions leveraging big data and machine learning with rational models, rather than political ones. Furthermore, the paper touches upon the power dynamics and strategic decision-making processes that often underpin ITG decisions. This research not only deepens the theoretical understanding but also provides pragmatic recommendations, making it invaluable for informed resource management in business management and ITG (Filgueiras, 2023). Through this exploration, stakeholders can better navigate the complexities of ITG, ensuring that technology aligns with organizational goals and strategies. As this paper identifies the power dynamics and strategic decision-making processes that often underpin ITG decisions, we can state that there was a discernible alignment of managerial actions leveraging big data and machine learning with rational models, rather than political ones.

Keywords: IT Governance, Decision-Making Process, Rationality, Politics, Artificial Intelligence

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1. INTRODUCTION

The dynamic interaction between logical and governmental strategies in an organization's decision-

making process holds significant importance, particularly in the domain of information technology governance (ITG). This paper's goal is to delve into this interplay and explore how different elements,

such as synthetic intelligence, machine learning, decision intelligence, political decision-making methods, and logical conceptualization, interact within the context of ITG. The research query involves examining how synthetic intelligence (SI), machine learning, decision intelligence, political decision-making methods, and logical conceptualization interact within ITG's decision-making process, exploring theoretical foundations and practical implications. This work also aims to address a research gap by investigating the interplay between logical and political strategies in the decision-making process of ITG. This suggests that prior research might not have fully explored this specific interconnection (Grant, 2013).

Governmental behavior and authority, alongside modern technologies like SI, machine learning, and big data, have a significant influence on the decision-making process within organizations (Enholm et al., 2022). To ensure a company's development, profitability, and success, it is crucial to consider these factors and comprehend their interrelations. Each action taken can lead to either gain or loss, making it imperative to analyze and make educated decisions to avert crises and reduce their ramifications.

The logical approach to decision-making relies on rational analysis, unbiased evaluation, and data-driven insights. It underscores a methodical and organized process, aiming to identify the optimal course of action based on a comprehensive understanding of the issue at hand. Rational decision-making in ITG involves assessing technological capabilities, considering costs and benefits, and aligning IT initiatives with business objectives (Berthet & de Gardelle, 2023). It draws heavily on synthetic intelligence and machine learning techniques to analyze vast amounts of data, uncover patterns, and make informed choices.

On the other hand, the governmental approach acknowledges that decision-making in organizations is not solely driven by rationality, but also by the influence and interests of various stakeholders (Caruso et al., 2023). Government, in this context, refers to the power dynamics, conflicting agendas, and negotiations that shape decision outcomes. Political decision-making methods in ITG involve engaging stakeholders, building coalitions, and managing relationships to gain support and navigate organizational complexities.

The integration of artificial intelligence (AI), machine learning, decision intelligence, political decision-making methods, and rational conceptualization in ITG can result in a rich and multifaceted decision-making process (Russell & Norvig, 2016). AI and machine learning algorithms can provide valuable insights, predict outcomes, and support rational decision-making (Bharadiya, 2023a). Decision intelligence, a discipline that combines AI techniques with human judgment, enables organizations to leverage both data-driven analysis and expert insights.

Before examining the interaction among these dimensions, it is important to investigate their individual influences. Decision-making is a dynamic and interactive process that involves a sequence of events, starting from the recognition of a problem to the authorization of a course of action by decision-makers (Elbanna, 2017). It should be noted that the factors influencing the decision implementation

process do not always lead directly to the final decision. While these concepts are distinct, they exhibit a certain correlation. The entire process can be divided into stages: data collection, which involves the active involvement of modern technologies for analysis and prediction, followed by decision-making. The decision-making process may be influenced by political behavior and external power, or, in the absence of such influence, it becomes a rational decision.

Moreover, ensuring the reliability of collected and processed data in ITG becomes pivotal while integrating decisions into the appropriate information model. Numerous researchers underscore this aspect while investigating decision-making within the context of top management risks. Consequently, enhancing the efficiency of business processes and standardizing solutions in information technology (IT) management emerge as critical objectives for executive committees of companies, necessitating further comprehensive examination.

The technological conception of the decision-making process finds its complement in the rational model, often rooted in strategic or tactical decision-making (Palladino, 2023). To safeguard the decision-making process from the sway of political factors, administrators should openly discuss their interests and preferences, engaging in negotiations among group members to avoid the misuse of power. Rational choice theory stands as the dominant theoretical framework for elucidating decision-making processes.

Yet, the political dimension remains a dominant force in decision-making. Despite thorough analysis, decisions often align with personal interests and are deemed rational. However, this approach contradicts principles like common sense, prudence, and impartiality, not commonly associated with political decision-making (Lagerspetz, 2012). Inconsistencies in opinions, misinterpretations, overconfidence, failure to adapt to new information, drawing unwarranted conclusions from limited data, and biased expressions are common among people. Moreover, political decision-making, especially through voting, is only weakly connected to actual self-interest (Staerklé, 2015).

In the realm of enterprise management, power and politics are crucial yet often neglected subjects. Power can be understood both technically as the capacity for work and socially as the ability to influence others irrespective of their desires. Project managers in ITG, for instance, hold responsibility for the decision-making process without possessing direct authority. They must rely on influence rather than formal power to gain support. This highlights the significance of political factors in this domain (Lee & Kim, 1999).

The interplay of technology, rationality, and politics in digital governance is crucial. However, this interaction remains underexplored. Case studies from previous research suggest that initial decision-making heavily relies on modern technologies for thorough analysis, while later stages shift toward political decision-making, sometimes transitioning back to rationality. Nowadays, new technologies and politics complement each other, challenging the role of rational decision-making. Machine learning and AI also impact politics and governance, raising questions about the significance of big data utilization (Salam et al., 2023).

While researchers have studied the influence of each factor separately on decision-making, there is a scarcity of studies comparing their interrelationships. The rational conceptual perspective delves into breaking down questions into structured decision problems. It assumes that problems can and should be solved by analyzing alternatives and their potential outcomes prior to deciding (Brinkerink & Bammens, 2018). The political perspective, on the other hand, examines decision-making processes shaped by power dynamics, negotiation, and mutual influence. It focuses on decisions guided by the interplay between individual and group interests (Kolbe et al., 2020).

Overall, decision-making is believed to encompass technological, rational, and political dimensions, and their interaction may occur at various stages, sometimes in combination and concurrently (Elbanna, 2006). From this perspective, the literature suggests that innovative decision-making processes are dynamic, complex, and non-linear, intertwining with one another over time (Gavetti & Levinthal, 2000). However, research in this area has been relatively scarce for many years. Only two recent studies have explored the interaction between rational and political decision-making on a broader scale (Kolbe et al., 2020).

The structure of this paper is as follows. In Section 2, the authors present the impact of the rational decision-making model in ITG, supporting their arguments with relevant articles that have investigated this interaction. They also propose their own decision-making process framework. This section illustrates how politics, particularly power dynamics and emotional aspects, can influence final resolutions in IT management, providing examples from real case studies and their findings made by different researchers, and focuses on the technological dimension, considering a literature review conducted earlier. It examines the influence of modern technologies, AI, big data, and machine learning in comparison to the previous two dimensions in the context of the decision-making process. Section 3 introduces the authors' conceptual framework that proposes the interaction between all three concepts, accompanied by an explanation. Finally, in Section 4, the authors provide a conclusion that summarizes the main findings of their research, highlights its contribution, and discusses potential future benefits.

2. THEORETICAL FRAMEWORK

2.1. Methodology

This study conducted a systematic literature review to analyze already proceeded studies investigating the interaction between rationality and politics in ITG's decision-making process. The literature search was conducted using established databases, such as Web of Science and Google Scholar, and included studies published between 1999 and 2023 years. The methodology encompasses a traditional literature review approach, which involves a comprehensive analysis of existing scholarly works in the field. The search terms used were "information technology governance", "decision-making process", "rationality", "politics", "artificial intelligence", "strategic decision-making process", "power", "big data", and "business management".

The inclusion criteria for selecting studies were meticulously designed to ensure the relevance and quality of the literature included in this review. The criteria were as follows:

1) *Focus on rationality and politics in ITG's decision-making process.* The primary criterion was that the studies should explicitly examine the interplay between rationality and politics in the ITG's decision-making process. This ensured that the literature directly addressed the core research question, providing insights into the dynamics between rational and political considerations in ITG decisions.

2) *Empirical evidence or analysis.* It was essential for the studies to provide empirical evidence or in-depth analysis. This criterion ensured that the selected literature was grounded in real-world observations or rigorous analytical frameworks, enhancing the robustness and applicability of the review's findings.

3) *Publication in peer-reviewed outlets.* Only studies published in peer-reviewed journals or conference proceedings were considered. Peer review is a hallmark of academic rigor, and by adhering to this criterion, the review aimed to maintain a high standard of academic integrity and quality. This also ensured that the findings and methodologies of the selected studies had been critically evaluated by experts in the field before publication.

4) *Language of publication.* Given the linguistic authors' capabilities and the desire to include a diverse range of perspectives, studies written in English, French, Ukrainian, or Russian were included. This broad linguistic criterion allowed for the inclusion of research from various regions and cultural contexts, enriching the review's depth and breadth.

The review process utilized a deductive coding approach to systematically categorize and analyze the identified literature. By applying this coding method, the review aimed to derive key themes and concepts related to the interaction between rationality, politics, and AI. It's worth noting that while the deductive coding approach was chosen for its systematic nature and ability to derive specific themes from the literature, alternative methods such as inductive coding were also considered. Inductive coding, which involves generating themes and patterns directly from the data without any predefined categories, offers a more open-ended approach. However, given the specific research objectives and the need for a structured analysis, the deductive method was deemed more appropriate. Nonetheless, recognizing the value of multiple analytical perspectives, future reviews might benefit from a combined deductive-inductive approach or other qualitative analysis techniques to ensure comprehensive insights.

Initially, 60 relevant studies were identified through the literature search. After applying the inclusion criteria, a final set of 41 research articles was selected for detailed analysis in this review.

The selected studies were carefully reviewed and analyzed to extract relevant information regarding the interaction between rational and political approaches in ITG's decision-making process. Each study's methodology, theoretical foundations, and practical implications were examined and synthesized in the review.

The chosen methodology aligns with the research objective of investigating the interaction between rationality, politics, and AI in the decision-making process in ITG. The traditional literature review approach was deemed appropriate for providing a comprehensive overview of the existing knowledge in this area and identifying gaps for future research.

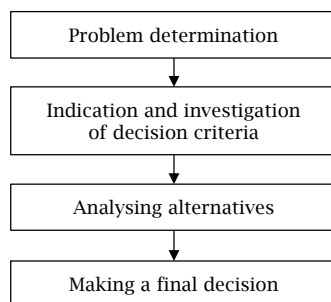
Following the literature review, we proposed a conceptual framework that can be instrumental for enterprises. This framework offers a structured approach for decision-makers, ensuring that they consider both rational and political perspectives when making ITG decisions. By integrating these perspectives, organizations can achieve more balanced and informed decisions, leading to enhanced ITG and better alignment with business objectives. Furthermore, the framework emphasizes the importance of continuous feedback and iterative refinement in the decision-making process. This iterative approach allows for the incorporation of new insights and evolving business needs, ensuring that ITG strategies remain relevant and effective over time. Additionally, by fostering a culture of open dialogue and collaboration, the framework encourages stakeholders from various departments to contribute their expertise, leading to more holistic and well-rounded decisions. In essence, our proposed framework not only serves as a guide for making informed ITG decisions but also promotes a culture of continuous learning and collaboration within organizations.

2.2. Rationality in the decision-making process in information technology governance

Despite the perceived correctness of rational decision-making, company managers acknowledge the influence of other factors that can lead to divergent ideas. Human factors, which possess inherent values and are not fully captured in the rational decision-making process, can significantly alter perspectives (Cohen & Comesaña, 2023).

This decision-making process entails not only a logical and comprehensive analysis but also the utilization of external tools and technologies. However, this approach can be resource-intensive in terms of time and financial costs. Therefore, it is not typically employed in everyday decision-making but rather proves more effective for significant decisions involving multiple criteria that impact numerous individuals (Lumen, n.d.).

Figure 1. Rational decision-making process in information technology governance



Source: Authors' elaboration.

• *Level 1: Problem identification.* The initial step in the rational decision-making process involves accurately defining the problem that needs to be addressed. It is crucial to determine the desired outcome and clearly articulate it. Thorough consideration should be given to understand the central question that requires resolution. For instance, when considering opening a business and launching an online foreign language learning application, one must identify the necessary requirements, potential challenges, and anticipated issues (Salhab et al., 2023).

• *Level 2: Identification of decision criteria.* Following the problem determination, the decision maker needs to identify relevant decision criteria to guide the conclusion. This involves considering stakeholders' interests, values, and preferences. The decision criteria can encompass various factors, such as assessing user demand for the language learning application, estimating the required number of developers, and determining the necessary antivirus programs. Since the identified criteria will likely differ in importance, it is crucial to assign appropriate weights to establish their priority. For example, prioritizing high risk due to strong market competition and high demand for a significant workforce as crucial indicators while considering other slightly less decisive factors.

• *Level 3: Exploration and evaluation of alternatives.* Once the problem is defined and relevant information is gathered, potential alternatives for future actions should be generated. These alternatives could involve various aspects, such as the range of languages offered by the application or different methods of language learning, including written or oral comprehension. It is important to create a comprehensive list of feasible alternatives and evaluate them by asking relevant questions, such as determining the most desirable choice and assessing their feasibility. The decision-maker should then assess the benefits and challenges associated with each feasible solution.

• *Level 4: Final decision-making.* At the final stage of the rational decision-making process, a conclusive decision should be made after a thorough evaluation of all options. The chosen solution should be clearly stated to avoid confusion or ambiguity. The decision could be one of the initially identified alternatives, an adaptation of one of those options, or a synthesis of various elements from multiple suggestions. It is also possible that an entirely new solution may emerge during the evaluation process.

In the realm of IT enterprises, decision-making is often carried out without the ideal specificity prescribed by theoretical models (Bharadiya, 2023b). Throughout history, human judgment has played a significant role. An extensive literature review indicates that most researchers recommend employing rational or logical models to mitigate conflicts by emphasizing evidence-based discussions. Hypothesis-based reasoning is followed, with an attempt to suppress or carefully express emotions while focusing on rational arguments. However, such debates can sometimes lead to uncertainty or disinterest, as rational arguments are often challenged based on intuitive doubts.

All in all, rationality serves as a guiding principle in the decision-making process within ITG, ensuring that choices are grounded in objective

analysis and logical reasoning. This approach fosters a systematic evaluation of alternatives, considering factors such as cost-effectiveness, efficiency, and alignment with organizational objectives. However, despite the emphasis on rationality, the decision-making processes of ITG are often subject to the influence of politics (Kościelniak & Puto, 2015). The affection of politics in the decision-making process brings to light the intricate interplay between rationality and political dynamics. By examining the impact of politics on decision-making, we can gain insights into how organizational power structures, stakeholder interests, and resource allocation can shape and sometimes challenge the rational approach.

2.3. The impact of politics on the decision-making process in information technology governance

In the realm of management and decision-making, the term “politics” is used to highlight the shrewdness of individuals or their employment of manipulation to attain certain benefits. When used in this sense, the term carries connotations that can be either positive or negative. “Power” is another significant term closely associated with politics, referring to the ability to exert control over others. Governance and power are interconnected, representing form and substance respectively (Koniakou, 2023). The concept of management centers around achieving specific goals, while power focuses on the resources of influence, structures, and mechanisms used for subordination. Communication also plays a vital role in the political decision-making model, particularly when negative decisions affecting numerous individuals within a company need to be conveyed swiftly and emotionally.

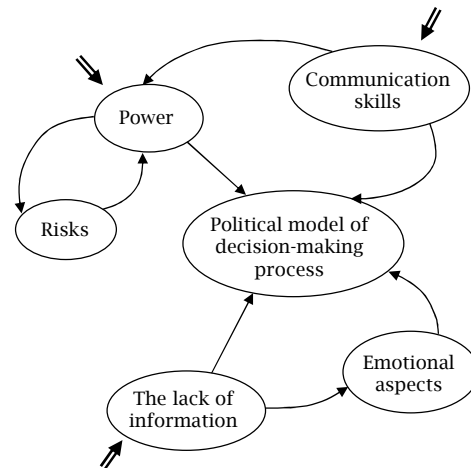
The literature review revealed that the use of the political decision-making model in IT organizations, particularly in relation to power, suggests a hypothesis that individuals with power and those without it differ in their propensity for risk-taking. Every decision involves certain risks, but while the rational model aims to minimize them, the political model tends to amplify them. Furthermore, this hypothesis is based on observations that people with high and low power perceive gains and losses resulting from decision-making differently (Sekścińska & Rudzinska-Wojciechowska, 2021). A study by Lammers and Burgmer (2018) demonstrates that influential individuals tend to attribute success selectively to their own efforts while attributing failure to external factors beyond their control. Thus, it can be inferred that power in the political decision-making model accentuates the egoistic tendencies in managers.

Numerous studies have also explored the relationship between the political decision-making model and the emotions or personal characteristics of managers. For example, one key distinction between individuals with high and low self-esteem lies in their reactions to unfavorable decision outcomes (Wojciszke & Struzynska-Kujalowicz, 2007). Those with high self-esteem respond in ways that counteract the potential negative impact of such experiences by focusing on their strengths and cultivating positive self-perceptions (Di Paula & Campbell, 2002). Conversely,

individuals with low self-esteem tend to dwell on their weaknesses and deficiencies following failure. Additionally, 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 presumed that occupying positions of power and operating within an anarchic environment impact decision-making, including decisions involving risk. However, to the best of our knowledge, this issue has not been thoroughly examined.

Figure 2 illustrates the various factors influencing the political decision-making model in ITG. In summary, the primary factors guiding managers in choosing the political model are the lack of information, an individual’s power, and their communication skills. Effective communication can directly influence the decision-making process or be subject to the influence of the decision-makers perceived power, ultimately leading to a political approach. The risk factor can act as an indicator itself, influencing power, or it may depend on the decision-maker’s level of power. This is because individuals with more power are more inclined to take risks to accomplish their objectives. Additionally, the more balanced and thoughtful the risks a manager takes, the greater their potential for acquiring power in the future. Insufficient and inaccurate information can affect the emotional component of the decision-making process or directly introduce alterations to it. As Herbert Simon (1983, as cited in Giang, 2015), an American scientist and Nobel laureate, stated, emotions have a significant impact on, distort, and at times completely determine the outcome of many decisions.

Figure 2. Illustration of how the political model of the decision-making process is affected by other factors



Source: Authors' elaboration.

The political approach to the decision-making process in ITG, as opposed to the rational approach, relies primarily on the personal characteristics of the decision-maker (Shin et al., 2023). Decisions made within this model are not necessarily reliable or scientifically justified, as they often lack thorough analysis and may be based on insufficient information. However, despite these limitations, such decisions have the potential to exist and even yield success and substantial profits for companies, sometimes relying on fortuitous circumstances in management.

Understanding the affection of politics on the decision-making process in ITG lays the foundation for exploring how technology itself impacts decision-making. Politics significantly shapes the policies, regulations, and strategies that govern IT. However, as technology continues to evolve and intertwine with our lives, it wields its own influence on the decision-making process. The transformative power of technology presents decision-makers with new challenges, opportunities, and ethical dilemmas. It prompts them to adapt and develop innovative approaches to address emerging technological advancements. By examining how technology affects the decision-making process, we gain insight into the complex interplay between politics and technology, and how these dynamics shape the future of ITG.

2.4. How does technology affect the decision-making process

Effective decision-making is an inherent and essential aspect of IT company management. The role of managers within an enterprise revolves around continuous decision-making to ensure ongoing growth and achievement of business objectives. In the past, prior to the advent of the technological revolution, managers relied largely on their own experience and intuition when making decisions. However, today, with the advent of AI and machine learning, decision-makers have access to vast amounts of data, significantly streamlining the decision-making process (Bokrantz et al., 2023). This prompts us to explore the significance of technology in the decision-making process.

- *Processing large volumes of data.* To ensure quality decision-making, data must be pre-processed, minimizing the need to revisit specific problems after receiving subsequent processing stage results (Pilipenko, 2018). At the initial stage of decision-making, data undergoes statistical and logical checks, often involving complex mathematical calculations and software solutions. Various statistical methods such as hypothesis testing, estimation of parameters and numerical characteristics of random variables and processes, as well as correlation and dispersion analysis, can be employed.

- *Timesaving.* The abundance of information and sophisticated processing capabilities facilitate the creation of datasets that are valuable for decision-making. Information technology possesses immense power, but the decision-maker must possess the acumen to ask pertinent questions about the information and know how to process it to obtain answers that influence future decision-making (Ramey, 2012).

According to a study by the Boston Consulting Group, one in four enterprise managers surveyed reported that the integration of AI has enhanced decision-making and improved team performance (Ransbotham et al., 2020). More than half of the respondents agreed that the utilization of AI enhances competitiveness and facilitates the incorporation of capabilities from related areas into the decision-making process. However, there exists a certain level of mistrust regarding the application of modern technologies in crucial processes due to concerns about the reliability and accuracy of the results. A third of the surveyed company managers believe that this skepticism arises from insufficient or inaccurate data.

Moreover, AI functions in decision-making in a manner that adapts the strategy as new data becomes available. AI exhibits “random moves” that deviate from typical human behavior, as it does not engage in continuous thinking but rather swiftly switches strategies (Buhmann & Fieseler, 2023). Decision algorithms based on machine learning-processed results can be highly flexible, highlighting multiple outcomes for a given decision when parameters are altered. This capability assists businesses in making optimal choices from a range of options based on current growth goals and strategies. A McKinsey survey revealed that only a quarter of organizations are satisfied with the speed of decision-making, with many admitting to spending excessive time deliberating the “right” choice, which may not always be the most optimal one (McKinsey & Company, n.d.). AI-powered decision systems expedite the process by swiftly processing massive amounts of data. Researchers from Data61, the Australian National University, and experts from Germany have indicated that modern technologies can also influence human decision-making by leveraging habits and behavioral patterns, allowing for a better understanding of how people make choices (Kim et al., 2021). This knowledge is valuable as it helps identify and mitigate vulnerabilities, thereby avoiding poor decisions resulting from the potential misuse of machine learning.

AI-based systems operate on extensive datasets and utilize algorithms to formulate the most effective solutions to tasks. Previously, the operation of such systems was limited to the analysis of mathematical indicators. Decision intelligence is a decision-making technology that combines critical knowledge from applied data science, social sciences, and management sciences (Vasconcelos, 2020). In addition to quantitative factors, this technology incorporates qualitative and emotional elements, enabling ITG managers to make decisions in line with the political landscape and societal sentiments. This constitutes the fundamental distinction between decision intelligence systems and other decision-making systems: they are founded on business knowledge rather than algorithmic perfection. Thus, decision intelligence systems, in contrast to those solely reliant on mathematical rationality, facilitate more objective and personalized decision-making, aligning with human requests and expectations.

Exploring how technology affects the decision-making process unveils the need for a conceptual framework that can comprehensively analyze and guide decision-making in the digital age. As technology continues to advance at a rapid pace, decision-makers must navigate an increasingly complex landscape of technological options, risks, and opportunities. A conceptual framework serves as a roadmap, providing a structured approach to evaluate the impacts and implications of technology on decision-making. It offers a systematic way to identify key variables, assess trade-offs, and consider diverse perspectives. By developing a robust conceptual framework, decision-makers can enhance their ability to make informed choices in an ever-changing technological landscape, ensuring that technology serves as a strategic enabler rather than a hindrance in the decision-making process.

3. CONCEPTUAL FRAMEWORK

Figure 3 below depicts the interconnection between the decision-making process, the factors influencing it, and the execution of final decisions. Initially, managers perceive the environment to gather information, employing technological methods such as machine learning and decision intelligence to analyze the collected data and assess income sources. They then process this information using various techniques to select the most appropriate alternative and utilize the outputs to arrive at a final decision.

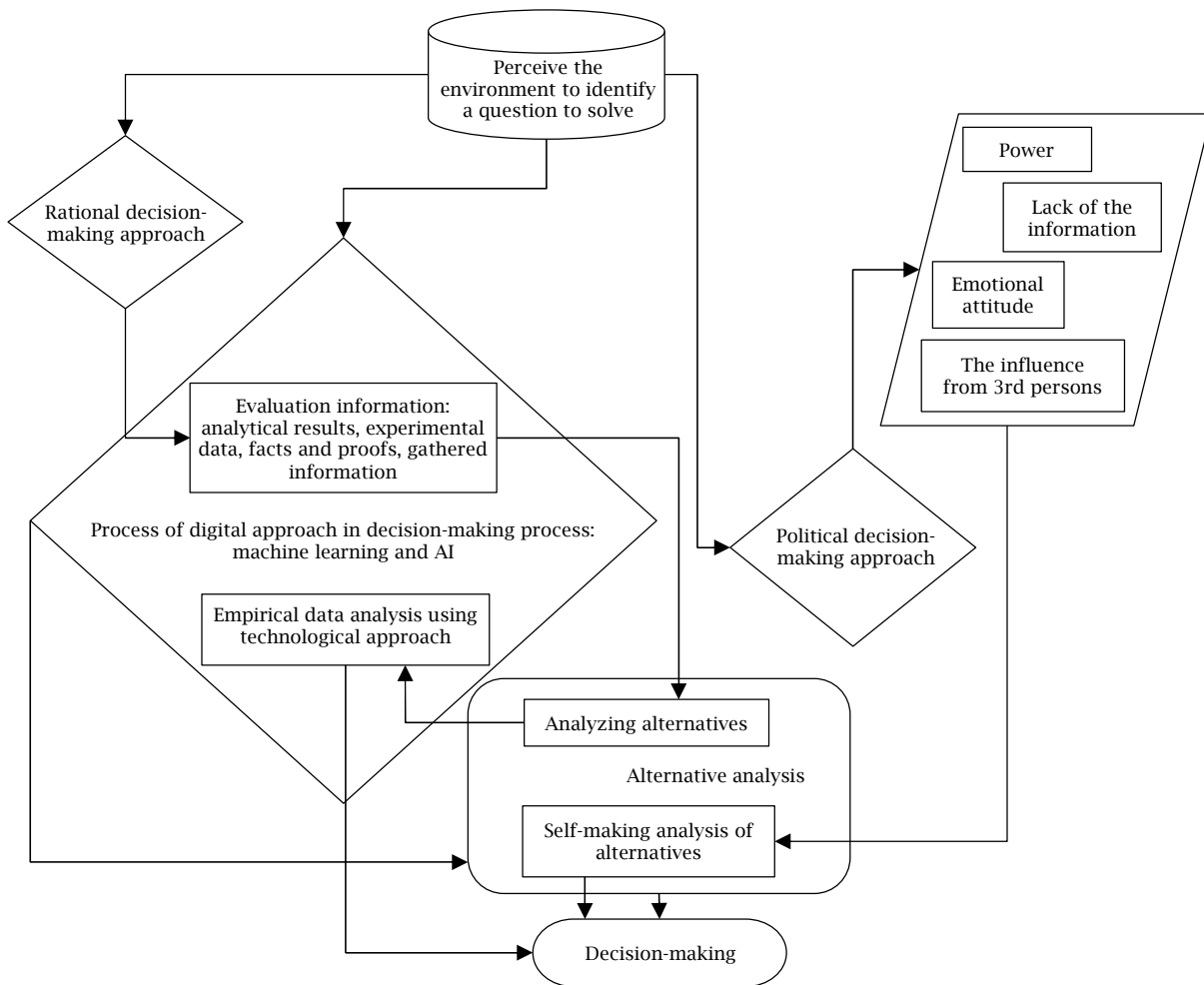
To evaluate the received data, decision-makers rely on technological tools, personal experience, and sometimes emotional aspects of their personality. This evaluation stage involves comparing and identifying the best alternatives and utilizes analytical results, experimental data, facts, and evidence as sub-factors. The decision-making model can also be influenced by political considerations, which depend on three key factors: the quantity and uncertainty of provided information, the managerial authority or external influences, and personal behavior. Although these dimensions are independent of each other, they collectively impact the political decision-making approach in ITG.

Furthermore, decision intelligence can process the emotional dimension, offering future assumptions and predictions for potential solutions. Decision intelligence, a component of AI analysis and processes, contributes to the rational aspect of decision-making. This approach, which leverages big data and AI, addresses challenges, identifies opportunities, and assists managers in making analytical and strategic decisions.

The rational model of decision-making can also influence technological perception, with these two variables either correlating or overlapping. The remaining alternatives, obtained through the screening process, are evaluated by either machines or humans, and the chosen option is then validated by obtaining authorization from executives in the ITG domain. At this point, decisions can be made using political, technological, or rational approaches. The study conducted by UMass Dartmouth (n.d.) also highlights these essential steps for effective decision-making.

By following these steps, decision-makers consider all three dimensions, thereby increasing the reliance on a diverse range of internal and external factors, information, personal backgrounds, and verified data. This comprehensive approach allows for a thorough exploration of the solution from various angles and perspectives, ultimately leading to the most accurate decision possible.

Figure 3. Conceptual framework of variables' interaction affecting the decision-making process



Source: Authors' elaboration.

4. CONCLUSION

In conclusion, the process of making management decisions is multifaceted and influenced by various factors. It is a crucial component of organizational processes, as all actions and management functions are built upon the decisions made. Decision-making entails consciously selecting the optimal option or alternative to solve a problem, incorporating elements such as problems, goals, and the ultimate solution. The contribution and limitations of this work are such that the authors propose a correlation and influence between decision-making processes in ITG based on AI, rationality, and politics. This implies that the study contributes by providing insights into this correlation.

The rational model aims to select the alternative that maximizes benefits for the organization. Decisions are justified using objective and formalized methods, relying on analytical processes. However, experienced leaders often struggle to articulate how they arrived at a solution, indicating a reliance on informal information and a political model that may lack full justification. Moreover, the utilization of machine learning and neural networks in AI analysis provides accurate predictions, facilitating sound decision-making. These technologies can even automate the resolution of complex analytical problems.

The primary focus of this research was on the theoretical aspects of decision-making processes in ITG, which means that real-world applications and empirical validations were not extensively covered. The reliance on existing literature might have introduced biases, as only published and accessible studies were reviewed, potentially overlooking unpublished or less accessible findings. Additionally, the rapidly evolving nature of AI and machine learning technologies means that some of the latest advancements might not have been captured in this review. Lastly, while the study aimed to provide a comprehensive overview, it is possible that certain nuances or specific contexts within ITG decision-making were not addressed (Zhou et al., 2023).

Drawing from the proposed model, several indicators influence the quality of well-made decisions:

1) the quality of initial information relies on reliability, sufficiency, protection against interference and errors, and the form of presentation;

2) the rationality of the decision-making process;
3) the timeliness of decisions is determined by their speed of development, adoption, transfer, and organization of execution.

Existing literature has separately examined the impact of rational, political, and technological dimensions on the decision-making process in ITG. However, empirical data regarding the role and effectiveness of these indicators in this procedure are relatively scarce. The emergence of big data, AI, and decision intelligence in enterprises calls for further research in this domain, particularly in exploring the interplay between political and rational decision-making dimensions within innovative decision-making processes.

In summary, this review paper delves into the interplay between rational and political approaches in the decision-making process of ITG. It investigates the interaction among AI, machine learning, decision intelligence, political decision-making methods, and rational conceptualization within ITG. Through a comprehensive literature review, this study analyzes empirical studies and presents theoretical foundations, practical implications, and use cases in ITG. By shedding light on this interplay, the research contributes to informed resource management and offers practical recommendations for decision-making in ITG.

Given the theoretical nature of this study, there is a significant opportunity for future research to delve into empirical investigations. Such research could validate the proposed correlations and influences highlighted in this review, providing concrete evidence and real-world applications. Future studies could employ qualitative methods, such as interviews and case studies, to gain deeper insights into the practical challenges and benefits of integrating AI, machine learning, and decision intelligence in ITG. Additionally, quantitative research could be undertaken to measure the effectiveness of different decision-making models in various ITG scenarios. By comparing the outcomes of rational and political decision-making processes in real-world settings, researchers can offer more tangible recommendations for ITG practitioners. Furthermore, as technology continues to evolve, ongoing research will be essential to keep abreast of the latest developments and their implications for ITG decision-making.

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