Advances in Artificial Intelligence and Machine Learning; Review (Ahead of Print) Received 01-02-2026; Accepted 01-05-2026; Published online 07-05-2026

AI-Enabled Nudges in Executive Innovation Decision-Making: A Systematic Review and Research Agenda

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Abstract

Behavioural interventions as well as Artificial Intelligence (AI)-enabled decision-support systems are increasingly shaping executive decision-making within innovation contexts. A growing number of studies on Nudge Theory, behavioural economics, and digital decision architecture have been produced; however, many remain unsystematic and disproportionately focus on operational/individual-level applications. Therefore, there is relatively little empirical evidence to support how AI-enabled nudges affect the executive-level strategic decision-making process regarding innovation investment decisions. Furthermore, the existing body of literature fails to demonstrate any theoretical linkages between Nudge Theory, Construal Theory, and Upper Echelons Theory. The results of this study highlight three specific areas where there is a lack of empirical research within the literature: 1) there are very few empirical studies investigating the use of AI-enabled nudges by Chief Executive Officers (CEOs) and at the C-level; 2) there is a lack of theoretical relationships between Nudge Theory, Construal Theory, and Upper Echelons Theory; and 3) core mechanisms for executive strategic decision-making (i.e., uncertainty reduction, psychological distancing and bias mitigation) are not adequately conceptualised or operationalised when investigating innovation decision-making. The findings from the systematic literature review provided a systematised view of AI-enabled nudges functions as decision-support architectures that instantiate executive cognition, organisational processes and strategic evaluation at the executive level. This research sets out a systematic future research agenda that defines key mechanisms, ethical issues and boundary conditions to support future empirical investigations. Overall, findings provided through this research show that AI-enhanced nudges offer a theoretical basis by which informed and transparent innovation decisions can continue to be made at the executive level and therefore support firms' ability to be innovative over the long-term.

Citation: Safaâ Houna and Lena Lotta Sticken. AI-Enabled Nudges in Executive Innovation Decision-Making: A Systematic Review and Research Agenda. **Advances in Artificial Intelligence and Machine Learning**.2026. (Ahead of Print) https://dx.doi.org/10.54364/AAIML.2026.62300

Keywords: Innovation, Nudge, CEO, Decision architecture

1. INTRODUCTION

Artificial intelligence (AI) plays a pivotal role in the modern digital economy by enabling both business transformation and innovation. Many businesses have already begun using AI technology, regardless of industry, to assist in making decisions, automating processes, and more effectively responding to changes in the market through strategic decision-making. Evidence suggests that firms implementing AI systems experience significantly higher growth than those that do not [1–3]. In addition to driving long-term competitiveness and productivity for firms and countries, innovation is also a key component of increased economic growth [4–6]. As a result, an increasing number of scholars are finding that factors affecting the success or failure of innovation are not restricted to the technological capabilities of a firm but are also affected by how firms' structure and make strategic decisions. Due to their ability to shape complicated decision-making environments, numerous behavioural interventions are considered as potential means of influencing behaviour. The use of nudges from behavioural economics is suggested to shape behaviour by developing decision architecture that is created with consideration for the systematic cognitive biases people have. This way, people will not be forced into making certain decisions but rather will still have free will while using their cognitive biases to make helps for their decisions. In relation to strategic decision-making, managers and executives will use their behaviours to guide decision-making by using their own knowledge of biased decisions to adjust the environment in which they make strategic decisions. The influence of digitalisation and AI technologies have advanced the development of nudging-based decision architectures to use adaptive, data-driven and personalisation options known as digital and AI-based nudging. Despite the interest in nudging and AI-based decision architecture, the research available is highly fragmented. Most behavioural economics research focuses on the behaviour and cognitive processes of individuals or operational-level decision-making. On the other hand, Innovation research tends to explore the outcome of innovations rather than the cognitive and behavioural processes that exist prior to strategic commitments towards innovations. Strategic management research is primarily focused on the effect top level executives will have on organisational outcomes, although very few investigations have been conducted that address behavioural processes, such as nudging, in the research model used when studying executive decision-making. To date, little research has examined how AI technologies related to nudging impact CEO innovations decisions regarding identifying opportunities for both innovation on-the-job and working from home, particularly about uncertain economic conditions (e.g., COVID-19) and over long-time horizons. This gap is significant because CEOs play a critical role in determining firms' innovation trajectories. Research shows that executive cognitive frames, values and interpretations of strategic situations significantly affect organisational outcomes [7, 8], which means that executive characteristics, executive leadership/style, and executive incentives all significantly influence how much firms will invest in transformative opportunities [9, 10]. In addition, there are empirical studies demonstrating the direct effects of CEOs on innovation [11–13]. There is, however, little study done regarding the micro-foundations of executive decision behaviours and cognitive constraints and mechanisms that influence how executives evaluate their choices regarding innovation. Psychological distance can have an effect; that is, the distance someone feels from something can influence his/her decisions to be, i.e., how far or close he/she feels the thing to him/her [14], and ultimately will have a bearing upon whether he/she will act. Decisions

regarding innovative products typically involve long time horizon, significant uncertainty about outcomes, and dispersed results or benefits; therefore, they are perceived as being more abstract or 'less relevant' than other forms of decision-making processes. Prior studies have found that as an individual perceives increased psychological distance, he/she is less likely to engage in the decision-making process and is less likely to act upon it, this is true, for example, when planning regarding environmental or sustainability investment [15]. In addition, Construal Level Theory provides a model that explains how individuals represent their decisions based upon temporal, social or hypothetical distances [16]. When someone uses a high-level level of construal to represent his/her decision, the result is that he/she views it in a more abstract form, whereas low-level construal focus upon specific, concrete or contextual elements of a decision; thus, Construal Level Theory is very relevant to the analysis of decision-making in regard to innovative products at the executive level. Nudging - and in particular, AI-assisted nudging - can be an efficient tool for reducing psychological distance from decision outcomes. Nudges attempt to construct decision environments to reduce psychological indicators of bias, such as level of preference for the status quo, present bias, and capacity limitations related to processing of information [17]. Current empirical data support the assertion that nudges have positive effects across a variety of contexts, including high public acceptance and cost-effective behavioural changes [18–20]. In recent years, digital nudging has emerged as a robust way to implement nudges within organisations. Digital nudging also connects with AI-enabled nudging as it combines behavioural economics with machine learning and large-scale data analytics. Unlike traditional (static) choice architectures, AI-enabled nudges can adapt to real- time changes in consumer preferences, deliver personalised messages, and incorporate multiple sources of data into the construction of knowledge about potential decisions. Visual simulation techniques, personalised scenarios, and benchmarking allow for greater emphasis on long-term effects and are thus more concrete and salience about overcoming cognitive barriers related to executive innovations [21, 22]. AI-enabled nudges structure, integrate, and prioritise information relevant to decision-making and thus have the potential of reducing psychological distance and informing more purposeful strategic judgments. Despite growing interest in these topics, the existing literature remains fragmented and narrowly focused. Current studies on behavioural nudges, executive cognition, or AI-assisted decision-making, only consider one of these angles; however, the body of research has not tried to create a cohesive connection between them. Additionally, there has been very little research into the ethical implications and governance questions surrounding AI-assisted nudges when used at the executive level. This lack of theoretical integration leaves important gaps in understanding how AI-enabled nudges can support innovation-oriented executive decision-making without undermining managerial autonomy. To better understand this area, this research will perform a systematic literature review that explores how AI-assisted nudges impact executive innovation decision- making behaviours and executive willingness to invest in innovation initiatives, and how psychological distance and knowledge processes contribute to these impacts. By synthesising research in the areas of behavioural economics, strategic management and innovation, this review will integrate current findings and identify any unsourced research questions. This investigation will be informed by the following research questions:

RQ1: How do AI-enabled nudges influence CEOs' innovation decisions and their willingness to invest in innovation initiatives?

RQ2: How can AI-enabled nudges be designed to reduce psychological distance in corporate decision-making?

The remainder of the paper is structured as follows: The methodology and search criterion used to find literature will be outlined in the next section along with the analytical procedure of each of said items; The results from conducting this review of the various literature sources will be grouped into clusters (i.e. theme groups) according to how they were analysed; The analysis portion of the review will then outline the categories associated with the findings, offer limitations on methodology (i.e. lack of robustness) and evidence base (i.e. currentness), and then provide a future research agenda based on said analysis. The overall findings combination of both empirical data and theoretical research through an application of practical or managerial applications. The overall structure of this paper can be represented against the above research framework identified in FIGURE 1; The second section outlines the methodology used in conducting this review, including all relevant selection criterion; The third section details the results of the review - both qualitative and quantitative - grouped thematically; The fourth section provides an analysis of those findings - both within traditional academic categories of methodology and theoretical basis for future research; Finally, the paper will conclude with an analysis of the overarching findings in relation to their respective theoretical frameworks and practical (non-academic) implications.

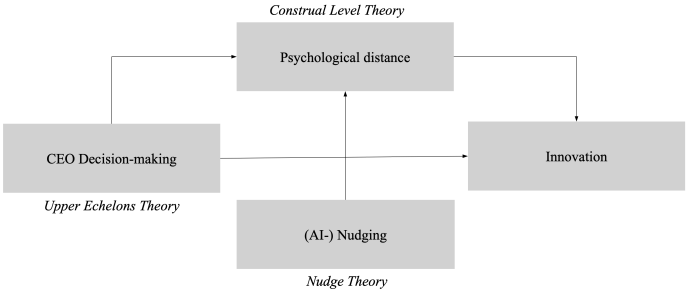

Figure 1: Research framework

2. METHODOLOGY

The methodology of this study is through a systematic literature review (SLR) to answer the two research questions that guide this study. A systematic literature review allows for a transparent, reproducible, and comprehensive synthesis of scientific evidence. The objective is to identify and assess the quality of the conceptual and methodological data for all identified studies [23]. The decision to conduct a systematic literature review was made based on the absence of considerable research at the intersection of AI-enabled nudges, executive decision- making, psychological distance and innovation. It is important to develop a fully formed and meaningful understanding of the existing body of knowledge before embarking on additional empirical-based research. [24] describes the aim of conducting a systematic literature review as being to produce an unprejudiced, fair, and comprehensive synthesis of the previous research by identifying all studies that relate to the objectives of the SLR. This systematic literature review follows the PRISMA 2020 guidelines [25], as well as the methodological guidelines for conducting systematic literature reviews in the fields of management and information systems research as indicated by [26]. By following these guidelines, this systematic literature review will be transparent and reproducible, and this will provide a strong representation of the new body of research in this area of study. There were four phases in the comprehensive review that went through iterations: identification, screening, eligibility assessment,

and final eligibility. Each of these phases had a set of sub-processes designed to minimise bias in the selection of studies and capture the conceptual diversity and methodological diversity across the field. The overall screening and selection procedure is illustrated in FIGURE 2.

2.1 Search Strategy and Data Sources

To reduce the risk of selection bias arising from reliance on a single database, the literature search was conducted across five complementary databases: JSTOR, ScienceDirect, Emerald Insight, Google Scholar, and Semantic Scholar. Given their broad coverage of peer-reviewed literature in management, economics, behavioural science, information systems, and innovation, these databases were considered well suited to capturing the theoretical and 4 conceptual perspectives relevant to the present review. The terms use to complete the searches were based on the introduction of nudging by Thaler and Sunstein in 2008; therefore, the search is limited to literature published after 2008. The searches included only English language materials published between 2008 and 2026. The searches were conducted in accordance with a predefined search strategy that is described in the Appendix. The search terms were created to identify literature that examines AI, digital nudging, behavioural design, executive decision- making and innovation, which are the five constructs used in this study. The complete list of searches can be found in TABLE A1 (see Appendix).

2.2 Screening Procedures

The initial corpus was refined through a three-stage screening process in order to obtain a focused and high-quality final sample. The complete search strategy is presented in Table A2. Stage one: An initial search was conducted using five broad search strings across the five databases. The resulting records were then screened at the title, abstract, and keyword levels in accordance with the inclusion and exclusion criteria specified in TABLE A1.This first stage of the screening process removed studies that had no conceptual relevance, studies that were not peer-reviewed, studies that were from outside the period, and studies that did not have a level of analysis that was appropriate for the organisation. Stage two (search process B): The next step was to perform a full text screen on all studies that defined above. Each of the full text screens was performed independently by two reviewers. Only studies that met at least two of the following four dimensions will be retained: AI, artificial intelligence, and or advanced digital decision-making support technologies; nudges; digital nudges; behavioural design techniques; decision-making by the CEO/top management team; innovation-related long-term investments; or innovation-related strategic organisational changes. Independent reviewers evaluated the relevance of studies within an initial pool of 56 studies. The coding process was conducted iteratively by two independent reviewers and achieved substantial inter-coder reliability (Cohen's $\kappa = 0.714$), which further supports the stability of the identified conceptual categories [27]. Moreover, the included studies originate from multiple research streams—including behavioural economics, innovation studies, strategic management, and information systems—which suggests that the identified mechanisms are not confined to a single disciplinary perspective. Thus, considering the broad conceptual nature of the review and the degree of interpretation used in deciding upon studies' inclusion into this review, this level of agreement is acceptable and comparable with previous research using a review methodology. Disagreements were resolved through discussion, with a final set of 27 studies existing. Next, eligible studies

within the final set were evaluated, using four criteria: substantive focus of either AI-enabled or digital nudges within the context of organisational decision-making or strategic decision-making; clear theoretical foundation within the Upper Echelons Theory, Nudge Theory, Construal Level Theory, or related cognitive perspectives; methodology consists of conceptual clarity, transparent reasoning, or strong empirical design; explicit relevance to innovation-related decision mechanisms (e.g., uncertainty, abstraction, temporal distance, information processing, or knowledge integration). Studies that referred to AI or nudging only superficially, lacked theoretical grounding, or failed to explicitly address executive decision-making were excluded from the final analysis.

2.3 Bias Mitigation, Data Extraction and Synthesis

Selection bias can occur when there are insufficiently defined criteria for including and excluding studies [24]. To improve the rigour of this research, several strategies to improve methodological quality were implemented. A range of databases were searched to ensure coverage from multiple disciplines, and a broad range of terms were used in the search to ensure that a wide range of research was captured. An evidence-based analytical framework was developed to facilitate data extraction (TABLE A3, Appendix) and organising the data. Two raters conducted the independent coding and assessed interrater agreement between themselves by using Cohen's kappa coefficient. To further limit the possibility of bias in the selection of databases, the search was supplemented with backward and forward snowballing to identify additional studies that met the eligibility criteria. The researchers engaged in an iterative process of reflecting on the methodological limitations of the research, in accordance with the recommendations of [28] and [29]. Data that was extracted included constructs, theoretical frameworks, methods used for data collection, the region the study originated from and innovation related outcomes from the study. Content was subjected to both a content analysis and thematic analysis to identify patterns which reoccurred and how they related conceptually, resulting in four clusters of themes: (1) Strategic management and C-level leadership; (2) behavioural economics; (3) choice architecture, AI nudging; and (4) innovation and associated theoretical frameworks. The synthesis has highlighted the conceptual linkages that exist amongst behavioural economics, strategic management, AI-based decision architectures and innovation theory.

3. RESULTS

The systematic review identified 27 studies that formed the final sample for the analysis. Among these, only three studies addressed all core constructs of this review simultaneously. This indicates that the intersection of AI-enabled nudges, executive decision-making, psychological distance, and innovation remains an emerging and fragmented field of research. Given the limited number of directly matching studies, the review synthesised evidence not only from fully aligned studies but also from conceptually adjacent contributions that addressed specific elements of the overarching research question. Accordingly, the findings should be interpreted as a structured conceptual synthesis of a developing body of literature rather than as conclusive evidence from a mature and homogeneous research stream.

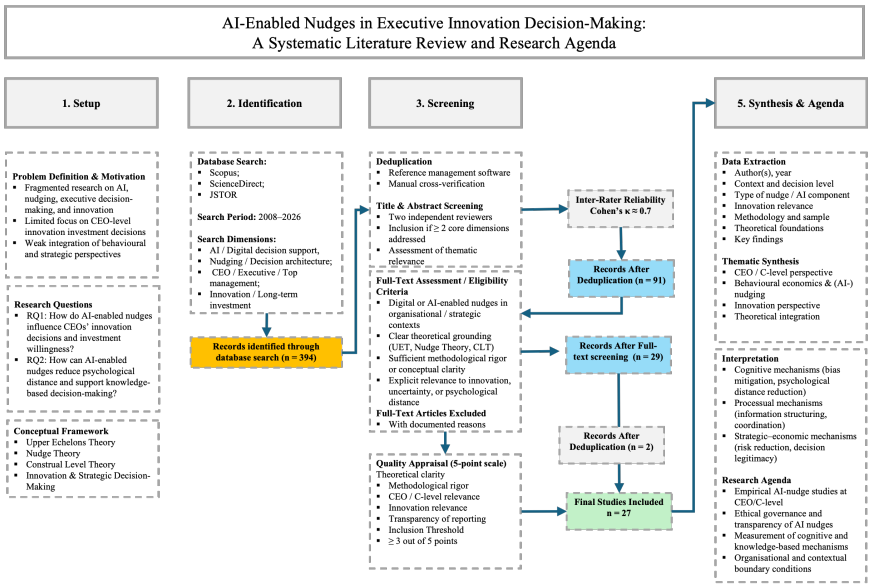

Figure 2: Process flow of the systematic literature review (PRISMA 2020-based workflow)

To maximise coverage, the first search term and subsequent search terms were combined into searches that would provide the widest possible range of items. Most articles related to the topic were published between 2008 and 2026, with most published in 2024 or later (FIGURE 3).

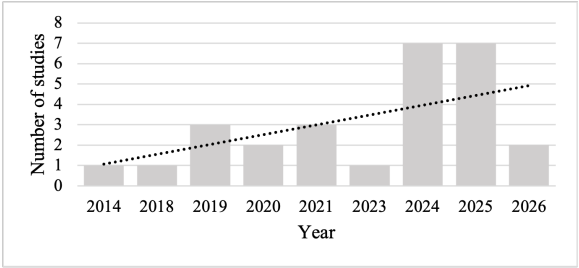

Figure 3: Number of studies in the final sample (n = 27) by year of publication

The Linguistic Inquiry and Word Count (LIWC) text analysis reveals the major themes of the samples examined by revealing a word cloud showing which words appear most frequently (FIGURE 4). The word cloud also visually depicts the level of emphasis placed on the different themes in the sample papers, by displaying the most common words in a more impactful manner. The most used concepts were innovation, nudging, decision-making, behaviour, information, bias, culture and planning, which reflect the core conceptual focus of the literature included in the review. In particular, the prominence of terms such as innovation, decision- making and planning supports the strategic management and innovation perspectives identified in the thematic analysis. Similarly, the frequent occurrence of terms such as nudging, behaviour and bias correspond with the behavioural economics perspective and the role of nudging mechanisms in shaping decision environments. Taken together, the LIWC analysis provides additional evidence that the literature clusters around

the four thematic perspectives identified in this review: strategic management and executive leadership, behavioural economics and nudging, innovation processes, and theoretical integration.

Figure 4: Keyword occurrences in the final sample (LIWC output)

In this section of the presentation on content analysis results of the final sample, we will synthesise the insights from all identified studies and group them thematically. Based on this literature review of the research articles included in the current sample, the research articles are all based on the principles of behavioural economics, which forms the conceptual foundation of the literature review and how nudges are conceptualised in the analytical framework. The findings from the literature review will therefore be presented according to the four overarching categories and perspectives: (1) Strategic Management and Executive Perspective; (2) Behavioural Economics and (AI-) Nudge Perspective; (3) Innovation Perspective; and (4) Theoretical Perspective. Therefore, when addressing the overall research question within each of the four perspectives and incorporating them under the individual sub-theme, we will continue to follow the same pattern. The results will be synthesised using the theoretical foundations of the corresponding studies.

3.1 Strategic Management and Executive Perspective

Throughout the literature reviewed, CEOs and other top management are depicted as members of an important group influencing the strategic decision-making process and its subsequent impact on the organisation. Instead of concentrating solely on individual strategic decisions made by the leader and top executives, these studies have shifted their focus toward executive cognition, bias awareness, and decision process architecture as more important constructs, particularly when considering uncertainty and long-term innovation decisions [30, 31]. Some studies present an executive as a decision maker operating under Howard's (1975) definition of bounded rationality. [32] describes the CEO as a "choice architect" whereby their capability to choose affects strategic outcomes by creating decision environments, developing diverse alternatives, and creating Aggregated Information from different sources. [33] support this theory and identify that biases such as status quo bias or loss aversion prevent effective decision making by top management; however, utilizing nudging mechanisms (i.e., Structured Feedback Systems and Performance Indicators) help improve reflective and adaptive decision-making. From another viewpoint, several studies are evaluating

executive decision-making under behavioural strategy. [34] show how executive's mental models can be influenced using structured cognitive mapping, while [35] identifies the opportunity for behavioural interventions and the ethical issues involved with behavioural interventions in organisational settings. Many studies have illustrated how executive decision architecture directly connects to innovation; some even offer direct evidence of this relationship and its effects on performance as well. An example of this is [30], who found that a CEO can systematically encourage innovation by utilising levers that relate to cultural and behavioural factors and applying routines at an organisational level to support their strategic intents. An example of this is in [31], which showed that leveraging behavioural economics/AI through tools such as predictive analytics and personalised nudges supports decision-making related to innovation and reduces uncertainty. [31, 36] also show both measurable benefits of performance through an organisation's implementation of nudging-based systems; however, they do highlight some of the challenges that an organisation faces (both organisational – e.g., cultural; and ethical) when implementing nudging systems at all levels. There has also been some consistent evidence for leadership support and signalling as key pathways in fostering innovation. For example, [37] showed that visibility of senior leaders' support (visible top-management commitment) and resource organisation/classification of nudges facilitate behaviours related to innovation, particularly about sustainability. Similarly, [38] provided similar support for the use of just-in- time nudges embedded into leadership development in achieving innovation at higher levels of the organisation. Taken together, the research suggests that senior leaders and CEOs are critical actors in constructing and legitimising decision-making systems/architecture that create strategic and innovation-related outcomes. Three distinct ways to initiate a shift are emerging: (1) via cognitive skills/attitudes, by reducing psychological distance between decision-makers and their decisions; removing uncertainty; or bias; (2) via procedural methods, through learning and innovation structure within an organisation; and (3) via strategic/economic means, by increasing transparency, reducing risk, and providing legitimate types of performance measure. While there have been significant discussions surrounding behavioural-based approaches including those related to AI-assisted nudges and nudging at the C-level, evidence-based studies on the actual use of AI-assisted nudge techniques in the executive decision-making process are quite limited, as almost all of the research has focused only on the process of executives making decisions indirectly.

3.2 Behavioural Economics & (AI-)Nudge Perspective

Most of the published research studied nudges from a behavioural economics perspective treated nudges as interventions that alter decision environments to change behaviour without restricting choice or free will. Most studies used nudges in the final sample as independent variables influencing cognition, attention and behaviour under conditions of bounded rationality, consistent with the core tenets of Nudge Theory [39]. A major finding was the transition to digital and AI-enhanced nudges. While early studies focused on static choice architectures (default options, framing, saliency), subsequent studies emphasise adaptive, data- driven, and personalised systems. [40] posited smart nudges, where cognitive technologies enable predictable behavioural change using dynamic information structures. Additionally, [31] demonstrated that AI-enhanced behavioural economics permits real-time adjustment of nudges; this improves decision quality, engagement and economic outcomes significantly. The literature suggests that AI-enhanced nudges extend classic nudging mechanisms by reducing cognitive and psychological distance. Digital interfaces, predictive analytics, and algorithm- driven recommendations allow the use of cognitive technology to support decision-makers in processing complex data, forecasting potential future outcomes, and

more easily comparing competing trade-off alternatives. This is especially relevant for executive decisions made in uncertain environments, where the decision to invest in innovation takes a long time to generate feedback and is fraught with risk and uncertainty. Research by [41] and [42], indicate that digital nudges can help reduce resistance to innovation; however, there is also a risk of unintended consequences if they are not well designed and calibrated. Ethics are a central issue in the nudging debate regarding the use of AI for nudging. Many studies differentiate between empowering and manipulative uses of nudges, especially with AI-enabled implementation. For example, [43] propose the use of advisory nudges, which focus on building trust and empathy with individuals as well as allowing for individuals to make their own decisions. On the other hand, [44] warn that if nudges are opaque, they can undermine individual freedoms and accountability. In summary, research to date has shown that while AI-enabled nudges can trigger behaviour, they do not do so as much as provide cognitive architecture to direct attention, to enhance the learning process and to guide how one evaluates behaviour. Despite the increasing sophistication of the technology, the literature shows that nudges are infrequently studied in an explicit connection to strategic leadership theories or empirically analysed at the C-level.

3.3 Innovation Perspective

The literature investigated suggests that nudges often function as an influence on the innovation process; they shape the innovation process, influence the decision-making process for adoption of innovations, and create scenarios of engagement for organisation members. In contrast with focusing on individual creativity, study authors view nudging as a means used to structure an organisation's decision-making environment, develop coordination mechanisms within the organisation, and create the participation patterns of its members. Research also shows the role of nudges in creating or enhancing innovation through transparency, coordination, and collective attention. Research done by [45], identifies that when there are nudges within product development, they can enhance transparency, collaboration, and affects the collective awareness of teams making it easier for them to develop decisions in complicated situations. According to [46], there are four key enablers of nudging in innovation-digital workflows, foresight radars, thematic campaigns, and curation mechanisms-these work to reduce barriers associated with meaning, participation, and capability. Another area of related research is focused on the adoption of innovations and cognitive resistance to adoption of innovations. [42] demonstrated how cognition biases will decrease the likelihood of an individual adopting an innovation and that digital nudging can partially lessen these effects. [41] built upon this foundation to provide insight into how nudges can result in the creation of more collective intelligence through digital nudges but at times this may have a negative outcome when there is a disconnect between the nudge and the task or the group dynamics. Numerous studies have considered the impact that nudging has on an organisation's strategic capability and overall performance in terms of innovation. [30] documented that organisations with multiple mechanisms used for nudging, can achieve higher levels of innovation when compared to organisations with fewer or no mechanisms for nudging and further that organisations with multiple nudging mechanisms have been able to achieve superior performance in the market. In a similar vein, [31] notes that using AI-enabled behavioural economics, companies can make innovative decisions based upon empirical evidence, reduce uncertainty, and improve their performance via predictive analytics and personalised nudges. Innovative sustainability is another common thread in the literature as [37], identifies limited financial resources as another significant constraint to innovating, further noting the influence of nudges on innovation behaviour (e.g., targeted budgets or

visible top management support). Finally, the work of [47], expands upon prior work by examining governance and risk mechanisms in innovations with environmental objectives. Other inclusion provides additional information that addresses communication and decision framing. For example, [48] show how internal communication nudges support agile innovation; [49] illustrate that emotion towards achieving goals affects risk-taking in Research & Development (R&D) investment. In general, nudging is depicted as a flexible tool for influencing innovation processes or adoption. In addition, although digital and AI-enabled nudges expand the scope of influence, most empirical literature is concerned with process and operational levels of a business rather than looking directly at the executive- level decision-making.

3.4 Theoretical Perspective

Several studies integrate behavioural economics, psychology, and strategic management through behavioural strategy. TABLE 1 summarises the theoretical foundations used to compare Upper Echelons Theory, Nudge Theory, and Behavioural Strategy.

Table 1: Evaluation of the theoretical foundations

Dimension	**Upper Echelons Theory (Strategic Management)**	**Nudge Theory (Behavioural Economics)**	**Behavioural Strategy**
Goal	Explain how executives' characteristics, values, and cognitive dispositions shape strategic decisions and organisational outcomes.	Influence decisions by restructuring choice architectures without restricting freedom.	Integrate realistic assumptions about cognition, emotions, and behaviour into strategy research.
Approach	Cognitive framing, bias awareness, leadership characteristics.	Choice architecture, salience, defaults, framing, nudges.	Reflection, cognitive mapping, debiasing, behavioural interventions.
Ethical focus	Responsible leadership, accountability, transparency.	Autonomy preservation, avoidance of manipulation.	Ethical realism in strategic decision-making.
Typical tools	Demographic analyses, psychometrics, text mining of CEO communications, experiments, interviews.	Field experiments, behavioural interventions, digital nudges.	Cognitive mapping, mixed methods, behavioural analytics.
Research gaps	Limited research on AI nudges at the C-level, weak integration with nudging theory.	Limited integration with leadership and strategic management.	Lack of empirical models linking AI nudges to executive innovation decisions.

Source: own elaboration based on [34]

This perspective explicitly recognises bounded rationality, cognitive biases, emotions, and social interactions as central drivers of strategic decision-making. According to [34], behavioural strategy seeks to create realistic representations of cognition, emotion and social behaviour related to strategic management, thus enhancing theory and practice through a variety of empirical research studies. Furthermore, since behavioural strategies are generally developed from a participant's perspective [50], they will closely resemble nudging methodologies as they focus upon decision-making structures (decision architecture) rather than outcomes. The literature reviewed showed a link between behavioural strategy as a conceptual "bridge" between Upper Echelons Theory and Nudge Theory. Essentially, Upper Echelons Theory identifies how the executive's personal attributes (e.g., cognitive frames) will influence the outcome of the strategy; Nudge Theory identifies tasks that can either facilitate or inhibit how cognitive frames can be manipulated to affect the outcome of the strategy without the use of force. The results of this review suggest that the integration of the above theories has been limited, particularly about nudge theory utilising AI-enabled nudges.

4. DISCUSSION

The results of this systematic literature review demonstrate that CEOs and other top-level executives play a crucial role in determining how and when their organisations will invest in innovation, as well as the trajectory of these investments. In the literature analysed, AI-enabled nudges are conceptualised not only as instruments of direct behavioural control but also as means of altering both cognitive and organisational conditions under which strategic innovation decisions are made. This distinction between an AI-enabled nudge as an instrument of influencing behaviour versus as an instrument for altering cognitive and organisational conditions under which strategic innovation decisions occur is important because CEOs/C-level executives have to make decisions about innovation in an environment characterised by a high degree of radical uncertainty, very little feedback on their decisions, and high levels of ambiguity. The literature provides key insights into the way in which CEOs act as "choice architects" [32], while operating under conditions of bounded rationality. The literature also indicates that nudging architectures influence the decision-making of CEOs/executives by creating structures for the qualitative and quantitative elements of the decision-making environment - including increasing the variance of available options, consolidating information that is commonly available to multiple parties, and establishing formalised feedback mechanisms - as way to help mitigate cognitive bias related to overoptimism and status quo bias [33]. While the bulk of the research on AI-enabled nudges to conceptualise how AI- supported decision architectures can reduce the psychological distance between CEOs and their organisations and increase their ability to execute long-term investments in innovation by making these investments more relevant, is limited; this area is going to continue to grow. The second theme relates to the way in which top-level executives can shape organisational structures related to innovation through intentional design. Innovation outcomes develop not by isolated acts of creativity but through the orchestration of the various organisational levers such as incentives, the logic of resource allocation, feedback systems and cultural artefacts [30]. From the perspective of behavioural strategy, nudges enable leaders to convert abstract innovation strategies into observable and measurable organisational processes, thereby reducing perceived risk and strengthening the strategic justification for investing in innovation [31]. In addition, the findings provide insight into the relationship between custodial and emergent innovation strategies. In contrast, while corporate entrepreneurship and

sustainability research highlight the need for broad organisational participation, the findings of this literature review indicate that the upper echelons of the organisation are critical in defining the strategic framework for participation. Furthermore, nudging at the executive level does not displace lower-level innovation approaches, but rather serves to create the enabling conditions that support such approaches. Thus, AI-enabled nudges serve as mediators of the relationship between strategic intent and organisational engagement by facilitating the emergence of new ideas, increasing the flow of knowledge through organisations, decreasing the cognitive load on employees and providing executives with timely signals regarding innovation [41]. The findings of existing research on digital nudging and collective intelligence also support these interpretations regarding the mediation effect of AI- enabled nudges and highlight the potential for unintended consequences caused by poorly constructed nudges [42]. Using performance feedback and adapting algorithms dynamically gives businesses a means of obtaining a steady stream of information to make better executive decisions when there is not enough data. All empirical research has indicated that AI-enabled nudges can assist executives regarding their innovation-related decisions. Specifically, they provide support for executives on three different types of dimensions when they try to innovate using AI. First, they assist with reducing the cognitive distance (psychological distance), uncertainty and bias associated with the innovation-related decision made; second, they help the process of the innovation routine through structured innovation routines and learning (organisational learning); and third, they provide strategic support by improving transparency, reducing perceived risk in making an innovation and providing legitimacy to the purchase of an innovation. Instead of simply being behavioural shortcuts, AI-enabled nudges are decision infrastructures for executives that improve the quality of their choices about the amount of information available. Despite this knowledge, it is evident that there is still a significant gap in the literature on this subject matter. Very few articles discuss the relationship of AI-enabled nudges, executive decision-making, psychological distance and innovation outcomes either directly or indirectly. The articles that directly examine a relationship between AI-enabled nudges at CEO and C-level have been limited in number and, therefore, have to rely primarily on studies that explore either the innovation-related decision-making processes used by executives or the impact of innovation-related decisions upon the organisation's C-level or CEO's activities primarily by examining the overall organisational performance. Building upon the identified gaps, this article identifies four closely related research avenues that need further exploration and development. First, one of the most urgent research needs is directly examining the AI-enabled nudges specifically for the CEO and C-level executives. Although executives are often thought of as the individuals who decide on which options to choose, the effects of nudging agents (financially) provide for operational risk and innovation investment decisions and the determination of company commitment, and decision-making quality is still not well understood. As such, future researchers should consider looking at AI-supported decision support systems (i.e. dashboards, scenario simulation, etc.) using longitudinal and qualitative study designs, field experiments and interview-based methods to establish and validate datable research designs. In addition, future studies should also focus on psychological distance and uncertainty reduction as mechanisms to improve innovation decision-making. The characteristics of innovation make it difficult for executives to visualise myriads of choices and what that choice represents. To effectively visualise the "magnitude of choice" would create an individual's understandings of the degree of psychological distance within an organisation. By implementing Construal Level Theory, as it applies to economic decision-making principles within behavioural strategy and behavioural economics, researchers could model how choice architects would operate using AI-supported nudging to reduce abstraction, aggregate relevant information, and assist to decrease the effects of cognitive biases. Finally, executives need to develop procedures for ethical governance, transparency and legitimacy

relative to using AI- augmented nudges to support decision-making processes. Additional studies should assess the type of worker input to determine if providing an advisory (empowerment) vs manipulative (non-empowerment) action will positively contribute in relation to the posture of executive trust in the adviser, as well as other factors such as levels of observer accountability, understanding of autonomy and how established mechanisms for organisation control influence overall executive adoption of AI to be viewed and received positively. Mixed-methods methodologies may be particularly useful to provide both quantitative data supporting the behavioural benefits from using AI and the underlying ethical perceptions related to AI. Fourthly, research should also examine the organisational and contextual boundary conditions. AI-enabled nudges may produce different effects depending on the following: size of firm, industry, institutional setting, and culture. There is a pressing need for comparative and cross-country studies and sectoral analyses in high-uncertainty innovation contexts (e.g finance, industries, sustainability). This will enhance the external validity of AI-enabled nudges. To promote this agenda, researchers need to move away from isolated nudging interventions and towards viewing AI-enabled nudges as decision-making infrastructures for executives, which will influence attention, learning and evaluation in different ways. A significant opportunity exists for an integrated behavioural strategy approach to link behavioural economics and strategic management within this conceptual framework. Despite the contributions of this review, the findings should be interpreted in light of several limitations. First, the final sample was relatively small, with only 27 studies included and only three studies directly covering all core constructs of the review. This reflects the novelty and fragmentation of the field, but it also limits the extent to which robust generalisations can be made. Rather than representing a saturated empirical domain, the sample captures an emerging interdisciplinary conversation across behavioural economics, strategic management, innovation studies, and AI-related decision-support research. Second, the review therefore also draws on conceptually related studies to synthesise mechanisms linking AI-enabled nudges, executive cognition, and innovation decisions. In addition, the review was limited to English-language publications, which may have excluded relevant research published in other languages and may therefore introduce a degree of geographic or publication bias. This approach was appropriate for theory-building purposes, but it requires caution when interpreting the findings as empirically consolidated.

5. CONCLUSION

The results of this systematic literature review suggest that CEOs' innovation-related strategic decisions may be influenced by AI-enabled nudges through a change in cognition, information, and organisation associated with making strategic decisions. In response to RQ1, the review indicates that AI-enabled nudges may help reduce psychological distance between decision- makers and innovation initiatives with long time frames and uncertain outcomes; and may contribute to reducing uncertainty and cognitive bias—all of which may increase willingness by executives to invest in innovation initiatives. In response to RQ2, effective AI-enabled nudges appear to have a transparent and adaptable decision architecture that structures information processing, facilitates organisational learning, and encourages the development of a collective understanding of the available information in the decision process, rather than prescribing a specific decision. Relative to the research questions, there is a significant research gap whereby few have examined the three research questions together particularly as it pertains to AI-enabled nudges, executive decision-making, and innovation investment. This is indicative of a need for further empirical and conceptual

research that provides a systematic approach to integrating these perspectives. At the same time, the findings should be interpreted with caution given the relatively limited number of studies included in the final sample, which reflects the emerging nature of research at the intersection of AI-enabled nudging, executive decision- making, and innovation. In this vein, behavioural strategy represents an important theoretical link between behavioural economics and strategy management theories, specifically Upper Echelons Theory. With innovation becoming increasingly important to firms' long term competitive advantage and viability, the results of this review suggest that AI-enabled nudges may represent a viable avenue for future research and for managers to use in their practices.

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Appendix A. Systematic review protocol

Table A1: Systematic review protocol

1) Aims and objectives of the review	The review seeks to synthesise existing research at the intersection of artificial intelligence (AI), nudging, executive decision-making, psychological distance, and innovation. Specifically, the review seeks to (1) identify how AI-enabled nudges influence CEOs' innovation-related decisions and their willingness to invest in innovation initiatives (2) consolidate theoretical and empirical insights across behavioural economics, strategic management, and innovation research (3) derive conceptual implications and avenues for future research	
2) Inclusion and exclusion criteria	**Inclusion:** - Studies between 2008 and 2026 - Journal field: Business, Economics, Management, Psychology, Decision Sciences - Focus on CEOs, C-suite, top management - Focus on firms or non-profit organisations - Full text available in English	**Exclusion:** - Articles not written in the English language - No full text available - Published outside the set time frame - All duplicate papers were removed
3.) Way in which studies will be identified	- PRISMA 2020 guidelines - ScienceDirect, JSTOR, EBSCOhost, Semantic Scholar, and Google Scholar - multi-stage screening process - Search string: (CEO OR executive) AND (AI OR "artificial intelligence ") AND („nudge" OR "decision architecture" OR "Choice architecture ") AND („innovation")	
4.) Plan of analysis	**Stage 1:** Screening process - *Search Procedure A (titles, abstracts, and keywords)* a) Records identified in general b) Records identified between 2008-2026 c) Records identified in selected sources (Research article, scientific journals d) Records identified in the included subject areas e) Records identified in Abstract or title includes "Nudge" - *Search Procedure B (full text)* f) Records identified after screening full text g) Duplicates - Inter-rater reliability (Cohen's κ) *	**Stage 2***:* Full-text assessments eligibility - AI/Digital nudge - Theoretical grounding - Methodological rigor - Attention to cognitive mechanisms **Stage 3:** Backward and forward snowballing - Content analysis (mechanisms, methods, regions, and outcomes)
5.) Reliability*	- Intercoder reliability was assessed between Coder A and Coder B (n = 56). - Observed agreement (P_o) was calculated as $P_o = (a + d)/N = (19 + 20)/56 = 39/56 \approx 0.6964$. - Expected agreement ($P_e$) was derived from the marginal proportions of inclusion and exclusion decisions. Coder A classified 27 studies as include and 29 as exclude, while Coder B classified 28 studies as include and 28 as exclude. - Expected agreement was therefore calculated as $P_e = [(27 \times 28) + (29 \times 28)]/56^2 = 1568/3136 = 0.5000$. *Cohen's Kappa* $$\kappa = \frac{P_o - P_e}{1 - P_e} = \frac{0.8571 - 0.5006}{1 - 0.5006} = \mathbf{0.714}$$	

Source: own elaboration based on Nightingale (2009)

Table A2: Screening of selected datasources

Search string: (CEO OR executive) AND (AI OR "artificial intelligence") AND ("nudge" OR "decision architecture" OR "Choice architecture") AND ("innovation“)	**Science Direct**	**JSTOR**	**EBSCO**	**Semantic Scholar**	**Google Scholar**
Search procedure A (Abstract, Titel, Keywords)					
a. Records identified in general	443	442	1.601[1]	78	11.100
b. Records identified between 2008-2026	403	285	1.583	75[4]	9.910
c. Records identified in selected sources (Research article, scientific journals)	241	167	1.545	x	445
d. Records identified in the included subject areas	184[2]	35[3]	x	x	175[5]
e. Records identified in Abstract or title includes “Nudge”	21	x	16	6[4]	13
Final sample of selection A:	21	35	16	6	13
Search procedure B (full text)					
f. Records identified after screening full text	10	0	6	6	7
g. Duplicates	0	0	-1	0	-1
Final sample of selection B:	10	0	5	6	6

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Notes:[1]"In my library", peer-reviewed, English; [2]Business Management & Accounting, Social Sciences, Psychology, Decision Sciences, Economics, Econometrics & Finance; [3]Business, Economics, Management & Organization Behaviour, Psychology, Finance; manual execution as no filter function available; [5] Search string without “executive”

Source: authors own elaboration

Table A3: Full list of final samples (n=27)

Author	**Year**	**NU**[1]	**CEO**	**IN**[1]	**AI-N**[1]	**AI**	**Theory**[2]
Archarya	2024	yes	partly	no	partly	yes	PT, NT
Batora et al.	2025	yes	no	yes	no	no	NT
Bhattacharjee & Bhattacharya	2025	yes	yes	yes	yes	yes	NT
Christofaro et al.	2025	yes	yes	no	no	no	BDT
Dieanouxet al.,	2019	yes	no	yes	no	no	NT, TRI
Eglė	2024	no	no	no	partly	yes	x
Felin T.	2014	yes	yes	yes	no	no	NT, TBR, TPT
Galpin	2022	yes	yes	yes	no	no	x
Gupta et al.	2024	yes	no	yes	yes	no	x
Haunstrup & Jensen	2024	yes	yes	no	no	no	x
Hirsch	2019	yes	yes	yes	no	no	x
Houdk	2024	yes	partly	no	no	no	NT
Huang et al.	2023	yes	partly	partly	no	no	DID
Ijasan et al.	2026	yes	no	no (ESG)	no	no	x
Kim & Ryu	2020	no	yes	yes	no	yes	x
Kremena & Honchar	2025	yes	yes	yes	no	no	BT, BS, NT
Manzoor et al.	2025	yes	no	no	no	no	NT
Mathur	2025	yes	yes	yes	yes	yes	TBR, NT, PT
Mele et al.	2021	yes	no	no	yes	yes	NT
Öztürk & Arun	2024	yes	no	no	no	no	NT
Rusch	2021	yes	yes	yes	no	no	NT
Schneider	2024	yes	partly	partly	no	no	x
Si et al.	2026	yes	no	partly	partly	yes	NBV
Stieler & Henike	2021	yes	partly	yes	no	no	NT
Striya & Stazger	2019	yes	no	yes	no	no	NT
Zervas & Triantari	2025	yes	partly	no	no	no	TAN

Notes: [1]N= Nudge, IN=Innovation, AI-N= Nudge; [2]NT= Nudge Theory, PT= Prospect Theory, TBR = Theory of Bounded Rationality, BT= Behavioural Strategy, KBV= Knowledge Based View, TAN= Theory of Advisory Nudge, DID= Difference-in-Differences Model, TRI= Theory of Restricted Irrationality, DPT= Dual Process Theory, BDT= Behavioural Decision Theory