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COGNITIVE STYLES IN MANAGERIAL DECISION-MAKING: CONCEPTUAL FOUNDATIONS AND TYPOLOGICAL MODELS

КОГНІТИВНІ СТИЛІ В ПРИЙНЯТТІ УПРАВЛІНСЬКИХ РІШЕНЬ: КОНЦЕПТУАЛЬНІ ОСНОВИ ТА ТИПОЛОГІЧНІ МОДЕЛІ

Зі зростанням дедалі більш мінливих, невизначених, складних та неоднозначних організаційних умов, знання про когнітивні механізми, що лежать в основі прийняття управлінських рішень, стають найважливішими. У статті розглядаються концептуальні основи та типологічні варіації когнітивних стилів, зокрема у стратегічному мисленні, сприйнятті ризиків та адаптивному лідерстві. Стаття спирається на емпіричні та теоретичні роботи з соціальної психології, науки про прийняття рішень та когнітивної нейронауки. Критично оцінюються переваги та недоліки різних когнітивних стилів – аналітичного, інтуїтивного, цілісного та гнучкого – та те, як їх найкраще реалізувати в динамічних контекстах управління. Особлива увага приділяється метакогнітивному управлінню, когнітивній різноманітності на рівні команди та впливу технологій допомоги у прийнятті рішень. Дискусія підтримує перехід від статичних типологій до інтегрованих моделей, що враховують когнітивну гнучкість та ситуативну чутливість. Визначаючи зв'язки між особистою когнітивною орієнтацією та якістю рішень, пропонується побудова більш складних теорій про управлінську ефективність та когнітивне навчання. Запропоновано організаційний дизайн, навчання лідерству та майбутні напрямки досліджень.

Ключові слова: *когнітивний стиль, прийняття управлінських рішень, когнітивна гнучкість, метапізнання, стратегічне мислення, організаційна психологія, адаптивність лідерства, системи підтримки рішень, сприйняття ризику.*

Introduction. Cognitive psychology has impacted organizational behavior in recent decades, notably investigating how individual differences influence management decision-making. One of the most well-known concepts to arise from the interface between the two is that of cognitive style - the label attached to persistent individual differences in how people perceive, process, structure, and act upon information. Cognitive style determines, in management contexts as much as anywhere else, how data is interpreted and strategic opportunities are set out, identified as priorities, and implemented.

Increasingly, as organizations face imminent technological upheavals, intricate stakeholder demands, and fluctuating market volatility, the capacity to excel in analytic and intuitive ways of thinking has become an essential competence. Surprisingly, however, there is little systematic data on the bulk of decision-makers tending to have one preferential mode of thinking and the few with the metacognitive knowledge to move between modes as demanded by situational requirements.

The managers' cognitive profiles either enhance or decrease their performance in critical decisions, collaborative work, and strategy implementation. Cognitive style is also the subject of theoretical disputes. While some authors construct it as an unchanging characteristic as a function of personality, others suggest that it is an adaptable set of tendencies calibrated by situation, learning, and thinking. Beyond the theory itself, the literature is characterized by a wide range of typologies - from the well-known intuitive–analytic continuum to holistic–surrealistic models, many of which are conceptually similar but different in measurement and use. Irrespective of these difficulties, the overall body of work leads to one common finding: cognitive style determines not just how decisions are reached but which kinds of strategy are found to be plausible, which types of risks are emphasised, and how ambiguity is endured. The article integrates core theoretical and empirical advances at the nexus of organizational science, leadership studies, and cognitive psychology to build a conceptual model of management decision-making cognitive styles.

Particular attention is given to typological models, risk perception, team heterogeneity, and metacognitive self-regulation. In addition, the article examines how these factors function in dynamic and turbulent contexts and draws on recent scholarship on VUCA to explicate how flexibility of style and awareness contribute to management effectiveness.

Purpose of the Article. The purpose of this article is to explore how different cognitive styles influence managerial decision-making, particularly in the context of volatile and uncertain organizational environments. It aims to identify typological patterns, assess their strategic implications, and propose an integrative model that links cognitive style with decision quality, flexibility, and leadership adaptability.

Theoretical framework. In organizational psychology and management science, decision-making is no longer understood as merely an optimizing rational process. Instead, it is now conceived mainly as an intellectually driven activity influenced by deep-rooted stylistic tendencies or cognitive styles. Cognitive styles are persistent modes of perceiving, processing, and reacting to information that determine how one thinks, how one learns, and, finally, how one decides (Armstrong, Cools, & Sadler-Smith, 2012).

These styles become key drivers of action and effectiveness in management contexts, where decisions are often made under ambiguity, complexity, and strategic urgency. The relevance of cognitive style is particularly apparent in management decision making, where various challenges such as time constraint,

uncertainty, stakeholder politics, and ambiguity are the norm. Executive managers with different cognitive styles are prone to depend on different processing modes - analytic or intuitive, linear or nonlinear, global or local - and these influence typical planning patterns, problem-solving, risk-taking, and innovation (Sadler-Smith, 2004).

This article aims to integrate existing theory and literature to map the base typologies of cognitive style, connect them to managerial action, and examine the influence on the effectiveness of strategic decisions. Cognitive styles were studied through an enriched conceptual tradition, which originated in cognitive psychology and has begun integrating into organizational behavior research. Seminal models, including Witkin's field dependence-independence continuum, Riding's cognitive style analysis (CSA), and Allinson & Hayes' intuitive analytic dimension, have sought to categorize people on processing and representation dimensions (Armstrong et al., 2012).

These models posit that cognitive styles are bi directional continua, including intuitive and analytic, verbal and imagery-based, or holistic and sequential, each indicating differences in mental representation and information use. The concept of cognitive styles as comparatively stable yet context-sensitive characteristics is key to all of the above. They are differentiated from intelligence, which quantifies cognitive ability, and personality, which apprehends emotional tendencies (Cools & Van den Broeck, 2008).

Their specificity is in the management of the "how" as opposed to the "how well" or "why" of thinking. Accordingly, managers with different cognitive styles can be as effective as each other but through very different thought processes. Empirical literature has established the applicability of certain cognitive styles to management behavior.

For example, analytic style - characterized by logical thinking, systematic analysis, and use of complex data - is commonly paired with long-term strategic planning and risk mitigation. Moreover, the intuitive style is characterized by trust in gut feel, global attention to the whole, and recognition of patterns from experience. It is commonly related to entrepreneurial thinking, speed of response, and innovation (Hunt et al., 1989; Sadler-Smith, 2004).

Gallén (2006) also related these styles to strategic orientation. In his investigation of spa industry managers in Finland, intuitive managers favored prospector and analyzer strategies, which demand ongoing environmental monitoring and flexibility. On the other hand, sensing (detail-oriented) managers tended to opt for defender approaches, which are less open to new opportunities and are inwardly oriented. This duality shows that the two modes of thinking are helpful, but there is a dependency in how well one is executed compared to the other, depending on the stage and type of decision-making.

The most insightful piece of literature in this area is that of Hunt et al. (1989), who employed a multiphase decision process to demonstrate how managers with distinct styles prefer advice congruent with their style during sequential decision stages. Their work established that the congruence of management style improves confidence and consistency in decision-making.

This indicates that management cognition drives strategy and filters others' input, thereby affecting team dynamics and leadership influence.

In addition, Hough and Ogilvie (2005) examined how MBTI-based cognitions influence decision quality and perceived performance. Their results indicated that Intuiting-Thinking (NT) types made the best and highest-quality decisions in simulated strategic contexts, whereas Sensing-Feeling (SF) types were least decisive and effective. Surprisingly, Extraverted managers were rated as being more effective.

However, there was no difference in actual performance, suggesting that perceived management competence is socially constructed based on the visibility of one's cognitions. Cristofaro (2016) extended the approach through dynamic decision-making simulations by relating decision-making flexibility to cognitive style. It categorized the participants as adaptive, fixated, stalled, and vagabonding behavioral profiles and associated style types with accuracy and response latency.

The adaptive decision makers' higher flexibility and improved performance in high environmental complexity were found, and the operational validity of the style-behavior associations were confirmed. In addition to decision-making at an individual level, cognitive style has an influential role in higher-level functions such as conflict management, team management, giving feedback, and communication between people.

Cools & Van den Broeck (2008) conducted an exploratory study on the analysis of written reflections by managers with different styles and established that the preference for style impacted managerial expression, definition of conflict, and selection of motivation techniques. For instance, structured thinkers favored rule-based feedback and goal-setting, whereas holistic thinkers favored relationship-building and values alignment.

These behavior patterns reveal that cognitive style pervades managerial micro behavior at the organizational level, which aggregates with organizational culture.

Sadler-Smith (2004) discovered that intuitive styles were positively related to firm performance across all ecological volatility, which refutes the traditional contingency hypothesis. Additional research indicates that environments with high dynamism are conducive to flexibility and might reward consistency and systematic planning instead (Gallén, 2006).

Therefore, the style is not always beneficial, but its effectiveness depends on the level of match between the environment and the task. The cognitive style in management has evolved slowly from typological categorization to dynamic, situation-sensitive modelling.

The new model’s picture style is seen as an adaptive architecture rather than an invariant attribute, with flexibility in the prevailing processing modes as a function of demand, emotion, or strategic stakes. Cognitive adaptability - the capacity to switch between styles or combine them - is perhaps an index of greater managerial competence than one specific style. Another potential avenue

is the intersection of cognitive style and neuropsychological profiling, particularly using fMRI, EEG, and psychometric AI.

While beyond the remit for the specific article, the outlook opens the door to brain-based management diagnosis, where cognitive style is measurable and trainable using neurofeedback, simulation, and strategic mentoring. Cognitive styles provide an influential perspective on managerial decision-making. Through various empirical studies, as the evidence shows, they influence how decisions are made and the types of strategy managers favor, the feedback managers provide, the risks managers take, and the organizational cultures managers contribute to.

Theoretical models have moved beyond fixed binary categories to sophisticated integrative models that consider context, the complexity of the task, and the strategic orientation. Nevertheless, cognitive styles ought not to be reified as fixed categories. Instead, they ought to be understood as modulators - affecting but not dictating managerial cognition.

The best application of organizational contexts for using cognitive styles is fostering awareness, flexibility, and matching between style, role, and context. Future studies should further investigate how metacognitive training, technology, and neurocognitive knowledge can assist managers in utilizing their styles to the best effect within rapidly changing organizational environments. Cognitive style influences the processing and organization of information and the perception and reaction to risk. Risk perception is an essential mediating mechanism for the relationship between cognition and action in strategic and risky contexts.

Li (2017) argues that both personality and cognitive styles influence the way people examine product or organizational risk, which implies that risk itself is constructed subjectively according to one's mental and cultural profile. This is particularly significant during climate-related organizational threats and crisis management, where the leadership style might influence organizational readiness.

On the other hand, Mandel and Kapler (2018) question the resilience of the relationship between cognitive style and vulnerability to decision-framing effects. In two experiments, the authors established little predictive capacity of reflective thinking, numeracy, or need for cognition to predict susceptibility to favorable or unfavorable frames.

This indicates that cognitive styles are not necessarily adequate buffers against cognitive bias in decision-making situations, particularly where emotional salience or heuristics are at play. Simon et al. (2000) suggested in their pioneering work on the topic of venture creation that these and other biases, including overconfidence, illusion of control, and belief in the law of small numbers, act as enablers at the cognitive level by minimizing perceived risk in conditions of high uncertainty. These biased entrepreneurs and managers tend to perceive ambiguous cues as under control or predictable and commit to risky ventures.

These processes demonstrate how stylistic characteristics at the level of cognition interact with mental shortcuts, either enabling rapid decision-making or leading to exposure to misjudgment. Additionally, as Phillips-Wren, Power, and Mora (2019) contend, cognitive style is vital in how decision-makers engage with decision support systems (DSS) and data analytics tools within digital and data-saturated contexts. Although these tools are meant to augment rationality, they can strengthen existing cognitive filters, such as recency bias or pattern fixation.

Therefore, stylistic differences indicate stable differences in motivation, self-regulation, and affectivity, offering a psychodynamic explanation for how risk, judgment, and strategic orientation are integrated into managerial action. In the prevailing climate of organizational uncertainty, the significance of cognitive styles to management performance has become all the more evident. Managers are habitually faced with the need to take quick, high-stakes decisions on incomplete information, shifting priorities, and dwindling resources.

Under these conditions, cognitive styles act as internal operating systems to drive how people view problems, make decisions, and manage strategic responses. While certain cognitive styles are oriented toward structure, logic, and deliberation, others depend upon intuition, flexibility, and heuristics.

Simon et al. (2000) listed overconfidence, illusion of control, and the law of small numbers as universal biases that warp risk perception and are particularly observable in entrepreneurial settings. Though frequently described as liabilities, these biases can sometimes be adaptive because they reduce psychological resistance to acting. In initial stage decision-making, decreased risk sensitivity can spur initiation, but without compensatory thinking, it can also result in calculation errors.

Mandel and Kapler (2018) undermine the predictive validity of cognitive style in vulnerability to bias, as the frame effects frequently leapfrog reflective controls entirely. Their experiments indicate that even very high-scoring reflective thinkers are prone to emotionally loaded framing, and the necessity, therefore, for metacognitive alertness as an independent dimension beyond baseline style. Further complicating the picture is cultural and demographic variation in thinking preference. Crucially, the leader needs to adjust not just their cognitive strategy but also set the conditions where team members with different cognitive styles can work together productively and are not bogged down in paralysis through analysis or precipitating action too soon.

Even then, as Phillips-Wren et al. (2019) comment, these can either enhance or diminish cognitive biases depending on the design and application of the system. For example, recency bias, an instance of the availability heuristic, can be intensified through big data dashboards that put disproportionate weight on the most recent data. Adaptive decision support systems that adjust to the user's cognitive type by varying the presentation of data, the provision of verification steps, or the signaling of heuristic-based trends can mitigate the risk. We introduce the notion of cognitively adaptive systems, which are not merely passive serving tools but active companions in governing cognitions.

Discussion: Cognitive Styles in Managerial Decision-Making. The synthesis and findings of this article validate the long-term theoretical applicability of cognitive style models to the study of managerial behavior. The difference between analytical and intuitive styles, well-established in the literature (Armstrong, Cools, & Sadler-Smith, 2012). Instead, the best decision-makers seem to be able to take multiple routes of thought. This finding highlights the weakness of binary typologies and demands an integrated, dynamic model of cognitive functioning. The emergent theme is tension between the cognitive style as an attribute and the mental flexibility as an ability. This raises several important questions about theory: Is the best place to position the notion of cognitive style as a fixed system or a dynamic state?

Furthermore, is the discipline better off moving towards assessing cognitive adaptivity rather than trying to place people along the fixed dimensions? It is highly relevant to the management context where problem domains change quickly and demand not stable processing but proficient modulation. At the heart of cognitive flexibility is metacognition - the capacity for reflecting on, monitoring, and adjusting one's thinking. For instance, an analytical manager confronted with a highly ambiguous situation can set data-driven routines to the side and employ intuitive functions. On the other hand, an intuitive leader functioning within a highly regulated compliance setting might apply structured analysis intentionally. Accordingly, instead of thinking about style and flexibility as dichotomous concepts, the two should be considered interconnected, with style providing the baseline inclination and metacognition as the adjuster. Cognitive style is not universal or context-free. This makes team decision making in global organizations challenging because style clashes can erode cohesion unless actively recognized and managed. In addition, the environment itself - cyclical crisis vs growth phases - can alter the potency of specific styles.

The broader application of decision support systems (DSS) and AI-driven analytics in management practice poses critical questions regarding human thinking and technological aid interaction. Phillips-Wren et al. (2019) caution that DSS can either satisfy or reinforce biases according to whether and how well the system is suited to the user's cognitive style. For example, intuitively inclined managers can misuse the system by devaluing data, and highly analytical managers can become reliant on formatted outputs. The future of intelligent decision-support systems is in detecting the user's cognitive orientation and providing adaptive interfaces, prompting enhanced analysis for intuitive and greater areawide framing for analyzers.

This is quite an advance in the role of passive instruments in becoming cognitive co-actors and opens new doors to improving decision quality in all cognitive profiles. Despite their explanatory potential, prevailing typologies of cognitive style are subject to several limitations. A number are still simplistic, using dual or trichotomous dimensions that cannot accurately reflect the richness of human thinking. In addition, these typically confuse cognitive and learning style, personality characteristics, or emotional intelligence, diluting the concepts' clarity. The use of self-report measures is further prone to validity threats.

The future design of experiments should advance to multimodal assessment, using behavioral tasks, neurocognitive imaging, and psychometric data to index style in action. Research should also disentangle the distinction between trait-based (dispositional) and state-based (task-contingent) styles, facilitating greater predictability and shaping cognitive performance across different management occupations. For organizational practitioners, the main take-home is that cognitive style is not a success predictor, but an indicator of fit - the fit between task, context, and team. Therefore, HR procedures like recruitment, promotion, and training must consider style variety and complementarity.

Groups entirely of one style (for example, all very analytic or intuitive types) can suffer from blind spots or groupthink. The notion of cognitive heterogeneity should inform team construction, and managers should be equipped with the skills to deal constructively with tensions associated with style. In strategic planning, mixed-style groups may be fractious initially, but ultimately provide more resilient and creative solutions as long as communication norms and respect are developed. Leadership development programs must transcend personality tests and leadership typologies to include the intellectual mechanics of thinking and decision-making. Training needs to assist the leader in knowing their style tendencies, recognising when these tendencies become maladaptive, and developing the capacity to switch modes. Decision journaling, metacognitive cues, and scenario testing through simulation can be used to create such competence.

Organizational learning programs must instill the culture to the extent that reflection, perspective-taking, and adaptive problem definition become embedded in day-to-day practice. Finally, organizations need to prize cognitive horsepower, range, and modulation.

The future of inquiry is to construct an integrated theory of adaptive leadership that links the individual's cognitive profile to team processes, technology, and organizational strategy. The ability to think differently, intentionally, and dynamically might be the most essential resource for the manager in an ever-more unpredictable and changing world. Conclusion This piece has explored the conceptual origins and pragmatic applicability of cognitive styles in decision-making at the management level, particularly in the complicated, turbulent, and unpredictable situations that characterize contemporary organizational life. Moreover, by integrating theoretical models and findings from the literature, we have shown how cognitive styles act as underlying filters through which managers frame problems, rank information, and choose strategic paths of action. Anything but fixed personality traits and cognitive styles are dynamic inclinations that engage with contextual factors, metacognitive knowledge, and organizational architectures.

One significant finding from the review is that no one cognitive style is universally effective across all decision-making domains. Instead, the ability to modulate style, at the level of reflexive monitoring, contextual sensitivity, and mental flexibility, is the characteristic of effective leadership. CEOs and

managers who can combine analytical and intuitive processing, as well as being aware of the favored modes of thought, are better performers in high-ambiguity situations. Furthermore, cognitive diversity within teams can provide a strategic benefit, extending perceptual scope and problem-solving capability, but this potential is realized only when well managed.

Another key consideration is the relationship between technology and cognitive style. As data-driven platforms and decision-support tools become widespread, it is ever more critical to understand how various cognitive styles interact with digital data. Inefficient matching can aggravate biases or precipitate an overreliance on mechanical processing scripts. On the other hand, cognitively adaptive technologies that can detect the user profile can improve the quality of decisions by fostering complementary modes of reasoning. Lastly, the article has brought to the forefront several future directions for research.

These are the sharpening of typological models, the blending of neurocognitive techniques of stylistic evaluation, and the creation of training programs for increasing the awareness of style and cognitive flexibility. Cognitive styles must not be employed to categorize or restrain management potential but to guide developmental paths, assist with team makeup, and develop strategic flexibility. In summary, cognitive style is still an important construct for explaining the how of managerial judgment and leadership action. But its most useful contribution is not categorization but illumination - offering scholars and practitioners greater insight into the mental architectures on which resilient, ethical, and effective decision-making in today's organizing environments actually rests.

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Cognitive styles in managerial decision-making: conceptual foundations and typological models

With the rise of increasingly volatile, uncertain, complex, and ambiguous organizational settings, knowledge about the cognitive mechanisms underlying managerial decision-making is increasingly important. This article examines cognitive styles' conceptual underpinnings and typological variation, particularly in strategic reasoning, risk perception, and adaptive leadership. The paper draws on empirical and theoretical work from organizational psychology, decision science, and cognitive neuroscience. It critically assesses the pros and cons of different cognitive styles - analytical, intuitive, holistic, and flexible - and how these are best implemented in dynamic management contexts. Special attention is dedicated to metacognitive management, team-level cognitive variety, and the effects of decision aid technologies. The debate supports transitioning from static typologies to integrated models considering cognitive flexibility and situational sensitivity. By specifying the connections between personal cognitive orientation and decision quality, the paper advances the construction of more sophisticated theories about managerial effectiveness and cognitive training. Organizational design, leadership training, and future areas of research are proposed.

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Key words: *cognitive style, managerial decision-making, VUCA environment, cognitive flexibility, metacognition, strategic thinking, organizational psychology, leadership adaptability, decision support systems, risk perception.*