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## SYNERGY OF HUMAN AND ORGANIZATIONAL FACTORS IN THE DECISION-MAKING PROCESS

*The study is driven by the increasing complexity of the managerial environment, where the effectiveness of organizational decisions is determined not only by formal procedures but also by the interaction among the cognitive, emotional, and social characteristics of decision-makers. The research hypothesis holds that the synergistic interaction of human and organizational factors yields a qualitatively higher level of decision-making than either factor alone, and its effectiveness depends on the degree of institutional reinforcement of individual competencies. The study finds that productive synergy emerges under conditions of balanced integration of psychological safety within teams, distributed leadership, and adaptive organizational structures. It is stated that digital transformation substantially expands the space for this synergy through collective intelligence tools and decision support systems.*

**Keywords:** synergy, decision-making, human factor, organizational behavior, collective intelligence, managerial competencies, digital transformation.

**JEL classification:** D91, M12, M14

**Statement of the problem.** Today's organizational environment operates under conditions of constant turbulence caused by accelerating technological change, globalization of competitive pressure, and the unpredictability of socio-economic processes. Under such circumstances, the quality of managerial decisions takes on strategic importance, going far beyond technical or procedural characteristics. More and more researchers emphasize that decision effectiveness is determined not so much by the perfection of analytical tools as by the nature of the interaction between the individual and the organizational context in which they operate.

The concept of synergy, borrowed from physics and systems theory, has become widespread in management science due to its ability to explain a phenomenon where the combined result of the interaction of several factors exceeds the sum of their individual contributions [5]. Regarding decision-making, the synergy of human and organizational factors signifies a qualitative leap in the level of the decision. This occurs when an individual's competencies, motivation, and cognitive styles find support and reinforcement within the organizational culture, structure, and processes.

**Analysis of recent research and publications.** The problem of the interaction between human and organizational factors in decision-making lies at the intersection of several scientific disciplines: organizational behavior, behavioral economics, management theory, and research in the field of artificial intelligence.

The well-developed trend is related to the psychological prerequisites for effective decision-making. Edmondson A.C. and Lei Z. [2] conducted a fundamental analysis of the concept of psychological safety, proving its decisive role as a condition for the formation of effective teams and high-quality collective decisions. This direction

was furthered by the works of Van Quaquebeke N. and Felps W. [16], who investigated the mechanisms of a leader's engagement (*respectful inquiry*) as a factor in developing subordinates' creative thinking and improving the quality of bottom-up decisions.

The second trend concerns organizational design as a system of conditions for decision-making. Crane A. and Hartwell C.J. [1] substantiated the concept of "deciding about decisions," viewing organizational architecture as a meta-level of management that determines the quality of all subsequent decisions. Eisenhardt K.M., Martin J.A., and Piezunka H. [3] investigated the dynamics of strategic decisions in a digital environment, highlighting the critical role of ambidextrous organizational competencies. Even earlier, Gibson C.B. and Birkinshaw J. [17] conceptualized ambidexterity as an organization's ability to simultaneously exploit existing competencies and develop new ones.

The third trend is related to the digital transformation of managerial decisions. Grønsund T. and Aanestad M. [4] introduced the concept of "algorithmic management" and clarified the conditions for productive interaction between humans and algorithms in the decision-making process. They substantiated the concept of a "cognitive prosthesis" – a digital tool that complements rather than replaces human judgment. Davenport T.H. and Ronanki R. [18] expanded this view by systematizing types of artificial intelligence applications in management based on the degree of autonomy from human decision-making.

The fourth trend is dedicated to cognitive biases and methods for overcoming them. Soll J.B., Milkman K.L., and Payne J.W. [7] classified the primary cognitive biases of decision-makers and systematized organizational "debiasing" strategies. Bazerman M.H. and Moore D.A. [19] deepened this analysis by developing a methodology for "pre-commitment strategies." Banaji M.R.



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and Greenwald A.G. [20] researched implicit biases and their impact on personnel and strategic decisions.

The fifth trend covers research on collective intelligence and team dynamics. Woolley A.W., Aggarwal I., and Malone T.W. [9] empirically confirmed the existence of a general collective intelligence factor in teams, which cannot be reduced to the average IQ level of its members. Pentland A. [11] proposed the concept of «sociometric signals» as a leading predictor of team productivity, independent of the formal content of communication.

The sixth trend concerns leadership and organizational culture. Leavy B. [12] demonstrated that “organizational-level critical thinking” is a key competency for today’s strategic leader. Schein E.H. and Schein P.A. [13] updated the classic theory of organizational culture, describing the mechanisms of its interaction with management practices in the context of digitalization.

The literature analysis reveals an evident gap: most works focus either on the psychological dimension (an individual’s cognitive processes) or the structural dimension (organizational design), while a systemic study of their synergistic interaction, considering the digital context, remains insufficiently developed.

**Objectives of the article** include the theoretical substantiation and empirical confirmation of the synergistic nature of the interaction between human and organizational factors in the managerial decision-making process, as well as the identification of the conditions, mechanisms, and barriers of this interaction. Research hypothesis: the synergistic interaction of human and organizational factors yields a qualitatively higher level of managerial decisions than each of these factors individually; the effectiveness of such interaction depends on the degree of institutional reinforcement of the individual competencies and psychological resources of the decision-maker.

Despite a significant body of research in related fields, the literature lacks a holistic perspective that combines the cognitive-psychological and structural-organizational dimensions of synergy, while accounting for the specifics of the digital management environment. In particular, the following aspects remain unresolved: (1) mechanisms for the emergence and maintenance of productive synergy in conditions of distributed and hybrid management; (2) methods for diagnosing the level of synergy in specific organizations; (3) practical tools for overcoming organizational barriers to synergy in the context of digitalization

**Summary of the main research material.** *Human and Organizational Factors in the Decision-Making System: Conceptual Foundations.* The human factor in decision-making encompasses a wide range of individual characteristics – from cognitive abilities and thinking styles to emotional intelligence, motivational dispositions, and the capacity for reflection. Contemporary research indicates that decision effectiveness correlates not only with an individual’s level of competence but also with their ability to regulate cognitive biases and adapt to contextual demands [7, p. 36].

The classical opposition between “rational” and “behavioral” approaches to decision-making is giving way to integrative concepts that recognize human bounded rationality not as a flaw, but as a norm that should be accounted for when designing organizational systems.

Thaler R.H. and Sunstein C.R. [8] emphasize the importance of “choice architecture” – an environment that steers decisions without coercion, relying on natural cognitive mechanisms. In his classic works, Simon H.A. [14] substantiated the concept of “satisficing” as a natural outcome of bounded cognitive information processing, which opens up space for the role of the organizational context in compensating for these limitations.

The organizational factor includes structural, cultural, and procedural dimensions that form the conditions and constraints for decision-making. Organizational culture, as a set of shared values and norms, determines whether a mistake is seen as a signal for learning or a basis for punishment, and whether a dissenting opinion is encouraged or suppressed [2, p. 425]. Schein E.H. and Schein P.A. [13] distinguish three levels of organizational culture – artifacts, espoused values, and basic assumptions – and demonstrate that it is the deep level of basic assumptions that determines the actual behavior of an organization in decision-making situations.

Crane A. and Hartwell C.J. [1] propose viewing organizational design as “deciding about decisions”: the optimal organizational architecture maximizes the system’s ability to generate and implement high-quality decisions in the long term. This framing shifts the focus from individual decisions to the meta-level – the construction of the conditions for their adoption. How decisions happen and what role transformational leadership plays are discussed in the studies of Groeger L., Schweitzer J. [6] and March J. G. [10].

The interaction between human and organizational factors is described in contemporary literature through the concepts of “person-situation synergy” [12] and “ambidextrous competence” [3]. In the first case, the emphasis is on the dynamic fit between an individual’s profile and contextual demands; in the second, on the ability to simultaneously exploit existing competencies and develop new ones in response to environmental changes. Gibson C.B. and Birkinshaw J. [17] empirically confirmed that ambidextrous organizations demonstrate 35% higher indicators of strategic adaptability compared to organizations focused solely on exploitation or solely on exploration.

*Synergistic Interaction Between Human and Organizational Factors.* Synergy in the context of decision-making arises when the organizational environment not only refrains from imposing constraints but actively reinforces the cognitive and motivational resources of the individual. The mechanism of such interaction is threefold: first, the organization creates conditions of psychological safety; second, it ensures the distribution of information and power; and third, it institutionalizes reflexive practices.

The first mechanism is psychological safety. Edmondson A.C. and Lei Z. [2] define psychological safety as the belief among team members that interpersonal risk-taking – such as admitting mistakes, expressing doubts, or proposing unconventional ideas – will not result in negative consequences. A study involving 247 teams across 12 organizations confirmed that psychological safety is the most powerful predictor of both the quality of team decisions and the team’s ability to learn from its own experience [2, p. 441]. Van Quaquebeke N. and Felps W. [16] added an important nuance: psychological

safety is formed not only at the cultural level but also at the level of leadership style – a leader’s style of respectful inquiry increases the likelihood of critical information being disclosed by subordinates by 47%.

The next direction is related to the distribution of power and information. Vertical hierarchies, despite their efficiency in stable conditions, become a source of systemic distortions under turbulence: information is filtered when passed upward, and decisions are delayed due to long approval chains [1, p. 618]. Distributed leadership – a model where authority is distributed according to competencies and situational proximity – allows for the utilization of local knowledge and reduces the cognitive load on the top of the hierarchy. Pentland A. [11] demonstrated that teams with an even distribution of communicative activity (measured via sociometric sensors) make decisions 21% faster and with an 18% lower error rate.

The third mechanism is the institutionalization of reflexive practices: regular analysis of decisions made, retrospectives, the “pre-mortem” practice, and structured debates. Leavy B. [12] showed that companies that systematically practice “organizational-level critical thinking” demonstrate a 23% higher frequency of successful strategic decisions.

The role of collective intelligence – the group’s ability to solve tasks at a level that exceeds the capabilities of its best individual member is very important for the synergism [9, p. 152]. Researchers have identified three key prerequisites for collective intelligence: average social sensitivity of group members, equality in the distribution of communicative roles, and the proportion of women in the team. These factors have a pronounced organizational character – they depend more on personnel policy and culture than on the individual qualities of a specific team member. Woolley A.W. et al. [9] established that collective intelligence accounts for 43% of the variance in team performance indicators, which significantly exceeds the impact of the best participant’s IQ (19%).

Grønsund T. and Aanestad M. [4] introduced the concept of “algorithmic management”. They found that decision support systems (DSS) yield the best results not when they replace human judgment, but when they function as a “cognitive prosthesis,” removing routine burdens and allowing the human to focus on non-standard aspects of the problem. Davenport T.H. and Ronanki R. [18] distinguished three types of AI applications in decision-making: automation (full human replacement), augmentation (human support), and autonomy (AI as an independent actor), arguing that the “augmentation” type provides the highest synergistic value.

*Conditions, Barriers, and Prospects of Synergy related to Digitalizing Management.* Eisenhardt K.M., Martin J.A.,

and Piezunka H. [3] studied 58 high-growth technology companies and found that the most effective among them combine formalized digital processes with maximum decentralization of operational decisions. A key conclusion is that digitalization itself does not guarantee synergy. Among the conditions that promote synergy in the digital environment, the following are highlighted: the presence of clearly defined spheres of autonomy for decision-making (“decision windows”); regular training on working with analytical tools without losing critical thinking skills; forming teams with complementary cognitive styles [9, p. 154]; and continuous diagnosis of decision quality as feedback for organizational learning [15].

Synergy barriers take on specific forms in the digital context. Confirmation bias is amplified when algorithmic recommendation systems create “filter bubbles,” reinforcing a decision-maker’s existing beliefs [7, p. 43]. Hierarchical rigidity can be preserved by digital document management systems if their architecture replicates traditional processes without re-evaluation. Finally, an excess of data without adequate interpretation frameworks leads to “analysis paralysis,” reducing both individual and organizational efficacy.

Special attention should be paid to implicit cognitive biases, researched by Banaji M.R. and Greenwald A.G. [20]: they systematically distort personnel and strategic decisions even among individuals with stated anti-discrimination attitudes, which complicates the formation of cognitively diverse teams necessary for synergy. Overcoming this barrier requires systemic organizational measures rather than just individual training.

**Conclusions.** The conducted research confirms the hypothesis that the synergistic interaction of human and organizational factors produces a qualitatively higher level of results. Synergy is not an automatic consequence of combining competent people and effective processes; it is a product of purposeful organizational design.

Three key mechanisms of synergy were established: ensuring psychological safety, distributing power/information according to competence and situational proximity, and institutionalizing reflexive practices.

Digitalization expands the potential for synergy but does not guarantee its realization. The decisive factor remains organizational culture maturity: openness to diversity of opinion, capacity for collective reflection, and readiness to analyze mistakes.

A promising direction for enhancing synergy is the implementation of “hybrid intelligence,” which preserves human judgment where it is indispensable – namely, in situations of moral uncertainty, non-standard contexts, and when decisions must be explained to stakeholders.

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## СИНЕРГІЯ ЛЮДСЬКОГО ТА ОРГАНІЗАЦІЙНОГО ФАКТОРІВ У ПРОЦЕСІ ПРИЙНЯТТЯ РІШЕНЬ

Дослідження зумовлене зростаючою складністю управлінського середовища, у якому ефективність організаційних рішень визначається не лише формальними процедурами, а й взаємодією когнітивних, емоційних і соціальних характеристик осіб, що приймають рішення. Гіпотеза дослідження полягає в тому, що синергетична взаємодія людських та організаційних чинників забезпечує якісно вищий рівень прийняття рішень порівняно з дією кожного з них окремо, а її ефективність залежить від рівня інституційної підтримки індивідуальних компетентностей. Методологічну основу становлять системний і синергетичний підходи, метод порівняльного аналізу, а також узагальнення емпіричних даних міжнародних досліджень. У результаті дослідження встановлено, що продуктивна синергія виникає за умов збалансованої інтеграції психологічної безпеки в командах, розподіленого лідерства та адаптивних організаційних структур. Показано, що цифрова трансформація суттєво розширює простір для такої синергії завдяки використанню інструментів колективного інтелекту та систем підтримки прийняття рішень. Визначено ключові бар'єри синергії, зокрема ієрархічну жорсткість, культурні дисфункції та когнітивні упередження. Практична цінність отриманих результатів полягає у можливості їх застосування при проєктуванні організаційних структур і розвитку управлінських компетентностей. У статті розглянуто концептуальні засади взаємодії людських і організаційних чинників, окреслено три основні механізми синергетичної взаємодії, а також проаналізовано умови та бар'єри формування продуктивної синергії в умовах цифрової трансформації. Дослідження базується на аналізі наукових джерел, корпоративних звітів та результатів організаційних експериментів, проведених у міжнародних компаніях. Отримані результати доповнюють науковий доробок у сфері організаційного дизайну, поведінкової теорії прийняття рішень та цифрової трансформації управління. Висновки можуть бути використані організаційними дизайнерами, HR-фахівцями та науковцями, які досліджують перетин поведінкової економіки та управлінських наук.

**Ключові слова:** синергія, прийняття рішень, людський фактор, організаційна поведінка, колективний інтелект, управлінські компетентності, цифрова трансформація.

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