pISSN 2798-2106 eISSN 2808-4470

Studi Ilmu Sosial Indonesia
Vol. 4, No.2, 455-480

AMBIDEXTROUS LEADERSHIP AS A COLLECTIVE ECOSYSTEM: BALANCING EXPLOITATION THROUGH DIGITAL TRANSFORMATION AND EXPLORATION FOR LONG TERM GROWTH

[1]Mochamad Irfan, [2]Didit Darmawan

[1]Universitas Mayjen Sungkono Mojokerto, [2]Universitas Sunan Giri Surabaya

correspondence: dr.dididtdarmawan@gmail.com

Abstract

This qualitative literature study examines collective leadership ecosystems that balance exploitation through digital transformation and exploration for long term growth. The synthesis of methodological sources reveals that ambidextrous leadership is best understood as distributed property rather than individual heroic capacity. Cognitive diversity within leadership teams provides raw material for ambidexterity, but integration mechanisms including joint decision making routines, cross functional communication channels, and cultures valuing constructive conflict determine whether diversity produces balance or paralysis. Digital transformation reduces coordination costs between exploitation and exploration units through shared data platforms and collaboration tools, making structural separation more feasible for many organizations. However technology alone cannot resolve the inherent tension between efficiency and innovation. Paradoxical thinking, behavioral ambidexterity, and emotional resilience emerge as critical leadership competencies at all organizational levels. Structural approaches separating exploitation from exploration into distinct units and contextual approaches developing individual capacities each offer advantages depending on organizational size, business diversity, and environmental uncertainty. Dynamic balance requires sensing, seizing, and transforming capabilities maintained through rapid feedback loops enabled by real time data. Success indicators include organizational longevity, sustainable profitability with significant innovation investment, retention of creative and stable employees, and stakeholder reputation for simultaneous efficiency and innovation leadership.

Keywords: collective leadership, exploitation, digital transformation, organizational ambidexterity, leadership ecosystem, dynamic balance

Irfan, M. & D. Darmawan. 2024. Ambidextrous Leadership as a Collective Ecosystem: Balancing Exploitation through Digital Transformation and Exploration for Long Term Growth, Studi Ilmu Sosial Indonesia, 4(2), 455-480.

Introduction

Contemporary organizations operate in an environment characterized by accelerating technological change, shifting consumer preferences, and increasingly complex competitive pressures. Survival is no longer determined solely by current operational efficiency, but by the capacity to simultaneously optimize ongoing activities while exploring new possibilities for the future. These two strategic orientations exploitation and exploration possess conflicting internal logics. Exploitation demands standardization, repetition, reduction of variation, and a focus on the incremental refinement of practices that have proven successful (Carroll, 2012). Exploration, conversely, demands experimentation, tolerance for failure, the search for new knowledge, and the courage to abandon comfortable routines (Holford et al., 2013). The tension between these two orientations is inevitable because organizational resources are finite; every investment of time, attention, and budget in exploitation automatically reduces the portion available for exploration, and vice versa. Organizational leaders face a structural dilemma in allocating their attention between ensuring short-term performance remains stable and building capabilities for long-term growth. Many organizations fail to maintain this balance because constant market pressure pushes priorities toward measurable and immediate results, while exploration activities often do not show results in the short term (Hofbauer & Hofbauer, 2016). Failure to balance these two orientations results in organizations becoming trapped in two pathological forms: excessive exploitation leading to stagnation and an inability to adapt, or excessive exploration leading to the depletion of resources without ever achieving sustainable profitability. In this context, organizational success in balancing these dynamics depends heavily on the distribution of strategic factors that enhance overall organizational performance effectiveness (Darmawan, 2024).

Digital transformation has complicated the tension between exploitation and exploration because digital technology offers opportunities for radical efficiency in existing processes while simultaneously opening up unimagined new business models (Liang et al., 2022). On one hand, process automation, robotics, artificial intelligence, and enterprise resource planning systems allow organizations to extract unprecedented efficiency from ongoing operations (Basit, 2024). Data collected from digital systems

can be analyzed to identify waste, eliminate non-value-added steps, and predict failures before they occur. This is the face of exploitation in the digital era: the utilization of technology to do what is already being done better, cheaper, and faster. On the other hand, digital technology also enables organizations to create new value propositions, reach previously unserved customer segments, and disrupt established industry structures. Digital platforms, subscription models, partner ecosystems, and mass personalization are concrete examples of exploration facilitated by technology. Leaders are faced with a difficult question: should limited digital resources be directed toward refining existing systems or toward building entirely new capabilities? An answer that leans too heavily toward one orientation will result in detrimental long-term consequences. Organizations overly focused on digital efficiency will lose their agility when their core business models are disrupted (Bughin & Zeebroeck, 2017). Organizations overly focused on digital innovation without operational discipline will run out of funds before their new models prove sustainable (Sharma, 2022). Therefore, digitally-oriented leadership becomes a determining factor in integrating operational efficiency with sustainable innovation transformation (Darmawan & Gardi, 2024).

The concept of ambidextrous leadership has emerged as a theoretical response to the dilemma of simultaneous exploitation and exploration (Laser, 2023). Early literature on ambidexterity tended to view it as the capacity of top-level leaders the ability of a CEO or director to alternately give attention to exploitation and exploration, or to design an organizational structure that separates these activities into different units. However, current thinking indicates that ambidexterity is not an individual property but a collective property of a distributed leadership system. In this view, the ability to balance exploitation and exploration emerges from the interaction among leaders at various organizational levels, not from the genius of a heroic leader at the top of the hierarchy. Diverse leadership teams, with members who possess different cognitive orientations toward exploitation and exploration, can collectively produce a balance that no single individual could achieve alone (Zaman, 2022). This paradigm shift from heroic leadership to leadership as an ecosystem has fundamental implications for leadership development practices, organizational design, and innovation governance.

Organizations no longer seek one person who has all the answers, but build a system where productive conflict between exploitation and exploration can be managed constructively. This collective leadership system requires strong integration mechanisms, such as shared decision-making processes, cross-functional communication channels, and a culture that values both efficiency and experimentation without judging one as superior. This aligns with the need for innovation in human resource management as an effort to strengthen organizational competitiveness in the era of globalization (Abdullah et al., 2021).

Leaders within an ambidextrous ecosystem face demands distinct from traditional leadership models (Bell & Hofmeyr, 2021). They are not required to know or decide everything; rather, they are tasked with creating conditions where exploitation and exploration orientations can coexist productively. This means leaders must be capable of acknowledging the unavoidable tension between the two orientations, rather than attempting to eliminate or ignore it. Recognizing this tension opens space for constructive dialogue regarding how resources are allocated, how success is measured, and how failure is evaluated. Leaders must also be able to protect exploration activities from constant short-term pressures, for instance, by creating innovation budgets isolated from operational performance fluctuations. At the same time, leaders must prevent exploitation activities from becoming complacent by continuously challenging the assumptions underlying ongoing practices. Questions such as "why do we do this this way" and "what would happen if we stopped doing this" must become a routine part of managerial discussions. The balance between exploitation and exploration is not a static condition achieved once and then maintained forever. Conversely, balance is a dynamic process requiring continuous adjustment as the external environment changes, organizational resources fluctuate, and internal capabilities develop (Salman, 2021). Leaders in an ambidextrous ecosystem must be comfortable with uncertainty and ambiguity, as there is no fixed formula for determining the right proportion of exploitation and exploration at any given moment. A leader's ability to build a responsive organizational culture becomes the key factor in ensuring the firm remains adaptive in facing every change (Al Hakim et al., 2022).

Digital transformation introduces a new dimension to the exploitation-exploration tension because digital technology possesses characteristics that simultaneously support both orientations, albeit in different ways (Gao et al., 2020). Digital infrastructure such as cloud computing, data platforms, and network connectivity creates a shared base that can be utilized for both efficiency and innovation. Digital resources are non-rivalrous, meaning the same usage for exploitation does not exhaust the possibility of its usage for exploration, unlike physical resources which are rivalrous. This characteristic provides an opportunity for organizations to develop ambidexterity at a lower cost than in the pre-digital era. However, this opportunity is accompanied by new challenges. The exponential speed of digital technology change means that knowledge relevant today may be obsolete tomorrow. Organizations need not only balance exploitation and exploration over time but also determine the appropriate level of exploration within the digital domain itself. Investment in a specific digital platform can create "lock-in" that complicates the transition to new technologies in the future, thus digital exploitation decisions have long-term consequences on exploration capacity later on. Leaders need to understand digital technology dynamics well enough to make decisions about where to exploit, where to explore, and how to manage the transition between the two when the environment changes. In this effort, strategic alignment through effective coordination is highly necessary so that organizational goals remain aligned across all lines (Mardikaningsih & Darmawan, 2021).

A major problem in realizing ambidextrous leadership is that the structures, processes, and cultures that support exploitation tend to conflict with those that support exploration. Exploitation thrives in formal structures with clear hierarchies, standard procedures, strict performance measurement systems, and a culture that values compliance and efficiency. Exploration, conversely, thrives in organic structures with decentralized authority, loose procedures, learning-based measurement systems, and a culture that values risk-taking and tolerance for failure. When organizations attempt to do both simultaneously, they face the risk that the logic of exploitation will dominate because its results are more visible and easier to measure. Managers evaluated based on the achievement of quarterly targets will rationally prioritize activities that provide certain results in a short time exploitation over exploration activities whose results are uncertain and long-

term. The pressure to show continuous improvement in efficiency metrics creates a vicious cycle that drains resources from exploration. Worse, organizations often do not realize they have lost their balance until excessive exploitation has caused an erosion of exploration capabilities that cannot be quickly restored. The process of recovery from this condition requires years and is often accompanied by changes in top leadership. This problem is exacerbated by the human psychological tendency to choose certainty over uncertainty, so both leaders and staff are naturally more comfortable with exploitation activities whose results can be predicted. Therefore, strengthening digital teamwork dynamics is a crucial step so that members remain capable of balancing operational demands with creative exploration in a balanced manner (Mardikaningsih et al., 2020).

Another non-trivial problem is how to measure the success of ambidextrous leadership when traditional metrics are insufficient to capture the simultaneous contributions to short-term and long-term performance. Organizations that use short-term financial metrics such as net profit, operating margins, or return on equity as the basis for leadership evaluation systematically encourage behavior that sacrifices exploration (Yu, 2023). Leaders who know that their annual bonuses depend on meeting quarterly profit targets will be reluctant to allocate resources to exploration projects that might only show results three years from now. Conversely, organizations that rely solely on innovation metrics such as the number of patents, new products launched, or ideas generated will ignore the importance of operational efficiency in maintaining the cash flow that finances exploration. The absence of balanced metrics creates role ambiguity for leaders at various levels. Line managers do not know whether they should prioritize process improvement or the pursuit of new opportunities. Staff do not know whether their new ideas will be welcomed or ignored. This ambiguity leads to decision paralysis or, conversely, behavior that is highly dependent on the personal preferences of an immediate supervisor, so that ambidexterity is never institutionalized as a stable organizational capacity. Failure to design appropriate measurement systems also causes difficulty in allocating resources fairly between exploitation and exploration units. Units that generate profit now will feel aggrieved if a portion of their profit is used to fund exploration units that have yet to produce anything. Exploration units will feel

unappreciated because their long-term contribution is not reflected in current metrics. In addressing this complexity, knowledge management and a good quality of work life have proven to be the main foundations for employee commitment in supporting the achievement of organizational strategic goals (Eddine et al., 2023).

The urgency of understanding ambidextrous leadership as a collective ecosystem is extremely high, given the remarkably high failure rate of digital transformation across various industries. Global surveys consistently report that more than two-thirds of digital transformation initiatives do not achieve their set goals, with the primary cause being an organization's inability to balance the exploitation of old systems and the exploration of new ones. Organizations that succeed in digital transformation are not those that are the most aggressive in investing in state-of-the-art technology, but rather those that are most capable of managing the tension between maintaining what already works and building what does not yet exist (Schank, 2023). Without an adequate conceptual framework regarding ambidextrous leadership, organizations will continuously fall into the same pattern of failure: starting transformation with high enthusiasm, allocating resources to exploration projects, then withdrawing resources when short-term performance pressures rise, causing exploration projects to die before they can prove their value. This cycle not only wastes resources but also damages the morale of employees who have invested their time and energy into initiatives that are eventually abandoned. Employees become cynical toward every new change initiative and learn to behave passively, waiting until the initiative is abandoned like its predecessor. This scenario can be avoided if organizations have a better understanding of how to build a collective leadership system capable of maintaining commitment to exploration even when short-term pressures are high.

The purpose of this study is to delineate the concept of ambidextrous leadership as a collective ecosystem that balances exploitation and exploration, with a focus on the role of digital transformation in facilitating both orientations. This study aims to identify the integration mechanisms that enable exploitation and exploration to function simultaneously and to explain how distributed leadership systems can manage the tension between them. The theoretical contribution lies in

developing a framework for ambidextrous leadership that transcends an individual perspective in favor of a collective one. The practical contribution provides recommendations for organizations in designing leadership systems that support the balance of exploitation and exploration in the era of digital transformation.

Method

This study employs a qualitative literature review approach as a methodological framework for examining ambidextrous leadership. According to De Vaus and De Vaus (2013), literature-based research allows researchers to synthesize various theoretical sources and published empirical findings without the need to collect primary data through interviews or observations. This approach is highly suitable for the topic of ambidextrous leadership because the concept has evolved through diverse schools of thought spanning management journals, organizational psychology, innovation studies, and information systems literature (Snehvrat et al., 2018). McBurney (2001) asserts that a systematically conducted literature review can generate new knowledge through the identification of patterns, contradictions, and gaps in existing literature, rather than merely summarizing what is already known. The procedures followed include identifying keywords such as "ambidexterity," "exploration-exploitation balance," "digital transformation leadership," and "collective leadership." Searches were conducted in reliable academic databases using inclusion criteria of peer-reviewed articles from the last ten years, strategic management textbooks, and research reports from accredited institutions. Document selection was performed by first reading abstracts to assess relevance, followed by a full-text review to extract information addressing the research problem. This entire process was documented transparently to allow for an audit of the methodological trail.

Analysis in a qualitative literature review for the topic of ambidextrous leadership requires a thematic approach capable of capturing the nuances of various theoretical perspectives. McNeill (2006) outlines that researchers must code sources based on emerging key concepts, such as "structural ambidexterity," "contextual ambidexterity," "leadership team composition," and "digital tension management." Each source was analyzed to identify how authors define ambidexterity, what

mechanisms they propose to achieve balance, and what empirical evidence they provide to support their claims. After coding was completed, the researcher conducted cross-source comparisons to observe consistency and contradictions in findings (Giesen & Roeser, 2020). If differences of opinion were found between authors, the researcher sought explanations based on differing theoretical assumptions, research methods used, or the characteristics of the organizational samples studied. Crowther and Lancaster (2012) add that literature review analysis must transcend description toward interpretation; that is, the researcher needs to build an explanatory narrative that connects separate concepts into a coherent framework. For ambidextrous leadership, this means the researcher must be able to explain how concepts of individual leadership, team leadership, and systemic leadership are interrelated in producing an organization's capacity to simultaneously conduct exploitation and exploration.

The validity of findings in a qualitative literature review is maintained through source triangulation and researcher reflexivity (Tobin & Begley, 2004). De Vaus and De Vaus (2013) recommend using a diverse range of sources, including qualitative case studies, quantitative surveys, and longitudinal research, to see whether the same patterns emerge across different research designs. For the concept of ambidexterity, findings from in-depth case studies of specific organizations can be verified against findings from large-scale surveys that test relationships between variables statistically. McBurney (2001) emphasizes the importance of explicitly recording interpretive decisions so that readers can independently assess the reasonableness of the conclusions drawn. The researcher must state the criteria for inclusion and exclusion of sources, the rationale behind the priority given to certain sources, and the limitations on the generalization of findings. McNeill (2006) adds that reflexivity the researcher's awareness of the biases and assumptions they bring to the analysis process is crucial in qualitative literature reviews. Researchers with practical experience in organizational leadership might tend to give more weight to sources that align with their own experiences. Acknowledging this potential bias and actively seeking sources that challenge existing assumptions will enhance the validity of the findings. Crowther and Lancaster (2012) conclude that a literature review conducted with strict methodological discipline can produce knowledge with validity equal to that of primary research,

especially for topics that have been extensively studied, where synthesis is more valuable than new individual studies.

Result and Discussion

Ambidextrous leadership as a collective ecosystem begins with the recognition that no single leader possesses the cognitive capacity to fully master the demands of both exploitation and exploration simultaneously (Mueller et al., 2020). The human brain has attentional limitations that cause individuals to naturally lean toward one orientation depending on their experience, training, and personality. Leaders with a finance background tend to be more comfortable with exploitation because they are accustomed to strict metrics and numerical certainty. Leaders with a research and development background tend to be more comfortable with exploration because they are accustomed to ambiguity and long project cycles. In the heroic leadership model, the imbalance of the individual at the top of the organization immediately becomes the imbalance of the entire organization. Conversely, in the collective ecosystem model, the diversity of cognitive orientations within the leadership team becomes an asset, not a weakness. A team composed of individuals with different orientations can collectively cover a broader spectrum from exploitation to exploration than any single individual could. However, diversity alone is not enough; integration mechanisms are needed to ensure these different orientations do not collide destructively but rather complement each other. These integration mechanisms include decision-making processes that mandate the simultaneous consideration of short-term efficiency and long-term innovation, communication systems that allow exploitation-focused leaders to understand the logic of exploration-focused leaders, and a culture that values constructive conflict as a source of learning. Without integration mechanisms, a diverse leadership team will break into factions competing for resources. These personality characteristics often become the determining factor in how individuals respond to challenges and provide their best contributions to overall organizational performance (Darmawan, 2017).

Digital transformation plays a dual role in the ambidextrous leadership ecosystem because digital technology provides a shared infrastructure that can support exploitation and exploration simultaneously (Jöhnk et al., 2022). A centralized data platform, for

example, can be used to analyze the efficiency of existing operational processes while also identifying customer consumption patterns that lead to new product opportunities. Digital resources are non-rivalrous, meaning that allocating computing capacity for efficiency analysis does not diminish the capacity for innovation analysis. This characteristic is fundamentally different from physical resources, where usage for one purpose exhausts the possibility of usage for another. However, digital infrastructure does not automatically produce ambidexterity; what matters is how decisions regarding the design and use of digital infrastructure are made. A leadership team dominated by an exploitation orientation will design digital systems that prioritize control, standardization, and the reduction of variation, causing the system to become rigid and unfriendly to experimentation. A team dominated by an exploration orientation will design digital systems that are too loose, without clear standards, so that data from various sources cannot be integrated for meaningful analysis. Balance is achieved when the leadership team consciously designs digital infrastructure with principles of modularity where parts of the system requiring high stability for exploitation are separated from parts requiring high flexibility for exploration, yet both remain connected through well-defined interfaces. This modular design allows exploitation and exploration units to use the same digital infrastructure without interfering with each other. Proper utilization of technology in human resource development is a strategic step to ensure the sustainability of innovation in the future (Mardikaningsih & Wardoyo, 2024).

A collective leadership system for ambidexterity requires a distribution of decision-making authority that differs from traditional hierarchical models (Chen, 2017). In conventional organizations, decisions regarding resource allocation between exploitation and exploration are made at the top level by a small group of executives. This centralized model has weaknesses because top executives are too far from the market and emerging technologies to have accurate information about exploration potential, yet too close to investor pressure to ignore short-term performance. The resulting decisions tend to be biased toward exploitation. Conversely, in a distributed leadership system, authority for specific exploration decisions is delegated to lower levels where information about new opportunities is richer. Line managers who

interact directly with customers and emerging technologies are given the authority to allocate a small portion of resources (e.g., ten percent of their budget) to exploration projects without needing approval from above. This freedom is accompanied by appropriate accountability; they must regularly report what has been learned from exploration projects, whether the project succeeds or fails. This delegation of authority requires a shift in mindset from control to trust, as well as a shift in evaluation systems from output-based evaluation to learning-based evaluation. Top leaders no longer act as sole decision-makers but as boundary spanners who ensure that the delegation of authority does not exceed limits that endanger the organization's survival. They also act as connectors who disseminate learning from exploration projects in one unit to other units that might benefit from it. This new role requires a set of competencies different from traditional leadership models. Flexibility in applying leadership styles is highly necessary so that every change can be managed well, ensuring that team performance remains consistent (Mardikaningsih & Darmawan, 2022). Furthermore, the quality of human resources is an important foundation for organizations to maintain loyalty and superior work performance (Darmawan et al., 2020).

The dynamic balance between exploitation and exploration in a collective leadership ecosystem is not achieved through fixed resource allocation, but through continuous adjustment to environmental changes (Sloman et al., 2019). When an industry is stable and predictable, an organization can allocate a larger portion to exploitation to maximize efficiency and cash flow. When an industry begins to be disrupted by new technologies or the entry of new competitors, the organization must quickly shift allocation toward exploration to build capabilities relevant to the new conditions. The ability to shift this allocation depends on the presence of "slack resources" resources not strictly allocated to either exploitation or exploration, thus available to respond to change. Organizations operating without slack resources, where all resources are already allocated to specific activities, will struggle to make strategic shifts when the environment changes. They become trapped in path dependency, where past resource allocation decisions dictate future choices in ways that are difficult to reverse. Slack resources enable organizations to conduct small experiments without significantly

sacrificing short-term performance. These experiments yield information on what works and what does not, so that when environmental shifts require major pivots, the organization already possesses knowledge about the right direction to move. The role of leadership in this context is to maintain slack resources despite constant pressure to eliminate "waste." While slack is often viewed as inefficiency from a pure exploitation perspective, in an ambidextrous perspective, slack is insurance against future uncertainty. Leaders who dare to maintain slack during periods of high efficiency pressure demonstrate a long-term commitment to ambidexterity. A leader's ability to hone interpersonal skills and apply supportive leadership styles significantly influences employee work effectiveness (Hariani & Sigita, 2022). A conducive organizational culture also plays a role in fostering employee loyalty, which ultimately impacts the organization's operational stability (Hariani & Irfan, 2022).

Digital transformation introduces an unprecedented speed of change, meaning the balance between exploitation and exploration must be recalibrated more frequently than in the pre-digital era (Bygstad & Øvrelid, 2021). The short life cycles of digital technology, with new software and hardware versions released every few months, mean that what is optimal exploitation practice today may be obsolete six months later. Organizations can no longer adopt an approach where they perform exploitation for several years and then switch to exploration when technology changes. Both orientations must run simultaneously with short feedback loops. Data from daily exploitation operations for example, on user behavior on a digital platform can be analyzed immediately to identify exploration opportunities. Conversely, results from exploration projects can be implemented back into exploitation operations to enhance efficiency. These short feedback loops require measurement systems capable of capturing both exploitation and exploration metrics at the same frequency. Exploitation metrics, such as system response time, server utilization rates, or cost-per-transaction, can be measured hourly. Exploration metrics, such as the number of hypotheses tested, conversion rates from experiments, or the speed of learning from failure, must be measured daily or weekly. Leadership systems accustomed to quarterly financial reports will struggle to adapt to this higher frequency of measurement. Leaders need to develop the capacity to make decisions

based on real-time data without losing the ability to view the long-term picture. This is a heavy cognitive demand because the human brain is better trained to process information within longer timeframes. Digital technology can assist by providing dashboards that visualize exploitation and exploration metrics simultaneously, but the final decision-making remains in the hands of human leaders.

The composition of an ambidextrous leadership team requires attention to cognitive diversity, rather than merely demographic diversity (Wilms et al., 2019). Two individuals with identical demographic backgrounds (e.g., both male, in their forties, holding Master's degrees in management) may possess vastly different cognitive orientations toward exploitation and exploration due to their differing work experiences and personalities. Conversely, two people with very different demographic backgrounds may possess similar cognitive orientations. The leadership team selection process needs to utilize instruments capable of measuring candidates' cognitive orientations toward the exploitation-exploration tension. Such instruments could involve case studies where candidates are asked to allocate hypothetical resources between efficiency projects and innovation projects, or psychometric scales that measure preference for certainty versus ambiguity. A team where all members have high scores on exploitation orientation will be highly efficient in the short term but will fail to adapt when the environment changes. A team where all members have high scores on exploration orientation will be highly innovative but will deplete resources without ever achieving profitability. The ideal team possesses a mix of orientations in proportions appropriate to the industry's dynamics. For industries with high-velocity change, such as digital technology, a larger proportion of members with an exploration orientation may be necessary. For industries with low-velocity change, such as utilities or heavy manufacturing, a larger proportion of members with an exploitation orientation may be preferable. However, proportion alone is not enough; the team also needs mechanisms to manage the conflicts arising from different orientations. Without these mechanisms, members with minority orientations will feel marginalized and eventually leave, or they will suppress their orientations to conform to the majority.

Integration mechanisms within an ambidextrous leadership team include decision-making routines that mandate the simultaneous

consideration of exploitation and exploration. One routine that has proven effective is the rule that every resource allocation proposal whether for an exploitation project or an exploration project must include an analysis of its implications for the opposing orientation. Proposals for efficiency (exploitation) projects must explain how the project will affect the organization's capacity to conduct exploration in the future, for instance, by freeing up resources or, conversely, by locking resources into a rigid system. Proposals for innovation (exploration) projects must explain how the project will affect current operational efficiency, for example, by disrupting ongoing processes or, conversely, by identifying previously invisible waste. This routine forces every team member to look beyond their personal orientation and consider the opposing perspective. Another routine is role rotation within the team, where members who are usually responsible for exploitation are asked to lead discussions on exploration by turns. This rotation builds cognitive empathy the ability to understand how others think without necessarily agreeing with them. Cognitive empathy is crucial for preventing orientation conflicts from turning into personal conflicts. When team members understand that their colleagues who are highly focused on exploitation are not stupid or indifferent to the future, but rather have a different way of thinking that is valuable for organizational survival, they will be more willing to listen and compromise. Routine practices, such as weekly review meetings that explicitly schedule time to discuss the tension between efficiency and innovation, also help maintain balance so that it is not drowned out by daily operational pressures.

Organizational culture that supports ambidextrous leadership as a collective ecosystem differs fundamentally from a culture that supports a heroic leadership model. A heroic culture values individuals who have answers to all questions, make decisions quickly, and show high confidence even under conditions of uncertainty. A collective culture, conversely, values the humility to admit limitations in one's own knowledge, the willingness to seek input from others with different expertise, and comfort with uncertainty and ambiguity. A cultural shift from heroic to collective cannot occur through orders or written policies alone. Culture is formed through behaviors modeled by top leadership and the consequences experienced by members of the organization when they

behave in accordance with or violate norms. If top leaders continuously make decisions alone without consulting the team, the message sent is that collectivity is mere rhetoric. If members of the organization who admit their ignorance are punished or ridiculed, the message sent is that it is better to pretend to know than to be honest about limitations. Building a collective culture requires years and consistency of behavior across the entire leadership ranks. Leaders must openly admit when they do not know the answer to a question, and then demonstrate the process of how they seek answers through collaboration with others. They must reward team members who have the courage to voice minority perspectives that contradict the consensus, as these perspectives often bring new insights that prevent the group from becoming trapped in "groupthink." They must also protect team members who take exploration risks and fail, provided that the failure occurred due to unavoidable uncertainty rather than negligence. A culture that punishes exploration failure will quickly lead to excessive exploitation, as no one will dare to try something new.

Organizational structures for ambidexterity are often debated in the literature between structural and contextual approaches (Marri et al., 2020). The structural approach separates exploitation and exploration activities into different organizational units, each with distinct cultures, processes, and incentives. This separation prevents "contamination," where the logic of exploitation dominates exploration activities. The exploration unit is shielded from short-term performance pressures, allowing them to focus on learning and experimentation. However, the structural approach creates an integration problem: how to transfer learning from the exploration unit to the exploitation unit, and how to allocate resources fairly between the two. The contextual approach, conversely, develops ambidexterity capacity within every unit by creating an organizational context that encourages each employee to independently balance exploitation and exploration in their daily work. This context is characterized by high discipline (clear performance standards and firm consequences) and high trust (freedom to determine how to achieve those standards). This combination of discipline and trust is known as an ambidextrous context. The contextual approach does not require complex integration mechanisms because exploitation and exploration occur within the same unit. However, this approach requires a high level of employee maturity and support systems capable of handling the

complexity of individual decision-making. Neither approach is absolutely superior. The choice between structural and contextual depends on organizational characteristics, including size, the diversity of business lines, and the level of environmental uncertainty. Large organizations with highly diverse business lines tend to use the structural approach because it is easier to manage. Small organizations with highly uncertain environments tend to use the contextual approach because it is more agile. The most successful organizations in ambidexterity often combine both approaches, using structural separation for radical exploration projects that require extreme protection from short-term pressure, while employing a contextual approach for continuous improvements that can be executed by every employee.

Digital transformation influences the choice between structural and contextual approaches for ambidexterity because digital technology reduces the costs of coordination and integration (Li et al., 2023). In the pre-digital era, structural separation created high integration costs because information had to be transferred through formal, slow, and distortion-prone channels. Exploration units physically separated from exploitation units struggled to share learning due to the lack of shared collaboration platforms. Consequently, many organizations avoided the structural approach, even if it was theoretically superior, because integration costs outweighed the benefits of protection. Digital technologies such as collaboration platforms, shared knowledge repositories, and high-quality video conferencing tools have drastically lowered integration costs. Exploration and exploitation units can remain structurally separate but digitally connected, enabling nearly real-time knowledge transfer. This reduction in integration costs makes the structural approach more attractive to a wider range of organizations. On the other hand, digital technology also empowers the contextual approach by providing data and analytical tools that help every employee make better decisions regarding the balance of exploitation and exploration in their work. Dashboards that display efficiency and innovation metrics simultaneously, along with recommendation systems that suggest actions based on historical data analysis, can enhance individual decision-making capacity without requiring extensive training. Thus, digital technology does not dictate the choice between structural and contextual approaches, but rather expands the available options and lowers the trade-offs that previously had to be

accepted. Organizations in the digital era possess greater flexibility in designing their ambidextrous structures than their predecessors in the pre-digital era. Organizational design decisions are now more determined by strategy and leadership preference than by technological limitations.

Leadership within a collective ambidextrous ecosystem requires a set of competencies distinct from traditional leadership traits (Mueller et al., 2020). The first competency is paradoxical thinking, the ability to hold two conflicting ideas in mind simultaneously without feeling the need to choose one. Leaders with paradoxical thinking do not view the tension between exploitation and exploration as a problem to be solved by selecting a single orientation, but as a source of creativity that must be managed productively. They are comfortable with statements such as "we must cut costs to fund innovation" and "we must innovate to cut costs" as two equally valid truths. The second competency is ambidextrous behavior, the ability to flexibly switch between behaviors that support exploitation and those that support exploration depending on the situation. In a budget meeting, a leader might demonstrate exploitative behavior by emphasizing discipline and accountability. In a product development meeting, the same leader might demonstrate exploratory behavior by encouraging out-of-the-box thinking and tolerance for "crazy" ideas. This switching ability requires high self-awareness regarding one's default orientation, as well as the capacity to set aside habits when the situation demands the opposite. The third competency is emotional resilience, the ability to remain calm and effective under the pressure of unresolved tension. Exploitation and exploration often create emotional strain because the choices made have real consequences for employee welfare and organizational survival. Leaders lacking emotional resilience will take shortcuts by consistently choosing one orientation to eliminate the tension. These shortcuts provide short-term relief but cause long-term problems. Resilient leaders are able to withstand the discomfort of unresolved tension long enough to allow collaborative processes to produce creative solutions.

Socialization and learning processes within an ambidextrous leadership ecosystem cannot be separated from rapid and transparent feedback mechanisms (Laser, 2023). Leadership team members need to know in real-time whether their decisions regarding the allocation between exploitation and exploration are yielding the expected results. Slow or opaque feedback

will cause the team to repeatedly make the same mistakes because there is no learning from experience. Feedback systems for exploitation are relatively easy to design because results can be measured with standard financial and operational metrics. Feedback systems for exploration are more difficult because results are uncertain and long-term. Organizations need to develop process metrics for exploration, such as the number of hypotheses tested per week, the cycle speed from idea to experiment, or the percentage of the budget allocated for exploration that is truly used for exploration (rather than quietly diverted to exploitation). These metrics provide feedback on the health of the exploration process, rather than on final outcomes that may only become visible years later. Leadership teams need to review exploitation and exploration metrics together at the same frequency, for example, monthly. This joint review prevents a situation where exploitation metrics are discussed in detail while exploration metrics receive only a passing glance. Leaders must refrain from overreacting to short-term fluctuations in exploitation metrics, as overreaction will encourage the diversion of resources from exploration to exploitation. Conversely, they need to develop the capacity to distinguish between normal variation that requires no action and signals of fundamental change that require a strategic shift. This capacity can only be developed through experience and reflection. Leadership teams that regularly reflect on past decisions, analyzing why certain decisions succeeded or failed, will develop better intuition about when to respond and when to refrain.

The role of top leadership in a collective ambidextrous ecosystem shifts from being a sole decision-maker to a systems designer (Luo et al., 2018). They are responsible for designing the structures, processes, and culture that enable leadership teams at lower levels to collectively balance exploitation and exploration. This system design includes rules on how resource allocation decisions are made, how conflicts between different orientations are managed, and how learning from successes and failures is disseminated throughout the organization. Top leaders are also responsible for selecting and developing lower-level leaders who possess the capacity to participate in the collective ecosystem. Selection should not be based solely on an exploitation track record or exploration talent alone, but on the ability to work productively with others who hold different orientations. Leadership development needs to be designed to build paradoxical thinking and emotional resilience, not just technical or managerial skills. Top leaders

must also become role models for ambidextrous behavior. They must openly demonstrate how they balance the demands of exploitation and exploration in their own work, as well as how they manage the tensions that arise. This modeling is more powerful than a thousand words in shaping organizational culture. When employees see top leaders honestly admitting that they also struggle with the same tensions, they feel permitted to do the same. Conversely, if top leaders pretend there is no tension or that they have found a perfect solution, employees will feel that admitting tension is a sign of weakness, leading them to hide the difficulties they face. This concealment prevents the organization from learning from experience and improving its systems. In this effort, increasing organizational productivity depends heavily on how leaders are able to attend to employee welfare as part of a holistic leadership strategy (Darmawan et al., 2022).

The balance between exploitation and exploration in a collective leadership ecosystem is not an end goal but a continuous process. There is no static state of equilibrium that can be achieved and maintained indefinitely. The external environment is constantly changing, internal resources fluctuate, and organizational capabilities evolve. Every shift in these factors necessitates adjustments in the allocation between exploitation and exploration. Organizations that are too rigid in maintaining a specific allocation proportion will lose relevance when the environment changes. Organizations that are too reactive, changing allocations at every minor fluctuation, will lose focus and fail to build deep capabilities in either orientation (Arafa & ElMaraghy, 2012). Dynamic balance requires the organization to possess sensing capacity the ability to detect significant environmental changes early; seizing capacity the ability to mobilize resources to respond to those changes; and transforming capacity the ability to alter structures and processes to accommodate new orientations. These three capacities are the core of an ambidextrous organization. Sensing capacity depends on the presence of individuals tasked with monitoring the external environment, whether through formal market intelligence functions or informal networks of employees spread across various industries. Seizing capacity depends on the flexibility of resource allocation, specifically the existence of "slack resources" that can be immediately diverted to a new orientation without drastically withdrawing resources from ongoing activities. Transforming capacity depends on the organization's ability to learn from past experience and modify

established routines. These three capacities are interrelated; an organization weak in any one of them will struggle to maintain dynamic balance in the long term. Therefore, a systematic approach to risk management becomes crucial for ensuring the success of information technology projects within a dynamic business environment (da Silva et al., 2022).

Digital transformation accelerates the adjustment cycle of the exploitation-exploration balance because market feedback can be obtained almost in real-time (Z. Li et al., 2023). In the pre-digital era, organizations might only discover that their balance was incorrect after quarterly financial reports were released, three months after decisions were made. By that time, the damage might have already been done and proved difficult to reverse. In the digital era, data regarding customer behavior, operational performance, and competitor activity are available in minutes or hours. Organizations can detect imbalances earlier and execute corrections before the damage spreads. However, this speed of feedback also creates new pressures. Leaders may be tempted to over-correct for every minor fluctuation because available data makes every flicker appear significant. The ability to distinguish between noise (random fluctuations that require no response) and signal (fundamental changes that require a response) becomes a critical competency. Leaders need to develop analytical frameworks to interpret real-time data, as well as the discipline to refrain from impulsive actions. One useful approach is to distinguish between leading metrics and lagging metrics. Leading metrics, such as daily active user counts or conversion rates from experiments, provide early indications of the direction of change and can be used for tactical adjustments. Lagging metrics, such as profitability or market share, confirm whether tactical adjustments yielded the desired results, but arrive with a time lag. Wise leaders use leading metrics to guide short-term adjustments but do not alter fundamental strategies based on leading metrics alone without confirmation from lagging metrics. This balance between rapid response and careful reflection is the heart of ambidextrous leadership in the digital era. This is supported by efforts to bridge the gaps in technology access and digital skills so that all organizational members are capable of seizing opportunities (Arifin & Darmawan, 2021).

The success of a collective ambidextrous leadership ecosystem is ultimately measured not by a single metric but by a series of indicators that

reflect the long-term health of an organization. The first indicator is organizational longevity, spanning beyond normal industry cycles. Organizations capable of surviving for decades while their competitors come and go demonstrate that they have successfully balanced exploitation and exploration. The second indicator is the ability to maintain reasonable profitability while continuously investing in innovation. Organizations that are highly profitable but do not invest in innovation will slowly die as their capabilities become obsolete. Organizations that are highly innovative but never profitable will die quickly from running out of funds. A healthy balance is reflected in profitability that is sufficient to fund significant innovation investments. The third indicator is the level of employee engagement and retention, particularly among talented staff who have the option to work elsewhere. Organizations overly focused on exploitation will lose creative employees who feel there is no room for innovation. Organizations overly focused on exploration will lose employees who seek stability and certainty. The ability to retain both types of employees shows that the organization has successfully created an environment that accommodates both orientations. The fourth indicator is the organization's reputation in the eyes of external stakeholders, including customers, investors, and regulators. Organizations known as leaders in both efficiency and innovation simultaneously possess a stronger reputation than those that excel in only one dimension. This reputation becomes a highly valuable intangible asset in attracting customers, investors, and talent. Ambidextrous leadership as a collective ecosystem is not a luxury reserved only for large organizations with abundant resources. The principles outlined above can be applied by organizations of various sizes, provided there is a willingness to abandon the heroic leadership model and build a collective capacity to manage the tension between exploitation and exploration. The implementation of cross-functional training and the development of strong interpersonal skills are also key to strengthening team collaboration and overall employee work effectiveness (Fared & Darmawan, 2021; Hariani & Sigita, 2022; Hariani & Irfan, 2022). Furthermore, a deep understanding of self-identity formation through digital interaction becomes an essential dimension for individuals to adapt in a world of work that is continuously transforming (da Costa et al., 2022).

Conclusion

This study concludes that ambidextrous leadership is most accurately understood as a property of a collective ecosystem rather than the capacity of a heroic individual. The balance between exploitation facilitated by digital transformation and exploration for long-term growth is achieved through interaction among leaders at various organizational levels who possess diverse cognitive orientations, yet are integrated through shared decision-making mechanisms, cross-functional communication systems, and a culture that values constructive conflict. Digital transformation facilitates ambidexterity by providing a shared infrastructure that can support both orientations simultaneously; however, success is highly dependent on the design of an appropriate leadership system. Both the structural approach, which separates exploitation and exploration into distinct units, and the contextual approach, which develops individual capacities, have their own advantages, with the choice determined by the characteristics of the organization and its environment. Competencies in paradoxical thinking, ambidextrous behavior, and emotional resilience are essential for leaders at all levels. Long-term success is measured through organizational survival, sustainable profitability, retention of talented employees, and reputation among stakeholders.

The theoretical implication of this study is the need for a shift in leadership research focus from individual attributes toward collective dynamics, as well as the integration of the ambidexterity perspective with the digital transformation literature, which has hitherto developed in isolation. For practitioners, it is recommended that organizations conduct an audit of the cognitive composition of their leadership teams, develop formal integration mechanisms—such as proposal rules that mandate the simultaneous consideration of exploitation and exploration and build slack resources as insurance against uncertainty. Leadership development programs need to be designed to build paradoxical thinking and emotional resilience, rather than focusing solely on technical skills. Organizations are also advised to adopt a modular design in their digital infrastructure, separating components that require high stability for exploitation from those that require high flexibility for exploration. Regulators and industry associations can play a role in providing benchmarking and best practices to help organizations assess their ambidexterity maturity. Future research

needs to empirically test the relationship between leadership team composition, integration mechanisms, and the success of digital transformation using longitudinal methods. Comparative studies across industries with varying levels of uncertainty would also be valuable for understanding how environmental factors moderate the effectiveness of different ambidexterity approaches.

References

Abdullah, M. H. A. B., B. Gardi, & D. Darmawan. 2021. Innovation in Human Resource Management to enhance Organizational Competitiveness in the Era of Globalization, *Journal of Social Science Studies,* 1(1), 51 – 58.

Al Hakim, Y. R., D. S. Sagita, & M. Irfan. 2022. Leadership Influence in Shaping Responsive Organizational Culture in the Face of Ongoing Change, *Journal of Social Science Studies*, 2(1), 207 – 212.

Arafa, A., & Elmaraghy, W. 2012. Enterprise Strategic Flexibility. *Procedia CIRP*, *3*, 537–542.

Arifin, S., & D. Darmawan. 2021. Technology Access and Digital Skills: Bridging the Gaps in Education and Employment Opportunities in the Age of Technology 4.0, *Journal of Social Science Studies*, 1(1), 163 – 168.

Basit, A. 2024. *Unlocking Business Potential: Leveraging Text Analytics And AI-Driven ERP For Enhanced Operational Efficiency*. 1-15

Bell, L., & Hofmeyr, K. 2021. Enabling Organisational Ambidexterity: A Leadership Perspective. *South African Journal Of Business Management*, *52*(1), 15.

Bughin, J., & Zeebroeck, N. Van. 2017. The Best Response To Digital Disruption. *MIT Sloan Management Review*, *58*(4)., 80-86.

Bygstad, B., & Øvrelid, E. 2021. Managing Two-Speed Innovation For Digital Transformation. *Procedia Computer Science*, *181*, 119–126.

Carroll, T. N. 2012. Designing Organizations For Exploration And Exploitation. *Journal Of Organization Design*, *1*(2), 64–68

Chen, Y. 2017. Dynamic Ambidexterity: How Innovators Manage Exploration And Exploitation. *Business Horizons*, 60(3), 385–394.

Crowther, D., & Lancaster, G. 2012. *Research Methods*. Routledge.

da Costa, S., D. Darmawan, & A. de Jesus Isaac. 2022. Self-Identity Formation and Social Perception of Individuals through Interaction on Social Media in a Digital World, *Journal of Social Science Studies*, 2(2), 273 – 278.

da Silva, B. dos S., D. Darmawan, & B. Gardi. 2022. A Systematic Approach to Risk Management to Enhance Information Technology Project Success in a Dynamic Business Environment, *Journal of Social Science Studies*, 2(2), 213 – 218.

Darmawan, D. 2017. The Effects of The Big Five Personality on Job Performance, *Management & Accounting Research Journal*, 2(1), 36 – 42

Darmawan, D. 2024. Distribution of Six Major Factors Enhancing Organizational Effectiveness. *Journal of Distribution Science*, 22(4), 47-58.

Darmawan, D., & Gardi, B. 2024. Digital-Oriented Leadership and Organizational Transformation: Fostering Operational Efficiency, Team Collaboration, and Innovation in the Digital. *International Journal of Service Science, Management, Engineering, and Technology*, *5*(1), 37-42.

Darmawan, D., J. Jahroni, M. Irfan, & Y. R. Al Hakim. 2022. Leadership and Employee Welfare in Improving Organizational Productivity, *Journal of Social Science Studies*, 2(2), 173 – 176.

Darmawan, D., R. Mardikaningsih, E. A. Sinambela, S. Arifin, A.R. Putra, M. Hariani, M. Irfan, Y.R. Al Hakim, & F. Issalillah. 2020. The Quality of Human Resources, Job Performance and Employee Loyalty, *International Journal of Psychosocial Rehabilitation*, 24(3), 2580-2592.

De Vaus, D., & De Vaus, D. 2013. *Surveys In Social Research*. Routledge.

Eddine, B. A. S., D. Darmawan, R. Mardikaningsih, E. A. Sinambela. 2023. The Effect of Knowledge Management and Quality of Work Life on Employee Commitment, *Journal of Human Sciences*, 10(1), 87-100.

Fared, M. A. & D. Darmawan. 2021. Design and Implementation of Cross-Functional Training to Improve Team Collaboration, *Journal of Social Science Studies*, 1(1), 215 – 220.

Gao, S., Hakanen, E., & Rajala, R. 2020. *Digital Transformation: The Interplay Of Explorative And Exploitative Capability Development*. 1–10.

Giesen, L., & Roeser, A. 2020. Structuring A Team-Based Approach To Coding Qualitative Data: *The International Journal Of Qualitative Methods*, *19*, 1-7.

Hariani, M. & D. S. Sigita. 2022. The Influence of Interpersonal Skills and Leadership Style on Employee Work Effectiveness, *International Journal of Service Science, Management, Engineering, and Technology*, 2(2), 6 – 11.

Hariani, M. & M. Irfan. 2022. The Influence of Leadership and Work Culture on Employee Work Loyalty, *Studi Ilmu Sosial Indonesia*, 2(1), 39-48.

Hofbauer, G., & Hofbauer, K. 2016. Introducing The Innovation-Alignment-Portfolio To Balance Exploitation And Exploration Of Innovations. *China-USA Business Review*, *15*(9), 417-424.

Holford, J., Jarvis, P., Milana, M., Waller, R., & Webb, S. 2013. Exploration, Discovery, Learning: Mapping The Unknown. *International Journal Of Lifelong Education*, *32*(6), 685–685.

Jöhnk, J., Ollig, P., Rövekamp, P., & Oesterle, S. 2022. Managing The Complexity Of Digital Transformation—How Multiple Concurrent Initiatives Foster Hybrid Ambidexterity. *Electronic Markets*, *32*(2), 547–569.

Laser, J. 2024. Indirect Ambidextrous Leadership As An Alternative To Direct Ambidextrous Leadership. *International Journal Of Organizational Analysis*, *32*(5), 887-901.

Li, X., Li, J., Han, H., & Shi, J. 2025. Managing The Exploitation/Exploration Paradox: The Role Of Digital Transformation. *Applied Economics Letters*, *32*(8), 1069-1072.

Li, Z., Zhu, X., Chen, J., & Li, R. 2023. Digital Technologies, Innovation Ambidexterity, And Business Performance. *Proceedings - Academy Of Management*, *2023*(1).

Liang, H.-Q., Wang, N., & Xue, Y. 2022. Juggling Information Technology (IT) Exploration And Exploitation: A Proportional Balance View Of IT Ambidexterity. *Information Systems Research*, *33*(4), 1386–1402.

Luo, B., Zheng, S.-S., Ji, H.-M., & Liang, L. 2018. Ambidextrous Leadership And TMT-Member Ambidextrous Behavior: The Role Of TMT Behavioral Integration And TMT Risk Propensity. *International Journal Of Human Resource Management*, *29*(2), 338–359.

Mardikaningsih, R. & D. Darmawan, D. 2022. Situational Leadership Strategies to Improve Change Management and Team Performance, *Journal of Social Science Studies*, 2(1), 247 – 252.

Mardikaningsih, R., & Darmawan, D. 2021. Goal Cascading dan Strategic Alignment dalam Manajemen Kinerja. *Jurnal Ekonomi Dan Bisnis*, 11(2), 59-72.

Mardikaningsih, R., & Wardoyo, D. T. W. 2024. The Role of Technology in Human Resource Development for Sustainability: A Literature Review on Digital Innovation. *Bulletin of Science, Technology and Society*, *3*(3), 20-26.

Mardikaningsih, R., Darmawan, D., & Nurmalasari, D. 2020. Faktor Determinan dan Strategi Pengembangan Dinamika Kerja Tim Digital. *Jurnal Ekonomi dan Bisnis*, *10*(1), 57-70.

Marri, M. Y. K., Soo, H. S., & Ali, H. 2020. Structural Ambidexterity: Exploring Alternative Pro-Ambidexterity Conducive Structural Designs For Recourse-Constrained Organizations. *Archives Of Business Research*, 7(12), 307–320.

Mcburney, D. H. 2001. *Research Methods*. Wadsworth/Thomson Learning.

Mcneill, P. (2006). *Research Methods*. Routledge.

Mueller, J., Renzl, B., & Will, M. G. 2020. Ambidextrous Leadership: A Meta-Review Applying Static And Dynamic Multi-Level Perspectives. *Review Of Managerial Science*, *14*(1), 37–59.

Salman, S. M. 2021. The Strategic Balance In Organizations. *Internasional Journal Of Transformations In Bussiness Manajement.* 11(1), 17

Schank, M. 2023. *The Key To Digital Transformation Success*. 3–13.

Sharma, V. 2022. *Operating In Turbulent Times While Maintaining Sustainability*. Https://Doi.Org/10.13140/Rg.2.2.14039.55207

Sloman, S., Goldstone, R. L., & Gonzalez, C. 2019. Complex Exploration Dynamics From Simple Heuristics In A Collective Learning Environment. *Cognitive Science*, 2818–2824. 41, 1-7

Snehvrat, S., Kumar, A., Kumar, R., & Dutta, S. 2018. The State Of Ambidexterity Research: A Data Mining Approach. *International Journal Of Organizational Analysis*, *26*(2), 343–367.

Tobin, G. A., & Begley, C. 2004. Methodological Rigour Within A Qualitative Framework. *Journal Of Advanced Nursing*, *48*(4), 388–396.

Wilms, R., Winnen, L., & Lanwehr, R. 2019. Top Managers' Cognition Facilitates Organisational Ambidexterity: The Mediating Role Of Cognitive Processes. *European Management Journal*, *37*(5), 589–600.

Yu, G. J. 2023. The Effect Of Long-Term Incentives Of CEO On Exploration. *International Journal Of Contents*, *19*(4), 42-49.

Zaman, A. 2022. Which Two Heads Are Better Than One? Uncovering The Positive Effects Of Diversity In Creative Teams. *Journal Of Economics And Management Strategy*, *31*(4), 884–897.