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Strengthening Innovation Culture In A Mining Company's Transformation In Indonesia

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Abstract: Innovation is a key driver of competitiveness and sustainability, particularly for industries undergoing strategic transformation. This study explores organizational innovation culture using a mixed-method approach, integrating quantitative assessment and qualitative insights. The Innovation Quotient (IQ), which comprises six building blocks : values, behaviors, climate, resources, processes, and success; served as the primary assessment framework. Data were collected through surveys and semi-structured interviews across various organizational levels. Findings reveal strengths in areas such as corporate values and internal collaboration. However, gaps were identified in leadership behaviors supporting innovation, resource allocation, and the absence of formalized innovation processes. These shortcomings suggest critical barriers to institutionalizing innovation. The research assumes that corporate culture significantly influences innovation outcomes, and that systematic evaluation can yield actionable insights. This research assumes that organizational culture influences innovation outcomes and that systematic evaluation can identify practical improvements. It contributes to both academic and managerial perspectives by applying the IQ model in the mining industry. Practical recommendations include developing structured innovation leadership programs, allocating dedicated innovation resources, and embedding innovation metrics into strategic planning. These actions aim to foster a more adaptive and innovation-conducive organizational culture.

Keyword: Innovation Culture, Innovation Quotient, Corporate Innovation, Mining Industry

INTRODUCTION

The global mining industry is currently experiencing a significant transformation due to increasing demands for decarbonization, digitalization, and alignment with environmental, social, and governance (ESG) standards. These shifts are driven by volatile commodity markets, geopolitical uncertainty, and intensifying climate-related regulations (Deloitte, 2024; Brodny & Tutak, 2022). As a result, mining companies are expected to reconfigure their traditional extractive models toward integrated, sustainable business operations. Within this context,

innovation is widely regarded as an essential element for ensuring long-term competitiveness and organizational survival (EY, 2023).

Despite the widespread recognition of its importance, innovation in the mining sector often encounters resistance due to entrenched structural and cultural barriers. These include rigid hierarchies, a prevailing risk-averse mindset, and limited cross-functional integration, which together impede the institutionalization of innovation as an organizational norm (Barnewold & Lottermoser, 2020; Kazanin et al., 2021). Particularly in emerging markets, many mining companies acknowledge the need for transformation but fail to translate strategic intent into embedded cultural practices (Lath & Peacocke, 2020; Mahmood et al., 2021).

This issue is particularly evident in large state-owned enterprises that are mandated to transform in alignment with national sustainability goals. The transition from coal-dependent operations to diversified, low-carbon business portfolios requires not only technological investments but also fundamental changes in organizational values, leadership practices, and individual competencies. Innovation must evolve from isolated initiatives into a deeply embedded cultural capability that influences everyday decision-making. Human capital development plays a pivotal role in this transformation. Hendarman & Cantner (2017) found that both soft skills, such as communication, creativity, and leadership, and hard skills, such as analytical thinking and learning agility, are significantly associated with individual innovativeness in Indonesian organizational settings. This implies that innovation culture cannot be achieved solely through structural reform or policy directives but requires a strategic emphasis on capability building that aligns with cultural transformation efforts.

A broader organizational misalignment becomes apparent when innovation, despite being emphasized in corporate narratives and strategic planning, fails to translate into consistent daily behavior, leadership practices, and decision-making systems. Such discrepancies weaken the organization's capacity to implement large-scale transformation and sustain its momentum over time. Increasingly, stakeholders including government institutions and ESG-conscious investors assess organizations not only through financial or operational performance, but also based on their cultural capacity to innovate (Hofman et al., 2022). Without a robust culture of innovation, organizations face a heightened risk of losing competitiveness, encountering difficulty in attracting forward-looking talent, and missing opportunities in the emerging domains of clean energy and technological advancement.

To help close this gap, the present study offers an in-depth analysis of innovation culture in a mining company in Indonesia. The research assesses the current condition of innovation culture, identifies its key limitations, and proposes strategic actions to cultivate an organizational environment that supports continuous innovation and transformation. Framing innovation culture as a strategic foundation rather than a peripheral initiative, this study contributes to both scholarly discourse and practical approaches to organizational change. Sustainable transformation, particularly in legacy industrial sectors, hinges on cultural readiness as a prerequisite for innovation success.

Literature Review

Innovation is a complex concept that has been defined in various ways across disciplines. It is generally understood as the implementation of new ideas, processes, products, or services that create value (Singh & Aggarwal, 2021; Varadarajan, 2024). Innovation's role in organizational transformation extends beyond simple technological advancement to encompass fundamental changes in how organizations create and capture value. Juergensen et al. (2024) demonstrates how organizational innovation enables adaptation through specific mechanisms: modifying team structures, transforming operational processes, and reshaping organizational capabilities. In traditional industries undergoing transformation, innovation plays a particularly critical role through specific mechanisms and processes. Balcı and Kumral (2022) demonstrate how industry-specific structural characteristics shape innovation pathways, particularly in

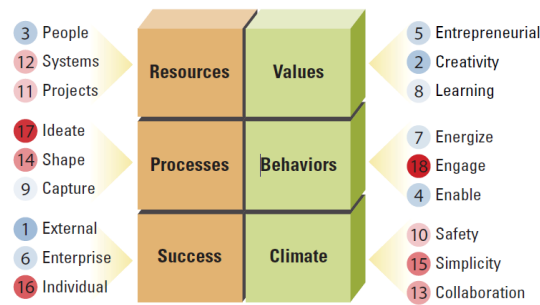
mining sectors where operational constraints and regulatory requirements create unique innovation challenges. This transformation process requires careful alignment between technological capabilities and organizational readiness, as Chang et al. (2013) shows through empirical analysis of successful industry transformations.

Research demonstrates that organizational culture serves as a more important driver of radical innovation than labor, capital, government, or national culture (Tellis et al., 2009). Understanding this relationship is particularly crucial for traditional industries like mining that are undergoing strategic transformation. The relationship between organizational culture and innovation manifests through several key mechanisms. Studies indicate that adhocratic cultures fostering flexibility and external orientation significantly enhance innovation potential, while hierarchical structures tend to constrain it (Valencia et al., 2010; Naranjo-Valencia et al., 2011). Culture also plays a crucial role in organizational adaptability and performance.

The mining industry faces several distinct barriers to innovation adoption, including financial constraints, technical integration challenges, and cultural resistance. The capital-intensive nature of mining operations creates significant barriers to innovation investment, particularly during commodity price downturns. The complexity of integrating new technologies with existing operations poses substantial technical and operational risks, while traditional operating models and risk-averse cultures often impede the adoption of innovative practices (Singh et al., 2020). Traditional industries like mining face unique challenges in developing innovation-supportive cultures due to their historically conservative operational nature. Key barriers include organizational resistance to change, stakeholder management complexities, and operational constraints specific to the industry context (Lay et al., 2022). Leadership plays a pivotal role in fostering innovation culture. Transformational leadership approaches have been shown to positively influence both radical and incremental innovation through the development of psychological capital among employees (Le, 2020).

Measuring innovation culture enables organizations to benchmark their current state, pinpoint strengths and weaknesses, and develop targeted strategies to enhance their innovative capabilities (Rao & Weintraub, 2013; Dobni, 2008). The Innovation Quotient (IQ) framework developed by Rao and Weintraub (2013) is a diagnostic tool designed to evaluate the perceived innovation culture within organizations by examining six interrelated building blocks: values, behaviors, climate, resources, processes, and success. Each block comprises three sub-factors that collectively offer a comprehensive view of how conducive the organization's environment is to fostering innovation. For example, the "values" block reflects an organization's entrepreneurial spirit, tolerance for ambiguity, and emphasis on experimentation and learning, all of which have been empirically linked to enhanced innovation capabilities (Sarros et al., 2008; Chen, 2011; O'Cass & Ngo, 2007). Similarly, the "behaviors" block underscores the role of leadership in energizing and enabling innovation, supported by literature that highlights the importance of leader modeling, coaching, and empowerment in innovation success (Scott & Bruce, 1994; Saunila & Ukko, 2013; Velasco et al., 2013).

Other building blocks such as "climate" focus on fostering collaboration, psychological safety, and simplicity in decision-making processes—factors shown to significantly impact innovation outcomes across industries (Enzing et al., 2011; Panuwatwanich et al., 2009). The "resources" block considers the availability of human and structural assets needed to support innovation activities, while "processes" emphasize structured mechanisms for ideation, prototyping, and scaling, echoing practices suggested by innovation management literature (Slater et al., 2014; Dyer et al., 2011). "success" evaluates the extent to which innovation is seen as effective across external, enterprise, and individual levels, reinforcing the idea that perceived success is critical for sustaining innovation engagement (Brettel & Cleven, 2011; Herrmann et al., 2007). Although the IQ framework itself lacks extensive longitudinal validation, multiple studies affirm the relevance of its constructs in predicting organizational innovativeness.



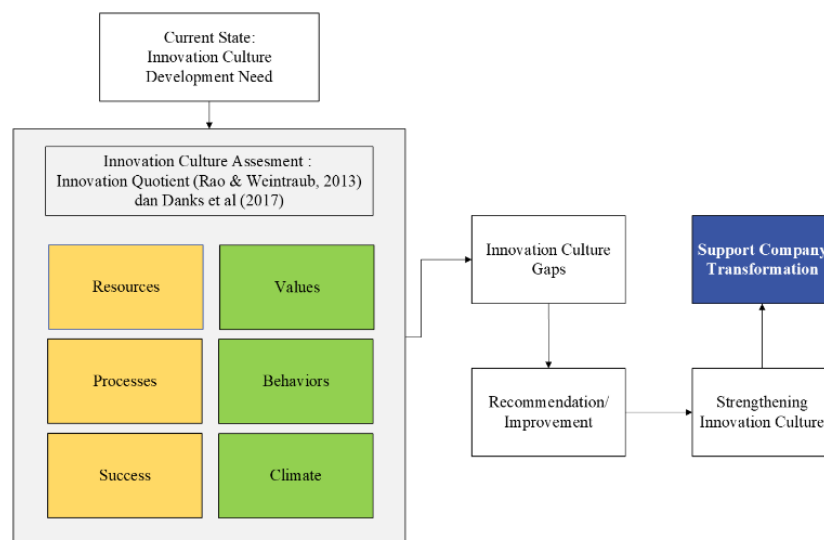
Source: Rao & Weintraub, 2013

Figure 1. Six Building Block for Innovation Quotient

Conceptual Framework

The conceptual framework presented in this study offers a structured approach to assessing and strengthening innovation culture, drawing upon the Innovation Quotient (IQ) model developed by Rao and Weintraub (2013). This model outlines six essential building blocks: Values, Behaviors, Climate, Resources, Processes, and Success, which collectively define an organization’s capacity to cultivate innovation. Supported by the refinements of Danks et al. (2017), the framework is validated across varied organizational settings, ensuring its relevance and adaptability. A key feature of the model is its integration of both tools-oriented elements (Resources, Processes, Success) and people-oriented elements (Values, Behaviors, Climate), reflecting the often-overlooked need to balance tangible structures with human-centric cultural enablers in innovation development.

Through this comprehensive framework, organizations, particularly within complex and regulated industries such as mining, can systematically identify internal barriers to innovation, including leadership shortcomings, cultural misalignments, or inadequate resourcing. These diagnostic insights form the basis for targeted interventions that support strategic transformation, cultural alignment, and long-term sustainability. Furthermore, this framework adopts a deliberate progression from analysis to actionable recommendation, resonating with Trudel et al.’s (2015) emphasis on purposeful integration of leadership and engagement practices. As such, it serves as a practical roadmap for fostering a resilient innovation culture capable of supporting ongoing organizational evolution.



Source: Research Results

Figure 2. Conceptual Framework

METHOD

This study employs a mixed-methods approach to analyze innovation culture in the context of organizational transformation within the mining industry. An integrated analysis strategy was then applied, combining quantitative and qualitative insights to derive robust, contextually relevant recommendations for strengthening innovation culture.

Data Collection

Quantitative Data

Quantitative data was collected using Rao & Weintraub's (2013) Innovation Quotient framework through a structured survey consisting of 54 statements divided into six core building blocks: Values, Behaviors, Climate, Resources, Processes, and Success. To determine a representative sample size from the organization's total employee population of 1,679, the Slovin formula was applied with a 10% margin of error, resulting in a calculated sample of 95 participants. Considering potential non-responses and invalid submissions, the sample was increased by 20%, establishing a target of 114 respondents selected via simple random sampling. To ensure accuracy, consistency, and clarity for all participants, the Innovation Quotient instrument was rigorously translated into Bahasa Indonesia, maintaining conceptual integrity and cultural relevance.

Table 1. Innovation Quotient Survey Structure

Building Block	Factors	Number of Questions
Values	Entrepreneurial, Creativity, Learning	9
Behaviors	Energize, Engage, Enable	9
Climate	Collaboration , Safety, Simplicity	9
Resources	People, Systems, Projects	9
Processes	Ideate, Shape, Capture	9
Success	External, Enterprise, Individual	9
Total Questions		54

Source: Rao & Weintraub, 2013

Qualitative Data

Qualitative data was gathered through semi-structured interviews to further explore the organization's innovation culture. Participants were selected via purposive sampling across key roles and hierarchical levels, emphasizing their direct involvement and influence on innovation activities. Interviews, each lasting about 40–60 minutes, aimed to clarify survey findings, identify barriers, and gather recommendations for enhancing innovation culture. Interview questions were tailored based on preliminary quantitative results.

Table 2. Participant List

Position Level	Number of Participants	Rationale for Selection
Management	2	Implementation perspective and bridge between strategy and operations
Innovation Champions	2	Direct experience with innovation programs and initiatives
Staff	2	Ground-level perspective on innovation implementation
Subject Matter Expert	1	Technical expertise and innovation project experience

Source: Research Data

Data Analysis

Quantitative Data

Quantitative data analysis followed a structured three-phase process: instrument validation, reliability testing, and descriptive analysis of Innovation Quotient (IQ) scores. Construct validity was evaluated using Pearson correlation to confirm positive inter-item relationships within the six building blocks: Values, Behaviors, Climate, Resources, Processes,

and Success. Cronbach’s alpha was employed to assess internal consistency and ensuring measurement reliability. IQ scoring involved aggregating responses from 54 Likert-scale items. Sub-factor scores were derived as the average of three items, and each building block score was calculated from its three sub-factors. The final IQ score represented the average of all six building blocks. Descriptive analysis compared building block scores against the overall IQ score to identify strengths and gaps, supported by normalized achievement percentages.

Qualitative Data

The qualitative data analysis employed a systematic content analysis approach to deepen and contextualize the findings from the quantitative phase. Verbatim transcripts from semi-structured interviews were translated into English while preserving linguistic nuances. The analysis began with a pre-coding phase to identify preliminary themes, guided by the research objectives, quantitative results, and emergent patterns from the narratives. Open coding was then applied to organize the data, followed by axial coding to cluster themes and explore interrelationships such as leadership influence, barriers to innovation, and resource dynamics. NVivo software supported the coding process, ensuring systematic categorization and traceability. The analysis included comparative assessments across directorates and roles and employed triangulation strategies to validate the findings by cross-referencing interview insights with survey data. In the final integration phase, qualitative and quantitative results were synthesized to provide a comprehensive view of the organization’s innovation culture and to inform actionable, context-specific recommendations.

RESULTS AND DISCUSSION

Quantitative Data Analysis

A total of 120 respondents participated in the survey, with the majority coming from the Directorate of Operations and Production (61.7%), followed by the Directorate of Finance and Risk Management (13.3%), Human Resources (11.7%), Business Development (8.3%), and the Main Directorate (5%). In terms of job positions, most respondents were at the Supervisor/Staff level (50.8%), followed by Assistant Managers (29.2%), Managers/AVPs (9.2%), and senior executives such as GMs, SVPs, or VPs (3.3%), while lower-level staff accounted for 7.5%. Regarding educational background, the majority held a bachelor’s degree or equivalent (71.7%), with 10% holding a master’s or doctoral degree, and the remaining respondents having completed high school or a diploma program (9.2% each). In terms of work experience, 47.5% of respondents had 4–8 years of experience, 25% had 9–15 years, 15.8% had 1–3 years, and 11.7% had more than 15 years. This composition reflects a diverse range of functional backgrounds, job levels, educational qualifications, and work experience among the participants in this study.

Validity Test Result

A Pearson Correlation analysis was conducted to test the construct validity of the Innovation Quotient instrument by correlating each item with the total score of its respective dimension. With 120 respondents and a critical r-value of 0.179, all 54 items were found valid, with correlation coefficients ranging from 0.442 to 0.925. These results confirm that each item reliably measures its intended construct, supporting the instrument’s validity based on Rao and Weintraub’s (2013) six innovation culture dimensions.

Table 3. Validity Test Result

Category	Correlation Coefficient	Category	Correlation Coefficient	Category	Correlation Coefficient
VAL1	0,653	CLI1	0,719	PRO1	0,731
VAL2	0,764	CLI2	0,802	PRO2	0,716
VAL3	0,442	CLI3	0,763	PRO3	0,743

VAL4	0,708	CLI4	0,795	PRO4	0,787
VAL5	0,757	CLI5	0,808	PRO5	0,765
VAL6	0,787	CLI6	0,806	PRO6	0,694
VAL7	0,696	CLI7	0,743	PRO7	0,725
VAL8	0,757	CLI8	0,832	PRO8	0,781
VAL9	0,733	CLI9	0,795	PRO9	0,722
BEH1	0,848	RES1	0,731	SUC1	0,785
BEH2	0,838	RES2	0,840	SUC2	0,817
BEH3	0,925	RES3	0,699	SUC3	0,774
BEH4	0,895	RES4	0,823	SUC4	0,705
BEH5	0,699	RES5	0,863	SUC5	0,858
BEH6	0,902	RES6	0,722	SUC6	0,783
BEH7	0,876	RES7	0,866	SUC7	0,786
BEH8	0,854	RES8	0,777	SUC8	0,832
BEH9	0,863	RES9	0,718	SUC9	0,742

Source: Research Result

Reliability Test Result

To evaluate the internal consistency of the instrument, a reliability test using Cronbach’s Alpha was conducted for each of the six innovation culture dimensions. All categories exceeded the 0.7 threshold, with Alpha values ranging from 0.868 to 0.955, indicating very good reliability across all dimensions. These results confirm that the items within each building block consistently measure the intended construct, supporting the robustness of the instrument for further analysis.

Table 4. Reliability Test Result

Category	Cronbach Alpha Value	N Item
Values	0,868	9
Behaviors	0,955	9
Climate	0,92	9
Resources	0,921	9
Processes	0,896	9
Success	0,923	9

Source: Research Result

Innovation Quotient Assessment Result

The overall Innovation Quotient score was 3.53, indicating a moderate level of innovation culture within the organization. Three dimensions scored above this average: Climate (3.72), Values (3.66), and Success (3.56), suggesting strengths in trust, openness, entrepreneurial mindset, and recognition of innovation outcomes. The remaining blocks scored below the average. Resources (3.50) and Processes (3.46) indicate moderate support in terms of systems and innovation mechanisms, while Behaviors received the lowest score (3.30), highlighting a gap in leadership and employee engagement in fostering innovation.

The assessment of the three lowest-scoring building blocks in the Innovation Quotient framework: Behaviors, Resources, and Processes, reveals critical areas that require attention to strengthen the organization's innovation culture. The Behaviors block, with an overall score of 3.30, reflects limited consistency in leadership and employee actions that support innovation, particularly in the Engage factor (3.26), which indicates weak involvement and alignment in innovation activities. The Resources block scored slightly higher at 3.50, yet highlighted challenges in effectively supporting innovation efforts, especially in the Projects factor (3.46), suggesting insufficient allocation of time, funding, and infrastructure for innovation initiatives. Meanwhile, the Processes dimension, with a score of 3.46, showed that although idea generation (Ideate) is relatively strong (3.70), there are clear bottlenecks in shaping and scaling innovations, as evidenced by the low Capture factor score of 3.29. Collectively, these results

point to cultural and structural gaps that undermine the organization's ability to institutionalize and sustain innovation.

Table 5. Innovation Quotient Result

Building Blocks	Code	Score	Building Block Score	Building Blocks	Code	Score	Building Block Score
Values	VAL1	3,83	3,66	Resources	RES1	3,54	3,50
	VAL2	3,61			RES2	3,42	
	VAL3	3,35			RES3	3,70	
	VAL4	3,82			RES4	3,38	
	VAL5	3,92			RES5	3,48	
	VAL6	3,40			RES6	3,58	
	VAL7	3,55			RES7	3,44	
	VAL8	3,82			RES8	3,34	
	VAL9	3,68			RES9	3,60	
Behaviors	BEH1	3,43	3,30	Processes	PRO1	3,79	3,46
	BEH2	3,50			PRO2	3,62	
	BEH3	3,16			PRO3	3,68	
	BEH4	3,20			PRO4	3,42	
	BEH5	3,22			PRO5	3,37	
	BEH6	3,37			PRO6	3,38	
	BEH7	3,15			PRO7	3,25	
	BEH8	3,29			PRO8	3,28	
	BEH9	3,39			PRO9	3,35	
Climate	CLI1	3,72	3,72	Success	SUC1	3,57	3,56
	CLI2	4,06			SUC2	3,25	
	CLI3	3,96			SUC3	3,35	
	CLI4	3,86			SUC4	3,89	
	CLI5	3,83			SUC5	3,48	
	CLI6	3,67			SUC6	3,58	
	CLI7	3,29			SUC7	3,57	
	CLI8	3,56			SUC8	3,64	
	CLI9	3,57			SUC9	3,68	

Innovation Quotient Score : 3,53

Source: Research Result

Qualitative Data Analysis

To enrich the quantitative findings, qualitative interviews were conducted with selected employees and leaders to explore the root causes behind the three lowest-scoring dimensions of the Innovation Quotient: Behaviors, Processes, and Resources. These interviews provided deeper insight into day-to-day experiences, leadership practices, and organizational dynamics that influence innovation culture. The qualitative data not only contextualizes the survey results but also reveals nuanced enablers and barriers that may not be fully captured through quantitative measures.

Table 6. Interview Highlight on Behaviors Block

Topic	Interview Highlight	Quotations
Leadership Role	Leadership plays a critical role in innovation culture. Some leaders support and encourage innovation, but	"Leaders say we should innovate, but in reality, daily operations take

	<p>many only give approval without active involvement. Several leaders are more focused on routines, less open to new ideas, and tend to maintain legacy approaches. Personal preferences and confirmation bias often influence whether ideas are accepted or not.</p>	<p>priority" "Even if we're formally encouraged to innovate, if the leader isn't on board, the idea doesn't move forward."</p>
<p>Engagement & Initiative</p>	<p>Younger employees tend to be more active in proposing ideas and showing enthusiasm for innovation, while senior employees are more comfortable with existing processes. Some employees hesitate to suggest ideas because they fear being solely responsible for execution without adequate support.</p>	<p>"Some of the newer generation in my environment are already actively thinking about how to improve things through innovation."</p>
<p>Support & Coaching</p>	<p>Peer support is generally stronger than support from leaders. Some leaders are not actively providing coaching, and there is still a need for structured guidance and training for new innovators. Non-material recognition was also suggested as a form of encouragement.</p>	<p>"Leaders should guide, allocate resources, and monitor, not just expect execution." "Peer support is generally stronger than support from leaders."</p>
<p>Adaptability & Risk-taking</p>	<p>Adaptability remains a challenge, especially among senior staff who are reluctant to abandon traditional methods. Ideas are often passively dismissed or not followed up. Some work environments have yet to fully provide psychological safety for experimentation or failure.</p>	<p>"Some senior staff still have outdated mindsets." "Sometimes ideas get dismissed without discussion."</p>

Source: Research Result

Interview findings reveal significant innovation culture challenges within organizations. Leadership often provides only superficial support for innovation while maintaining focus on routine operations, creating disconnect between stated goals and actual behavior where personal preferences and bias influence idea acceptance. A generational divide exists in employee engagement, with younger staff more enthusiastic about proposing innovations while senior employees prefer established processes. Many employees hesitate to suggest improvements due to fear of sole implementation responsibility without organizational support, though peer backing typically exceeds leadership support. Adaptability challenges persist, especially among senior staff resistant to abandoning traditional methods. The absence of psychological safety for experimentation and failure creates an environment where innovative ideas are frequently dismissed rather than properly evaluated and developed.

Table 7. Interview Highlight on Processes Block

Topic	Interview Highlight	Quotations
<p>Ideation & Creativity</p>	<p>Ideas are often generated during informal discussions, team meetings, or in response to urgent field conditions. However, structured ideation sessions are rare. Creativity is encouraged but often lacks a formal process or facilitation. Units rely heavily on individual initiative to propose and drive innovation.</p>	<p>"We use meetings to brainstorm what innovations can improve our unit." "Our approach is more tactical—discussing and improvising solutions on the spot."</p>
<p>Approval & Bureaucracy</p>	<p>Innovation initiatives frequently face approval bottlenecks. Ideas must align with leadership preferences to move forward. Even approved ideas can be deprioritized due to shifting operational focus. Complex approval processes or lack of managerial buy-in often lead to delays or abandonment of proposed innovations.</p>	<p>"If the leader isn't on board, the idea doesn't move forward." "Sometimes ideas get delayed or forgotten altogether."</p>
<p>Prototyping & Experimentation</p>	<p>Prototyping or experimentation is not yet common practice. Field units may implement trial solutions informally, but there is limited structure or follow-up. In many cases, ideas are either executed directly or not at all, without room for piloting or iterative testing.</p>	<p>"Ideas are either executed directly or not at all, without room for piloting." "Trial solutions are often implemented in the field, but not documented."</p>

Topic	Interview Highlight	Quotations
Flexibility of Process	Innovation processes are often perceived as rigid or underdeveloped. Many units lack clear frameworks, resulting in inconsistent implementation. Flexibility depends on the initiative of individuals rather than systemic support. In some cases, excessive autonomy without structure leads to fragmented innovation efforts.	<p>“No standardized flow. When we have an idea, we plan, analyze, and map the timeline.”</p> <p>“Sometimes too much freedom becomes a trap, leading to unstructured, unfocused innovations.”</p>
Execution Challenges	Execution is hindered by limited time, coordination difficulties, and unclear follow-up mechanisms. Even approved ideas can stall due to resource constraints or lack of cross-functional support. Projects often rely on the initiator to drive them alone, which demotivates participation and sustainability.	<p>“Projects often rely on the initiator to drive them alone, which demotivates participation.”</p> <p>“When someone proposes a new idea, they’re expected to execute it alone.”</p>

Source: Research Result

Based on interview findings, three primary resource constraints hinder organizational innovation. Time and personnel limitations represent the most significant barrier, as employees overwhelmed with routine tasks lack capacity for innovation work, which is often treated as an additional responsibility rather than integrated into daily operations. Budget constraints compound this issue by limiting innovation to small-scale projects, as operational units struggle to secure funding for strategic initiatives that compete with immediate operational demands. Knowledge infrastructure gaps create further challenges through uneven access to training and development across organizational units, leaving many employees, particularly junior staff, without adequate exposure to innovation tools and frameworks. The absence of consistent training programs, external learning opportunities, and benchmarking against industry leaders results in insufficient skills and knowledge to effectively structure and implement innovative solutions.

Table 8. Interview Highlight on Resources Block

Topic	Interview Highlight	Quotations
Time & Personnel	Lack of time and staff is a recurring challenge. Employees are often overwhelmed with routine duties, leaving little room for innovation. Innovation is frequently treated as an extra task outside of daily responsibilities. Some suggest allocating dedicated time or reducing workload to allow more focus on innovation efforts.	<p>“People avoid strategic projects because they’re already overwhelmed with routine work.”</p> <p>“Innovation is often extracurricular—it requires time outside routine hours.”</p>
Budget & Funding	Budget limitations often constrain innovation, especially in operational units. While strategic innovations require larger funding, only small-scale ideas are usually feasible. Budgets are typically prioritized for urgent needs, pushing innovation initiatives down the priority list.	“Due to cost-efficiency efforts and routine budget needs, innovation often only gets minimal funding.”
Knowledge & Infrastructure	Access to knowledge and training varies across units. Some receive regular development and exposure, while others lack opportunities for benchmarking or structured learning. Many employees, particularly junior staff, feel unprepared to structure ideas due to limited exposure to innovation tools and frameworks. More consistent training and external learning opportunities are needed.	<p>“Newer employees might not have that framework, so they feel overwhelmed.”</p> <p>“We need to visit other, more advanced companies to learn and apply their ideas here.”</p>

Source: Research Result

Innovation processes within organizations face significant structural challenges that impede effective implementation. While ideas emerge through informal discussions and meetings, organizations lack structured ideation sessions and formal facilitation, relying on

individual initiative rather than systematic approaches. Approval processes create bottlenecks due to leadership preferences and shifting priorities, often causing delays or abandonment of promising ideas, while the absence of standardized frameworks results in inconsistent implementation across units with fragmented efforts.

The most critical gap occurs in prototyping and execution phases, where organizations typically bypass iterative testing and move directly to full implementation or complete abandonment. Limited structure and follow-up mechanisms cause approved ideas to stall due to resource constraints and lack of cross-functional support, with projects frequently depending solely on individual initiators for implementation, which demotivates participation. This binary approach—immediate execution or abandonment—combined with unclear coordination mechanisms and inadequate time allocation, creates an environment where innovative potential remains consistently underutilized despite initial enthusiasm and creative thinking.

Data Triangulation

To develop a more holistic diagnosis of the organization’s innovation culture, an integrated analysis was conducted by triangulating quantitative survey results with qualitative interview data. This approach focused on the three lowest-scoring dimensions—Behaviors, Processes, and Resources—which represent critical constraints to innovation. As shown in Table IV.13, the analysis reveals strong alignment between both data sources. The low score in the Behaviors block (3.30) is supported by recurring interview themes related to inconsistent leadership, limited empowerment, and a prevailing fear of failure. Similarly, the Processes block (3.46) is reflected in narratives describing unclear innovation workflows and bureaucratic hurdles. The Resources block (3.50) is also validated by employee accounts citing insufficient time, financial support, and mentoring for innovation initiatives. This convergence strengthens the validity of the findings and highlights key focus areas for organizational improvement.

Table 8. Data Triangulation Result

Block	Quantitative Score	Qualitative Insight Summary	Triangulation
Behaviors	Average score: 3.30 Strength: Some leaders support innovation efforts. Weakness: Inconsistent modeling of innovation behavior by leadership; low empowerment.	Interviewees consistently highlighted a disconnect between leadership rhetoric and actual behavior. While innovation is frequently discussed, employees feel discouraged from proposing new ideas due to fear of being blamed if they fail. There is limited empowerment at the operational level, and decision-making is still concentrated at the top. The absence of visible innovation champions or risk-taking behaviors from leaders further demotivates teams, creating a passive and reactive culture instead of an agile and proactive one.	Convergence Both methods emphasize behavioral misalignment—particularly in leadership modeling and team empowerment.
Processes	Average score: 3.46 Strength: Innovation is recognized as important. Weakness: No structured process to manage innovation ideas and execution.	Respondents were unclear on the procedures for idea submission, review, and implementation. Several employees reported having submitted ideas but receiving no structured feedback or follow-up. There is no standard innovation funnel or governance model in place, which causes promising initiatives to stall or be abandoned. The lack of systematic prototyping or iteration cycles also indicates a reactive rather than proactive process model. Bureaucracy and cross-departmental silos further hinder innovation execution.	Convergence Survey and interviews show mutual agreement on the absence of structured innovation processes.

Block	Quantitative Score	Qualitative Insight Summary	Triangulation
Resources	Average score: 3.50 Strength: Existing tools show commitment. Weakness: Limited funding/time/training; lack of innovation champions.	A number of employees expressed frustration over insufficient access to time, funding, and mentoring for innovation projects. Innovation is often expected to occur on top of existing workloads, with no formal recognition or resource allocation. Many mentioned the lack of internal innovation coaches or technical support staff to guide experiments. While platforms like TBox exist, their utilization is limited due to unclear guidelines, insufficient incentives, and minimal integration with daily work routines.	Convergence Consistent feedback on lack of enabling resources, despite available platforms and statements of support.

Source: Research Result

Business Solution

Based on the combined results of the quantitative survey using the Innovation Quotient framework, in-depth qualitative interviews, and the integrated analysis, three building blocks were consistently found to have lower-than-average scores: Behaviors (3.30), Processes (3.46), and Resources (3.50). These three dimensions not only scored below the overall innovation culture average (3.53), but were also reinforced by employee narratives that pointed to specific organizational challenges—ranging from inconsistent leadership modeling and lack of psychological safety, to unclear innovation workflows and inadequate time and support structures.

In response, the following solutions are formulated to directly address these pain points. Each program is designed to drive behavioral shifts, streamline innovation processes, and optimize resource allocation to enable innovation at all levels. The recommendations are aligned with company’s strategic transformation agenda and are modeled to ensure long-term cultural embedding. These initiatives aim not only to close the identified gaps, but also to institutionalize a culture of innovation that is both resilient and scalable.

Table 9. Program Option

Block	Program	
Behaviors	Innovation Leadership Bootcamp	Addresses the gap between leadership talk and actual innovation behavior by building visible, accountable innovation role models.,
	Innovation Behavioral Norms Charter	Establishes a shared behavioral framework for innovation, reducing ambiguity and strengthening commitment across departments
	Shadowing Innovation Champions	Provides practical exposure to innovation behaviors through role modeling and mentoring by internal or external champions.
Processes	Structured Innovation Funnel	Clarifies the innovation journey from ideation to implementation by institutionalizing a transparent funnel with gate reviews.
	Idea Fast Track System	Accelerates execution of low-risk, high-impact ideas, addressing delays and stagnation in the current system.
	Innovation Workflow Toolkit	Standardizes tools and processes for executing innovation, helping teams move from idea to prototype systematically
Resources	Innovation Time Allocation (10% Rule)	Provides protected time for employees to engage in innovation without jeopardizing their daily responsibilities.
	Innovation Mentorship Program	Offers guidance and practical input throughout the innovation journey, filling the gap in coaching and support structures.
	Innovation Resource Hub	Improves visibility and usability of existing innovation resources, boosting engagement and tool utilization across the company.

Source: Research Result

Based on the integrated analysis, three innovation culture dimensions were identified as critical focus areas. Tailored programs were developed to directly address the root causes within each block. To prioritize these initiatives, the Analytic Hierarchy Process (AHP) was used,

guided by criteria of Strategic Relevance, Impact Potential, and Implementation Feasibility. The weighting and selection process involved Subject Matter Experts (SMEs) to ensure strategic alignment and practicality.

As a result, three top-priority programs were selected: Innovation Leadership Bootcamp for Behaviors, aiming to build role-modeling and empowerment; Innovation Workflow Toolkit for Processes, to systematize idea execution; and Innovation Time Allocation (10% Rule) for Resources, to ensure dedicated time for innovation. These programs are well-aligned with company's strategic goals and are designed to tackle the most pressing innovation culture challenges with high feasibility and impact. These initiatives address key cultural gaps in behaviors, processes, and resources, and are structured using Lewin's Change Model to guide implementation. Effective execution requires cross-functional collaboration and continuous feedback. Future research could extend this study through broader assessments, longitudinal tracking, and integration with advanced decision-making tools and benchmarking models to enhance cultural resilience in dynamic industry contexts.

CONCLUSION

This study concludes with a comprehensive assessment of organizational innovation culture through an integrated quantitative and qualitative approach. The Innovation Quotient (IQ) framework revealed a moderate level of innovation culture maturity, with an overall score of 3.53. However, disparities were found across the six building blocks, particularly in Behaviors (3.30), Processes (3.46), and Resources (3.50), which were identified as critical barriers to embedding innovation sustainably within the organization. Qualitative interviews reinforced these findings by highlighting recurring challenges such as inconsistent leadership role modeling, unclear innovation processes, and insufficient time and support for innovation efforts. The triangulation of data provided a validated and holistic understanding of both perceived and actual innovation dynamics.

In response, a structured prioritization using the Analytic Hierarchy Process (AHP) was employed to identify the most strategic and feasible interventions. The selected programs : Innovation Leadership Bootcamp, Innovation Workflow Toolkit, and Innovation Time Allocation (10% Rule); are designed to directly address the root causes within the weakest dimensions and support the organization's broader transformation agenda through targeted cultural improvement.

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