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APPLICATION OF THE TRIZ MODEL FOR EVALUATING THE POTENTIAL INNOVATION VALUE OF A DIGITAL START-UP COMPANY

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Abstract:
Digital innovations can improve the consumer experience by facilitating more personalized and convenient interactions, enhancing user interfaces, or introducing new features and functions. The potential innovation value rests in the capacity to attract and retain customers, boost customer satisfaction, and cultivate brand loyalty. The objective of this study is to formulate a digital startup strategy based on the potential value of innovation in six areas: strategy and planning, marketing, technological process, quality and environment, logistics, and human resources. This can help startups and stakeholders make informed decisions on how to best allocate resources and efforts to maximize their chances of success. Using a potential value map derived from a questionnaire survey, which held in February 2022, the innovation potential was analyzed. From an interview with the manager, the data served as the basis for developing the strategic plan using the TRIZ technique. Aspects of strategy and planning (2.33) and human resources (2.00) have the lowest score among the six aspects and classified as "B" level. Using the process of the TRIZ method, additional analysis of these two aspects yielded several solutions applicable to the formulation of the company's strategy. Training regarding the strategic planning of the company is one of the strategies and planning-related solutions. Our study shows that TRIZ model is helpful to handle the identification and find solution of contradictions in problem situation of digital start-up company.

Key words: *TRIZ; Innovation; Potential Value; Digital Start-Up*

INTRODUCTION

Potential innovation value is the anticipated benefits, advantages, and positive consequences that an innovation can provide to individuals, organizations, or society [1]. It is a prospective evaluation of the value an innovation could potentially generate if developed, implemented, and adopted [2]. Innovations that enable new business models, create new markets, increase productivity, or reduce expenses can generate economic value for businesses and contribute to economic growth [3, 4, 5]. The potential value of an innovation can be measured by its effect on economic growth, profitability, cost reductions, and financial returns. Ultimately, potential innovation value functions as a guide for decision-making, resource allocation, and prioritization of innovation efforts, assisting individuals and organizations in determining the worth and potential impact of pursing particular innovative ideas or projects [3, 6, 7, 8].

Innovations for digital start-ups frequently involve technological advances that stretch the limits of what is presently feasible [9, 10]. The extent to which an innovation contributes to scientific knowledge, technological progress, or the development of new capabilities and instruments can be used to evaluate its potential value. Innovations can give individuals, enterprises, and industries a competitive advantage. Potential innovation value includes market differentiation [11], improved product offerings [12], enhanced customer experiences [13, 14], and the ability to outpace market competitors [15]. It is essential to remember that potential innovation value is a pre-implementation and pre-realization evaluation. It involves studying and estimating the possible positive outcomes and effects that the idea could have, taking into account things like market trends, user wants, technology practicality, and the potential for growth and scalability.

TRIZ (Theory of Inventive Problem Solving) is an extensively used method for problem-solving and innovation that originated in Russia [16]. Researchers acknowledge TRIZ for providing a structured and systematic approach to problem-solving. The framework's methodology, including the Contradiction Matrix and 40 inventive principles, offers a clear and organized way to analyze and address complex problems. Research investigates the application of TRIZ in various industries such as manufacturing,

aerospace, and automotive. Case studies demonstrate how TRIZ helps in optimizing processes, improving product designs, and enhancing overall efficiency and competitiveness.

Our research's contribution focuses on how engineering and service aspects work together in digital start-ups. The goal of using the TRIZ model was to create an inventive service model that aids the business in developing their market strategy. Digital businesses operate in markets with intense competition. Analyzing the potential innovation value entails determining how the innovation can set the company apart from its rivals. It can entail discovering distinctive qualities, technological developments, or innovative business strategies that distinguish the organization and draw clients [13, 17]. Moreover, analyzing the potential innovation value involves evaluating the innovation's alignment with the company's overall digital strategy. It includes examining how the innovation aligns with the organization's vision, purpose, and long-term goals. This evaluation makes sure that the new idea helps the company reach its business goals and makes it more competitive in the digital market [18, 19].

LITERATURE REVIEW

TRIZ is a systematic and structured framework for problem-solving that has gained popularity across many industries and fields over the past several decades. TRIZ is a set of inventive principles and instruments that facilitate problem-solving by resolving contradictions, fostering ideality, and fostering systematic innovation. Research demonstrates the significance of these principles in generating innovative solutions across diverse industries [15, 16]. The purpose of this literature review is to provide an overview of the existing literature concerning the analysis of the TRIZ framework, its applications, and potential areas for enhancement.

In the area of TRIZ, innovation often comes from finding and solving contradictions. Contradictions happen when there are requirements or characteristics in a system or plan that are at odds with each other [18]. These inconsistencies help us locate innovation-capable areas. The TRIZ method includes Contradiction Matrix, which is a tool that helps users connect specific conflicts with new ideas. This method makes it easier to find new ways to solve problems by carefully making connections between contradictions and known principles of invention. Through the analysis of fruitful patents and original solutions, TRIZ offers a collection of 40 inventive principles. These guidelines let users generate unique solutions to resolve inconsistencies and improve product or process design. TRIZ supports ideality, which optimizes system benefits or functions while minimizing drawbacks, resource use, and costs. The quest of ideality drives innovation by forcing people to find better solutions.

The literature showcases how TRIZ can lead to innovative solutions and significant cost savings [16, 18, 20]. Scholars have extensively studied TRIZ applications in engineering, product development, manufacturing, and beyond. Research emphasizes how TRIZ facilitates problem-solving in design, process optimization, technology development, and strategic planning. Additionally, the integration of TRIZ with other methodologies, such as Kano, Design Thinking, and Design For Six Sigma (DFSS), has demonstrated its adaptability and effectiveness in various contexts.

In their study, Chen et al. [16] propose a service model for the information services business, employing the Fuzzy-Delphi approach, Kano two-dimensional model, and TRIZ framework. The authors demonstrate the utilization of a prospective value assessment tool through the construction of a matrix that highlights discrepancies in service quality within the information services sector. Based on the framework of the contradiction matrix, an inventive service solution was developed for the purpose of implementing sustainable strategies inside firms operating in the field of information services.

Moreover, a systematic strategy for New Product Development (NPD) is developed by Amer et al. [20], wherein TRIZ principles are integrated into the DFSS technique. The proposed approach is effective at generating creative ideas for innovative products and can be applied to a wide range of products. The integration of TRIZ into the DFSS program facilitates the generation of innovative solutions that are characterized by their elegance, cost-effectiveness, and low-risk nature. While both DFSS and TRIZ employ a systematic approach, DFSS emphasizes the establishment of a structured framework, whereas TRIZ serves as a catalyst for stimulating creative thinking. Therefore, the incorporation of TRIZ into DFSS will be a step toward a methodical and innovative approach to the development of new products.

Ocampo and Kaminski conducted a study examining the combination of TRIZ and Design Thinking [18]. They found that TRIZ focuses significant emphasis on technological advancement, whereas Design Thinking adopts a user-centered approach. The researchers introduced the DTRIZ methodology as a means of facilitating the generation of solution ideas by leveraging a pre-existing comprehension of the problem and subsequent assessment. By incorporating the TRIZ and Design Thinking (DT) techniques into the primary objectives, inside a framework that facilitates and establishes the progression from ideation to conceptualization and subsequent assessment. The validity of the notion was confirmed through the implementation of four actual applications involving enterprises operating within the Personal Health Equipment (PHE) industry. The process of validation was crucial in assessing the extent to which the proposed model effectively facilitates the explanation of the problem and the exploration of novel solutions, both from the user's perspective and from a technology standpoint.

Despite its strengths, TRIZ presents certain challenges. Research indicates that the complexity of TRIZ concepts can be a barrier to widespread adoption [16]. Moreover, adapting TRIZ to non-technical domains may require additional efforts to make it accessible and applicable [22]. Addressing these challenges is essential for enhancing the accessibility and utility of TRIZ across diverse fields. The

future of TRIZ lies in its continued evolution and integration with emerging technologies, interdisciplinary approaches, and evolving problem-solving paradigms. Further research should focus on simplifying TRIZ concepts, expanding its applications, and developing practical frameworks to enhance its accessibility and usability. A multidisciplinary approach involving collaborations between academia, industry, and practitioners is crucial to unlock the full potential of TRIZ and drive innovation in the 21st century.

METHODOLOGY

Data Collection

Data collection in TRIZ is a crucial step in the problem-solving process. It provides the foundation for applying inventive principles and techniques to find innovative and efficient solutions to complex problems. There are 2 data collection method used in this study, namely questionnaire and brainstorming. The questionnaire is used to collect data from employee and stakeholder of the digital startup company. The questionnaire is about the innovation potential map of the company. Table 1 shows the demographic of respondents.

Table 1

Respondent's demographic profile

Variable	Characteristics	Frequency N	Percent %
Gender	Male	10	58.8
	Female	7	41.2
Educational Level	Graduate	5	29.4
	Undergraduate	8	47.1
	Diploma	4	23.5
Professional Experience	> 3 years	6	35.3
	< = 3 years	9	52.9

Moreover, TRIZ (Theory of Inventive Problem Solving) emphasizes inventive thinking and innovation. Therefore, for the next steps in TRIZ, stakeholders brainstorming method is used to collect insights and ideas from different perspectives.

TRIZ Method

TRIZ does not have a specific step-by-step model for assessing the potential value of innovation [15, 17, 18, 22]. However, TRIZ provides a systematic approach to problem-solving and inventive thinking, which can indirectly contribute to evaluating the potential value of an innovation [23]. Here are some steps and key principles within the TRIZ framework and our implementation to assess the potential value of an innovation:

1. Define the Problem:

Chou suggest the first step of TRIZ method is to clearly articulate the problem or challenge that the innovation aims to address [24]. This step aims to identify the specific objectives and desired outcomes of the innovation. In our study the problem is to improve the innovation level based on our potential innovation map.

2. Conduct Contradiction Analysis:

Guarino et al. [25] recommended to use the Contradiction Matrix to identify any contradictions or conflicts within the problem or system. We involved 5 stakeholders to analyze the contradiction faced by the digital start-up company. We use round robin brainstorming to ensure that everyone's voice is heard, prevents dominant voices from monopolizing the discussion, and encourages diverse perspectives.

3. Resolve the Contradiction:

To resolve these contradictions and find inventive solutions that enhance the value of the innovation, we use the 40 Inventive Principles [26, 27]. This tool helps us to come up with new ideas and answers for the problem at hand. These guidelines are used as a toolkit for solving technical or functional conflicts and finding new angles that might boost the innovation's potential return on investment.

4. Proposed Improvement Solution:

After finding inventive solution based on 40 Inventive Principle, we carefully compare the system's present capabilities with those that are needed. We use stakeholder brainstorming method to locate any flaws, ineffectiveness, or room for improvement.

It is essential to note that TRIZ is a flexible methodology, and the stages may alter depending on the problem or innovation being addressed. The key is to implement the TRIZ principles and instruments to systematically analyze the problem, generate inventive solutions, and evaluate the innovation's potential value at each stage of the process.

RESULTS AND DISCUSSION

The results and discussion of the evaluation of innovation potential as the basis for strategy formulation at digital company in our study are as follows.

Innovation Potential Map

Innovation potential map is an approach used to measure the value of innovation potential in aspects of strategy and planning, marketing, technological processes, quality and environment, logistics, and organization and human resources. It is a conceptual tool that represents the various opportunities for innovation within a system or problem space. It is a mental map that helps individuals and teams navigate the landscape of challenges and contradictions, guiding them toward potential innovative solutions. TRIZ often incorporates an Innovation Potential Map as a tool to help individuals and organizations assess and strategize their innovation efforts.

Figure 1 shows the results of the assessment of innovation potential. It provides a clear picture of where the organization stands in terms of its existing capabilities and performance levels. The digital startup company in our study can use the map to make strategic decisions about where to focus its innovation efforts. Areas of the map with the greatest potential for improvement may become the primary targets for innovation initiatives. Conversely, areas where the current state is already strong may require less attention.

Fig. 1 Innovation potential map of the digital startup company in this study

Table 2 below shows the evaluation of individual category assessment aspects.

Table 2
Results of the classification of the company innovation potential

Aspects	Score	Classification	Definition
Strategy and planning	2.33	B	The company's work atmosphere is not conducive to the growth of its innovative endeavors.
Marketing	2.5	AB	The company is in a good position to make use of innovative potentials that can yet be enhanced because of the conditions that have been satisfied.
Technological process	2.83	AB	The company is in a good position to make use of innovative potentials that can yet be enhanced because of the conditions that have been satisfied.
Quality and Environment	2.83	AB	The company is in a good position to make use of innovative potentials that can yet be enhanced because of the conditions that have been satisfied.
Logistics	2.5	AB	The company is in a good position to make use of innovative potentials that can yet be enhanced because of the conditions that have been satisfied.
Human resources	2.00	B	The company's work atmosphere is not conducive to the growth of its innovative endeavors.

The classification results of the evaluation of innovation potential for the digital startup company in our study show that in general companies occupy the AB classification class with a score of 2.50. These results mean that the company has fulfilled the prerequisites to work more effectively with its innovation potential which is still possible to be improved. Moreover, Strategy and Planning aspect and Human Resources aspect are the highlighted areas where innovative opportunities are more likely to yield substantial benefits.

TRIZ Method

The TRIZ method is utilized to formulate a strategy based on problem-solving in specific aspects. The strategic and planning aspect as well as the organization and human resources aspect will be examined in this study based on our discussions with the relevant manager. Detailed explanations of each subtopic are provided below.

1. Strategic and Planning Aspects

Analysis of the System (Problem Defining)

Improving strategy and planning is crucial for the success and growth of a digital startup company. The analysis of the system begins with identifying domain problem, potential solution and develop strategies to mitigate them.

- Domain problem: The company's ability to engage in innovative practices pertaining to corporate strategy and planning.
- Potential solution: The establishment of such corporate strategy aimed at sustaining competitiveness and enhancing market positioning.
- Characteristics to be improved: The company's capacity for innovation in the domains of strategy and planning. Specifically, there is a need to enhance the strategic management model by establishing a well-defined and quantifiable corporate development vision.

Contradiction Analysis

The analysis of contradiction begins by looking for possible contradictions and determining how to overcome the contradictions that occur by means of the formulation of technical contradiction and contradiction matrix tools.

- Characteristics to be improved: Company awareness of the importance of innovating in aspects of strategy and planning as well as the ability to plan it.
- Improving these characteristics, the company hopes to be able to manage the strategic planning process efficiently with clear timelines and milestones. The company is required to find a balance between comprehensive, powerful strategic planning and the need for agility and speed in execution by allocating resources appropriately to avoid excessive delays.
- Contradictions revolves around the tension between the need for a powerful, well-structured strategic plan and the risk of spending too much time in the planning phase, potentially missing out on opportunities or being slow to respond to challenges.

Through the contradictions that arise, both improving and deteriorating characteristics can be observed. By working through the contradiction matrix (Table 3), we will be able to get several ground-breaking concepts that

may be use to enhance the qualities that are to be attained.

Table 3
Results of formulation techniques in contradictions of strategy and planning aspects

Contradiction Analysis	Coordination Matrix	ID Number of Suggested Principle	Suggested Principle
Power vs Loss of Time	21 x 25	35	Parameter changes
		20	Continuity of useful action
		10	Preliminary action
		6	Universality

The contradiction that occurs in the formulation of improvement solutions in aspects of strategy and planning is power vs loss of time. The contradiction above is based on 39 TRIZ parameters adjusted to improve features on the problem.

Resolve the Contradiction

At this stage, the solution of the contradiction of Power vs Loss of Time is selected through consideration of 40 principles of TRIZ. The formulation of the solution considers the feasibility conditions according to the situation and conditions that occur in the company. The discussion of the power vs loss of time contradiction solution aspects of strategy and planning is displayed at Table 4 below.

Proposed Improvement Solution

Based on the analysis on Table 4, we construct the workable solution as follows:

1. Adapt parameters related to customer experience by refining service delivery, improving communication channels, or personalizing interactions based on customer feedback and preferences.
2. Foster long-term strategic partnerships with organizations or entities that have been mutually beneficial in the past.
3. Collect information about competitors' strategies, strengths, and weaknesses to position the organization strategically in the market.
4. Implement a universal system for measuring and monitoring performance by standardizing KPIs and reporting mechanisms to provide a consistent view of progress toward strategic goals.

Based on the current circumstance and state of the business, the selected solution indicates that its implementation is feasible.

Table 4
Contradiction analysis of strategy and planning aspects

Suggested Principle	Solution	Reason	Evaluation
Parameter changes	Conduct deliberate alterations or adjustments to various parameters or variables within a strategic plan	To encourages the company to be flexible and proactive in modifying key elements of their strategic plans to respond to dynamic environments and evolving goals	OK
Continuity of useful action	Use historical data and strategy performance metrics and analyze the factors that contributed to past successes and integrate those lessons into the planning process.	To encourage a culture of continuous improvement within the organization. Strive to refine and enhance successful actions rather than resting on past achievements.	OK
Preliminary action	Conduct a comprehensive analysis of the external business environment, be proactive taking preparatory steps before implementing a strategic plan and identify potential risks and challenges that may arise during plan execution	To identify areas for improvement and leverage, to inform and provide a clear roadmap for the planning process, and to increase the likelihood of successful plan execution and minimize risks.	OK
Universality	Establish a universal strategic framework that can be adapted to different business units or departments. This framework may include common strategic objectives, key performance indicators (KPIs), and planning processes.	To create a cohesive and aligned approach that transcends individual functions or departments. This promotes consistency, efficiency, and the ability to adapt to changing business environments while upholding core values and principles.	OK

2. Organizational Aspects and Human Resources

Analysis of the System (Problem Defining)

Organizational aspects and human resources are critical components of a digital startup's success. Addressing organizational and HR issues in a digital startup requires a combination of proactive measures, continuous evaluation, and a commitment to creating a positive work environment. This is how we figured out what the problems were at the digital startup we looked at.

- Domain problem: The company's ability to foster innovation in the areas of organizational structure and human resource management.
- Potential solution: The establishment of an encouraging organizational climate and fostering an inventive and skilled workforce within the company.
- Characteristics to be improved: Increase organizational development and human resources in the company which involves strategic planning, effective leadership, and a commitment to fostering growth and improvement.

Contradiction Analysis

We use round robin brainstorming with all stakeholders to clearly identify the specific contradiction within the organizational and human resources context. The process of analyzing a contradiction starts with a search for potential conflicts, followed by a determination of how to resolve those conflicts through the development of technical contradiction and contradiction matrix.

- Characteristics to be improved: Positive atmosphere and social environment in the company as well as innovative and professional human resources.
- Improving these characteristics, the expectation in the company is to increase the positive employee experience (user friendliness) while still ensuring necessary compliance and adherence to organizational policies (force). The company also expect to form a harmonious working relationship and to find a right balance between a structured, authoritative approach (power) and an adaptive, personalized approach (flexibility).
- Contradictions that arise requires the company to find a balance between creating HR practices that are user-friendly and ensuring compliance with organizational policies and legal requirements. Furthermore, the contradictions involve understanding when and how to centralize decision-making while allowing for adaptability to meet the diverse needs of employees and the organization.

The contradiction point in Table 5 is obtained from 40 TRIZ parameters considering the plus and minus aspects of the company's problem.

Table 5

Results of formulation techniques in contradictions of organization and human resources aspect

Contradiction Analysis	Coordination Matrix	ID Number of Suggested Principle	Suggested Principle
User friendliness vs Force	33 x 10	13	The other way around
		35	Parameter changes
Power vs Flexibility	35x 14	19	Periodic action
		17	Another dimension
		34	Discarding and recovering

Resolve the Contradiction (Contradiction Analysis)

1. User Friendliness vs Force

At this stage, the solution of the contradiction of User Friendliness vs Force is selected through consideration of 40 principles of TRIZ. The contradiction between user-friendliness and force is a complex challenge in design. Striking the right balance is essential to ensure that products and systems are both easy to use and capable of meeting users' needs, even when some level of effort is required. The discussion of the User Friendliness vs Force aspects of organization and human resources aspect are displayed at Table 6 below.

Table 6

Contradiction analysis of organization and human resources aspect

Suggested Principle	Solution	Reason	Evaluation
The other way around	Creating opennes in communicating and solving organizational issues more deeply	To improve the communication between employees	OK
Parameter changes	The company pays attention to the rights of employees including by giving rewards according to employee achievements.	Make employees more excited and active in the organization	OK

2. Power vs Flexibility

Both power and flexibility are desirable attributes, but they can sometimes be at odds with each other. The contradiction between power vs flexibility is a complex design challenge that requires a careful consideration of

user needs, system capabilities, and the intended use cases. Striking the right balance can lead to products and systems that are both powerful and adaptable to a variety of situations and user profiles. The discussion of the power vs flexibility aspects of organization and human resources aspect are displayed at Table 7 below.

Table 7
Contradiction analysis of organization and human resources aspect

Suggested Principle	Solution	Reason	Evaluation
Periodic action	Develop a structured, periodic goals and key performance indicators (KPIs) and conduct periodic reviews of compensation and benefits packages.	To help the employee to track their progress and measure their contributions to the organization as well as to ensure they remain competitive and aligned with industry standards.	OK
Another Dimension	Expand the dimensions used for performance evaluation beyond traditional metrics like productivity and sales targets. Consider incorporating softer skills, teamwork, leadership, and innovation as key dimensions for assessing employee performance.	To recognize the unique contributions of individuals from various dimensions of diversity, such as gender, race, backgrounds, perspectives, experiences and more.	OK
Discarding and recovering	Discard practices that don't contribute to strategic goals and recover resources for initiatives that drive business success.	To think critically about existing HR practices and find creative ways to recover valuable resources to enhance HR operations, promote efficiency, and support the organization's broader goals.	OK

Proposed Improvement Solution

Based on the analysis on Table 6 and Table 7, we construct the workable solution as follows:

1. Implement regular and structured performance reviews on a periodic basis to evaluate employee performance, provide feedback, and set goals.
2. Recognize "another dimension" of work arrangements by offering flexible options like remote work, part-time work, or job-sharing. This approach acknowledges that employees have varying needs and preferences.
3. Discard redundant or overly complex HR processes that contribute to inefficiency.
4. Recover time and resources by simplifying workflows and automating routine tasks through HR technology.

The four solutions above were decided to be feasible based on conditions, situations, and costs to be implemented.

DISCUSSION

According to the findings of our analysis, two areas – Strategy and Planning and Human Resources – are targeted for innovation initiatives. This study illustrates the application of the TRIZ technique, which encompasses a collection of 40 inventive principles, to address contradictions and devise unique solutions for a digital startup company within the scope of our research.

With respect to the Strategy and Planning aspect, the proposed solution recommends that the organization improve its strategic planning process by establishing coherence with its vision, exploiting market possibilities, and making informed choices to foster growth and achieve success. The suggested method is consistent with the recommendation by Guo et al. [28], which advocates for digital start-up companies to define key performance indicators (KPIs) and metrics that are in line with their strategic objectives. According to Masrianto et al. [29], it is recommended that businesses implement regular monitoring and analysis of these metrics to effectively monitor progress, identify areas for improvement, and make strategic decisions based on data.

Kitsious and Kamariotou [30] also advised seeking input from key stakeholders like team members, advisors, investors, and customers. Involving stakeholders' viewpoints, insights, and comments in strategy planning fosters ownership and alignment. Furthermore, Holopainen et al. [31] and Perera et al. [32] advocate for the periodic evaluation and reevaluation of the strategic plan considering feedback, market dynamics, and insights gained from experience. Adaptation and iteration are necessary to effectively respond to market conditions and accomplish desired goals.

Concerning Human Resources aspect, it is important for a digital startup to improve organizational and human resource growth to help the company success and competitiveness [33]. Digital startups can improve their chances with several strategies. First, it's important for these businesses to put together a team of highly skilled and capable people [34]. This means hiring people with the right skills and knowledge to help the company reach its goals. Second, it's important to create a good atmosphere at work [35, 36, 37]. Startup companies can improve productivity and employee retention by making an environment that encourages collaboration, creativity, and employee happiness. Lastly, it is very important to make sure the group will be successful in the long run [38]. This means making a detailed business plan, setting clear goals and objectives, and putting in place effective strategies to grow and make money in the long run.

Jarva et al. [39] and Lammers et al. [40] add that a company needs to describe in detail the key values and ideal culture of its business. They need to share these beliefs with everyone in the company and use them to make decisions and set rules for how employees should act.

It is advisable for a startup company to cultivate a culture that encourages cooperation, innovation, adaptability, and continual learning [28, 41, 42, 43]. According to Tanaka [44] and Li et al. [45], it is recommended for start-up companies to provide a conducive environment that fosters collaboration and open communication among team members. The utilization of digital collaboration tools by the corporation enables the facilitation of information sharing, project management, and virtual teamwork. This is achieved through the regular organization of team meetings, brainstorming sessions, and cross-functional collaborations [46, 47, 48].

CONCLUSION

The results of evaluating the potential for innovation as the premise for strategy formulation at a digital company in this study led to the conclusion that the company excels in two areas, namely Technology Process (2,83) and Quality and Environment (2,83). In contrast, Strategy and Planning and Human Resources aspects have the lowest innovation potential with a value of 2.30 and 2.00, respectively. The other three factors, namely Marketing, Quality and Environment, and Logistics, have values in the range of 2.50 that are nearly identical.

After employing the TRIZ approach to analyze the two elements, several potential options were found that fit the organization's current situation. Enhancing organizational effectiveness can be accomplished through a variety of techniques and planning-related solutions. One such strategy entails the implementation of an innovation planning program with a longer duration than previous initiatives. This enables for a deeper exploration of creative concepts and implementation. Furthermore, it is essential to prioritize the respect of employee rights within the organization, ensuring fair treatment and nurturing a positive work environment. Additionally, an incentive system that recognizes employees' accomplishments can boost performance and productivity. In the domain of organizational and human resources, potential solutions include the implementation of simple initiatives that engage all employees outside of normal business hours. In addition, it is recommended that the human resources department reaffirm its commitment to developing activities that cultivate a sense of community among the workforces.

Although the primary emphasis of TRIZ is on problem-solving and creative thinking, the methodology's tools and concepts may be used in a way that provides an indirect evaluation of the possible worth of an innovation. It is feasible to analyze the potential for effect, advantages, and overall value proposition associated with an invention by conducting a methodical analysis of the contradictions, ideality, system dynamics, creative principles, and functional features linked to the innovation in question.

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