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Enhancing Employee Engagement through Gamified Digital Platforms: A Case Study Approach in the Technology Sector

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Abstract

Employee engagement is a crucial factor in organizational success, particularly in the dynamic and competitive technology sector. Traditional approaches, such as financial incentives, often fail to create sustainable intrinsic motivation, necessitating innovative solutions such as gamification. This study aims to analyze the role of gamification in enhancing employee engagement through the implementation of digital platforms in medium-sized technology companies. The research employs a case study methodology with a qualitative approach, involving in-depth interviews with 15 informants, including employees and managers, as well as user activity data analysis from the gamification platform. The findings indicate that gamification significantly improved employee engagement, with the proportion of employees exhibiting "High" engagement levels increasing from 25% to 60%, and "Very High" levels rising from 10% to 35%. Conversely, the "Very Low" category decreased from 15% to 5%. These results suggest that gamification elements such as rewards, challenges, and team collaboration fulfill employees' psychological needs and create a more dynamic and productive work environment. This study contributes to the literature by providing insights into the effectiveness of gamification in the technology sector and offering practical recommendations for organizations to design relevant and sustainable gamification platforms. In conclusion, gamification is a promising strategy for enhancing employee engagement, provided that its elements are tailored to individual preferences and the technological readiness of the organization.

Keywords: Gamification, Employee Engagement, Intrinsic Motivation, Technology Sector, Digital Platforms.

I. INTRODUCTION

In the rapidly evolving landscape of the technology sector, employee engagement has emerged as a critical factor in maintaining an organization's competitive advantage. Companies in this sector are required to promote sustainable productivity and innovation, necessitating approaches that effectively enhance employee engagement. According to (Setyawan et al., 2020), traditional approaches such as financial incentives have been common strategies to boost motivation. However, these methods often prove insufficient in creating lasting impacts on intrinsic motivation. As an alternative, technology-based strategies such as gamification have surfaced as innovative solutions that align organizational goals with employee needs. Gamification, which integrates game elements into work processes, offers substantial potential to create a participatory and engaging work environment. This approach has become increasingly relevant in the technology sector, where most employees are familiar with digital technologies and motivated by challenges that foster creativity and collaboration.

Previous studies have demonstrated that gamification can enhance intrinsic motivation and productivity across various workplace contexts. For instance, (Bitrián et al., 2024) found that game elements such as reward systems and challenges can improve employee satisfaction in

technology-driven workplaces. Similarly, a study by (Behl et al., 2022) confirmed that gamification platforms influence work behavior through motivational mechanisms that address autonomy, competence, and social relatedness needs. However, despite evidence supporting the effectiveness of gamification, the literature remains sparse in exploring its impact on technology organizations. Specifically, research examining how gamification is implemented in the context of technology organizations and its effect on intrinsic motivation and employee engagement remains limited.

Although prior research highlights ²⁷ the potential of gamification to enhance employee engagement, gaps persist in the context of technology organizations. For example, (Hellín et al., 2023) demonstrated that gamification could boost motivation and engagement through elements such as rewards and competition, yet this study did not explicitly address implementation challenges within the technology sector. Another ³⁵ study by (Benitez et al., 2022) emphasized the importance of well-designed gamification to support employee productivity but did not account for factors such as technological adaptation or organizational culture. Similarly, (Patricio et al., 2022) asserted that gamification effectively improves team collaboration; however, this research focused on the education sector rather than technology organizations. Likewise, (Technol et al., 2022) found that the effects of gamification are often context-dependent, but practical guidelines for the technology sector are still lacking. Moreover, (Bizzi, 2023) noted that the success of gamification largely hinges on user acceptance but did not elaborate on addressing resistance to change in technology organizations. Consequently, ²⁰ this study aims to fill these gaps by exploring ³ the role of gamification in enhancing employee engagement within the technology sector while identifying challenges and best practices in its implementation.

² This study seeks to analyze the role of gamification in improving employee engagement in the technology sector using a case study approach. Additionally, it aims to elucidate the main challenges encountered during gamification implementation and identify best practices that similar organizations can adopt. The primary focus of this research is to understand how gamification elements, such as rewards, competition, and collaboration, can be effectively applied in dynamic work environments. Beyond providing theoretical insights, this study aspires to offer practical guidelines for technology organizations to optimize gamification strategies to enhance productivity and employee engagement. Furthermore, its contributions are expected to enrich the academic literature by highlighting unique aspects of ⁸ the technology sector that influence the success of gamification implementation. Accordingly, ⁸ this study aims to lay the foundation for the development of gamification strategies that are not only innovative but also sustainable in the long term.

II. LITERATURE REVIEW

A. Fundamental Theories

1. Self-Determination and Flow Theories as the Basis of Motivation in Gamification

²⁸ The Self-Determination Theory (SDT) has long served as a foundation for understanding intrinsic motivation, particularly within the context of gamification. According to (Guay, 2022), SDT emphasizes three primary ¹ psychological needs: autonomy, competence, and social relatedness, which are considered essential for fostering intrinsic motivation. Gamification elements such as rewards, challenges, and social recognition are designed to fulfill these needs, which in turn enhance individual engagement. When employees feel autonomous in performing their tasks and possess sufficient competence to overcome challenges, their intrinsic motivation is likely to increase. This concept underpins how gamification is employed to create more meaningful work experiences and encourage active participation within organizations.

The Flow Theory, introduced by Csikszentmihalyi (1990), describes an optimal state in which an individual feels entirely focused and immersed in an activity. In gamification, achieving this state is considered vital for deeply motivating individuals. Elements such as appropriately challenging tasks, immediate feedback, and progressive rewards can help foster a flow state. When individuals are in a state of flow, they tend to be not only more productive but also more satisfied with their work. This theory offers valuable insights into designing gamification strategies that enhance engagement, particularly by blending enjoyment with achievement.

The integration of SDT and Flow Theory provides a comprehensive framework for designing gamification systems aimed at boosting motivation. According to (Ikhide et al., 2022), ⁹ gamification elements such as progress-based challenges and social interactions can simultaneously satisfy psychological needs and promote flow experiences. This interplay allows gamification to create work environments that sustainably support employee engagement. When these elements are well-integrated, employees are more likely to feel connected to their tasks, even in high-pressure situations. Consequently, gamification grounded in SDT and Flow Theory often yields more effective motivational outcomes compared to traditional approaches.

Previous studies have also emphasized the importance of SDT- and Flow-based approaches in gamification. For instance, (Wibisono et al., 2023) and (Khan et al., 2024) demonstrated that implementing gamification elements such as achievement recognition and team collaboration can enhance employee engagement by fulfilling autonomy and competence needs. Furthermore, flow experiences created ²² through carefully designed gamification can strengthen intrinsic motivation and job satisfaction. This approach not only fosters a more inclusive work environment but also inspires individuals to feel more enthusiastic and motivated when tackling complex tasks.

Therefore, SDT and Flow Theory serve as critical foundations for understanding the success of gamification in improving employee engagement.

2. The Concept of Gamification and Digital Platforms in the Workplace

⁸ The concept of gamification has become increasingly relevant within the context of digital platforms in the workplace. ⁷ According to (Tongpaeng et al., 2024), gamification is defined as the use of game elements in non-game environments to enhance motivation and engagement. These elements include reward systems, leaderboards, and challenges, which are designed to encourage specific behaviors. In the workplace context, gamification is employed to motivate employees by creating more engaging and interactive experiences. The researchers also noted that the application of gamification in the workplace holds significant potential for improving employee productivity and satisfaction, although its effectiveness heavily depends on designs that align with user needs.

³³ Digital platforms in the workplace play a pivotal role in supporting the implementation of gamification. According to (Cónego et al., 2024), digital platforms enable the seamless integration of gamification elements through technologies that can be tailored to organizational needs. For instance, web-based applications or specialized software can be utilized to track employee achievements, provide rewards, and create collaborative challenges. (Cónego et al., 2024) emphasized that one of the primary advantages of digital platforms lies in their ability to deliver immediate feedback, which is a critical factor in enhancing intrinsic motivation. Furthermore, digital platforms allow organizations to monitor performance in real-time, aiding management in optimizing employee engagement strategies.

In the development of gamification-based digital platforms, user experience design emerges as a crucial component. (Landers & Sanchez, 2022) and (Jacob et al., 2022) stated that ⁴ the effectiveness of gamification in the workplace depends significantly on how well game elements are designed to meet user needs. These researchers highlighted the importance of creating experiences that are not only enjoyable but also relevant to the tasks and objectives of the organization. Moreover, the integration of social elements, such as leaderboards and team-based rewards, can foster collaboration among employees. With appropriate design, digital platforms can create a more inclusive work environment and comprehensively support employee engagement.

Further research also indicates that gamification-based digital platforms have a significant impact on employee behavior. (Polyanska et al., 2022) found that elements such as reward systems and progress-based challenges can enhance employees' focus and dedication to their tasks. The researchers also noted that the success of digital platforms in implementing gamification is greatly

influenced by how these elements are integrated into daily workflows. Additionally, personalization in the design of digital platforms provides employees with the flexibility to tailor their experiences, thereby increasing their sense of ownership and intrinsic motivation. This demonstrates that digital platforms can serve as highly effective tools for fostering employee engagement in the workplace.

B. Previous Studies

1. Research Findings on ¹⁰the Impact of Gamification on Employee Motivation and Performance

Research on ¹⁰the impact of gamification on employee motivation has shown significant results across various work contexts. According to (Justin M A & Joy, 2024), gamification has proven effective in enhancing employees' intrinsic motivation by ²⁵incorporating game elements such as rewards, challenges, and social recognition. These elements are designed to fulfill psychological needs, including autonomy and competence, which contribute to increased engagement. (Justin M A & Joy, 2024) further stated that intrinsic motivation reinforced through gamification not only encourages employees to become more enthusiastic but also improves their job satisfaction. The study also highlighted that gamification has a more pronounced positive impact when its elements are tailored to individual preferences and task characteristics.

²The impact of gamification on employee performance has also been ²⁶the focus of more specific studies. (Ikhida et al., 2023) found that the application of gamification elements, such as progress-based reward systems, can enhance employee efficiency and productivity in completing their tasks. The researchers observed that immediate feedback provided through gamification helps employees understand their performance outcomes and make continuous improvements. Furthermore, the interactive experiences facilitated by gamification create a more dynamic work environment, which in turn drives better work results. The study also emphasized that the success of gamification depends heavily on designs that balance the challenges presented with the employees' skill levels.

(Nivedhitha, 2023) underscored the importance of social interaction in gamification as one of the key factors influencing employee motivation and performance. The researcher revealed that elements such as leaderboards and team-based competitions can foster collaboration and a sense of camaraderie among employees. Enhanced social interaction through gamification not only creates a more inclusive work environment but also strengthens interpersonal relationships within the organization. The study added that when employees feel more socially connected, they tend to have higher motivation to achieve shared goals. These findings suggest that gamification has the potential to enhance the collective aspects of team performance in the workplace.

(Capatina et al., 2024) also made a significant contribution to explaining the influence of gamification on employee motivation and performance. According to their findings, well-designed gamification can cultivate a deeper sense of ownership and engagement among employees. Elements such as personalization and flexibility in gamification enable employees to feel more connected to their tasks, ultimately improving individual performance. Additionally, Nicholson noted that the success of gamification lies in how these elements are crafted to meet the specific needs and preferences of employees. These findings reinforce the view that gamification can serve as an effective tool to drive high performance by enhancing intrinsic motivation and creating more engaging work experiences. For a more detailed illustration of previous research findings, Table 1 provides a comparative summary of studies discussing the impact of gamification on employee motivation and performance. The table offers a systematic overview of the research context, primary focus, gamification elements utilized, and key outcomes achieved.

Table 1. Comparative Analysis of Previous Studies on Gamification and Employee Engagement

Researcher	Research Context	Primary Focus	Gamification Elements	Key Findings
(Justin M A & Joy, 2024)	General workplace settings	Intrinsic motivation	Rewards, challenges, social recognition	Increased intrinsic motivation, job satisfaction, and engagement by fulfilling psychological needs.
(Ikhide et al., 2023)	Task-specific work settings	Efficiency and productivity	Progress-based reward systems	Improved productivity and efficiency through immediate feedback and a dynamic work environment.
(Nivedhitha, 2023)	Teamwork settings	Social interaction	Leaderboards, team-based competitions	Fostered collaboration, camaraderie, and motivation through enhanced social interaction.
(Capatina et al., 2024)	Diverse organizational settings	Intrinsic motivation and work experience	Personalization, flexibility	Created a deeper sense of ownership and engagement by designing gamification to meet individual preferences.

2. Challenges in Implementing Gamification Across Sectors

According to (Wang et al., 2022), one of the major challenges in implementing gamification lies in ensuring that elements such as points, badges, and leaderboards are designed to align with the work context and user needs. These elements must be relevant to work processes to gain acceptance from employees. The researchers explained that when gamification elements fail to support core tasks, employees are likely to lose interest or perceive these elements as additional burdens. In certain sectors, especially those with high complexity like the technology sector, gamification elements often require adaptation to be implemented effectively. Moreover, poorly

designed gamification can lead to resistance from employees who feel that these elements do not add value to their work. Adapting and customizing gamification elements based on the specific needs of organizations and individuals becomes a critical factor in ensuring successful implementation.

(Alzahrani & Alhalafawy, 2023) highlighted another challenge in gamification: sustaining motivation, particularly when elements are not updated regularly. They observed that rewards such as points and badges may provide an initial boost, but their motivational effects often diminish over time. This challenge is even more pronounced in the technology sector, where employee expectations for innovation are high, and changes occur rapidly. Additionally, a lack of variation in gamification design can lead to user fatigue, ultimately reducing its effectiveness. The researchers also emphasized that periodic updates and adjustments to gamification elements can pose an additional burden on development teams, particularly in organizations with limited resources. Therefore, maintaining the appeal of gamification elements requires careful attention from all parties involved.

(Abril et al., 2024) identified technical challenges as another significant factor influencing the success or failure of gamification implementation. Inadequate technological infrastructure can serve as a major obstacle, particularly when the systems in use are incompatible with the designed gamification elements. The researchers further noted that poor technological integration can lead to issues in data collection or analysis of gamification outcomes, ultimately impacting its effectiveness. In sectors with limited technology budgets, these challenges become even more pronounced and often require creative solutions from developers. Furthermore, employees who lack sufficient training in using gamification platforms may struggle to adapt, reducing adoption rates. Insufficient training often creates a gap between the potential of gamification and the actual outcomes achieved through its use.

(Oke et al., 2023) provided insights focused on the importance of personalization in gamification design, particularly in addressing the diverse needs of employees. The researchers explained that gamification elements not tailored to individual preferences are often ineffective in driving engagement. When employees perceive these elements as irrelevant to their work, they are likely to lose interest in participating. (Oke et al., 2023) also noted that in organizations with diverse workgroups, differences in preferences become a challenge that must be addressed through flexible design approaches. Moreover, well-designed personalization can significantly enhance the overall work experience, as employees feel more connected to the goals of gamification. The researchers concluded that attention to the specific needs of employees is a key factor in creating a more meaningful gamification experience.

III. RESEARCH METHOD

This study was conducted using a case study approach with a qualitative method, enabling an in-depth understanding of specific phenomena within a particular context. In this case, the primary focus is on the implementation of a gamification-based digital platform as an effort to enhance employee engagement in the technology sector. The case study approach was selected because it effectively uncovers the intricate details associated with implementation and its impact within real organizational settings. By analyzing the internal dynamics of medium-sized technology companies, this research seeks to gain insights into how such platforms are implemented, including the challenges and opportunities encountered during the process. This approach also provides space to identify contextual factors influencing the success of gamification implementation, thereby offering a richer and more relevant understanding. Through this method, the study aims to make theoretical and practical contributions to understanding employee engagement through gamification-based technology.

The study was conducted in several medium-sized technology companies with approximately 200 employees, which had consistently adopted gamification-based digital platforms for over two years. The selection of companies meeting these criteria was guided by the research objective of observing the impact of gamification usage in organizations with mature implementation practices. Furthermore, technology companies were chosen due to their characteristics of being more innovative and adaptive to technological changes, thus enabling a deeper exploration of the dynamics surrounding the use of such platforms. Consequently, this research setting provides a relevant and representative context for understanding how gamification influences productivity, engagement, and employee behavior in organizations at the medium-growth stage. This research environment also reflects the real-world challenges and opportunities faced by companies in managing digital technology to achieve their business objectives.

Primary data for this study were obtained through ²⁹ in-depth interviews with 15 carefully selected informants to ensure the relevance of the information collected. The informants consisted of 10 employees actively using the gamification platform in their daily work activities and 5 managers directly responsible for the implementation and management of the platform. The informants were chosen using purposive sampling, a technique designed to select participants with direct involvement and a deep understanding of the phenomenon under investigation. In addition to interviews, supplementary data were collected in the form of internal company documents, such as platform implementation reports and user activity data recorded in the system. The combination of primary and secondary data provided a comprehensive analytical framework,

allowing the researcher to explore diverse perspectives and construct a holistic understanding of the impact and effectiveness of gamification in the workplace.

The research process began with preparatory steps, including an initial study of gamification concepts and their application in technology companies. The researcher also developed a detailed interview protocol to ensure all aspects of the study could be effectively explored. Once the preparatory phase was completed, data collection was carried out in two stages. The first stage involved in-depth interviews that were audio-recorded to maintain the completeness and accuracy of the information. The second stage involved collecting relevant company documents, such as implementation reports and platform activity data, which complemented the interviews. The data collected were then transcribed verbatim to ensure the accuracy and reliability of the information.

The data were subsequently organized into initial categories based on themes that emerged during the interviews. Data analysis was conducted using a thematic approach, involving steps such as data coding, pattern identification, and grouping codes into key themes. These themes were further elaborated upon through structured descriptive narratives to provide a comprehensive understanding of the research findings. To ensure the reliability of the results, the analysis was validated using the method of data triangulation. This method compared the findings from interviews, supporting documents, and platform activity data to ensure consistency across sources. The results of the study were ultimately presented in the form of narratives and tables summarizing the main themes, offering a clear and organized depiction of the findings. Figure 1 provides a visual representation of the research framework, facilitating an understanding of the study's flow and process.

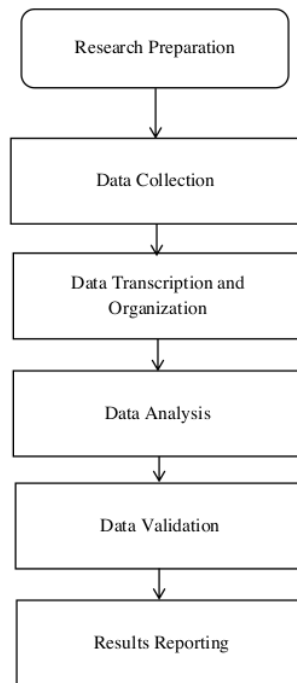


Figure 1. Research Framework

The analysis was carried out using a thematic analysis approach, comprising a series of systematic steps to ensure the integrity and accuracy of the research findings. The first step involved transcribing the interview data verbatim, aiming to produce detailed and precise records of the recorded conversations. The transcribed data were then reviewed and coded into initial units deemed relevant to the research objectives, ensuring that all critical information was efficiently organized. These initial codes were subsequently grouped into key themes based on patterns identified during data analysis. The themes were used to construct a thematic narrative that connected various findings and provided a comprehensive explanation of the relationships among themes. Table 2 summarizes the key themes derived from the analysis, including the enhancement of intrinsic motivation through engaging challenges provided by gamification, improvements in employee collaboration facilitated by better communication, and barriers such as technical difficulties and resistance to change that initially hindered the adoption of the platform. By combining an in-depth analytical approach with the visualization of results in table form, this study delivers holistic and accessible insights into the impact of gamification in workplace settings.

Table 2. Key Themes of the Analysis

Key Themes	Description
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Enhancement of Intrinsic Motivation	Gamification enhances motivation through engaging challenges.
Improved Collaboration	The platform facilitates communication and collaboration among employees.
Technological Barriers	Some employees face technical difficulties in accessing the platform.
Resistance to Change	Initial resistance to the introduction of new technology was observed.

IV. RESULT/FINDINGS AND DISCUSSION

A. Result

¹⁶ The implementation of gamification in the workplace demonstrated a significant increase in employee engagement levels and collaboration among team members. As illustrated in Figure 1, employee engagement levels experienced a positive shift following the adoption of the gamification platform. Prior to implementation, the majority of employees reported low to moderate engagement levels, with only a small fraction displaying high or very high engagement. After the implementation, there was a notable increase in the percentage of employees exhibiting high and very high engagement levels, indicating the success of gamification in enhancing intrinsic motivation within the workplace. This improvement highlights that gamification elements, such as engaging challenges and performance-based rewards, effectively fostered a more interactive work environment that catered to employees' psychological needs. By enhancing engagement, the organization was able to cultivate a more productive workplace atmosphere where employees felt valued and motivated to actively contribute to achieving organizational goals.

Figure 1 illustrates a comparison of employee engagement levels before and after the introduction of gamification. Prior to gamification, a significant proportion of employees fell into the "Very Low" and "Low" engagement categories, accounting for approximately 15% and 20%, respectively. However, following the adoption of gamification, these categories experienced a drastic decline, underscoring gamification's success in reducing low engagement levels. Conversely, the "High" and "Very High" categories saw substantial increases, with the "High" category recording the sharpest rise, exceeding 35%. These results suggest that gamification effectively motivated ¹¹ employees to engage more actively in their tasks. With this new distribution, organizations can ¹¹ anticipate improvements in overall productivity and job satisfaction. Figure 1 clearly demonstrates the positive impact of gamification on employee engagement across all categories.

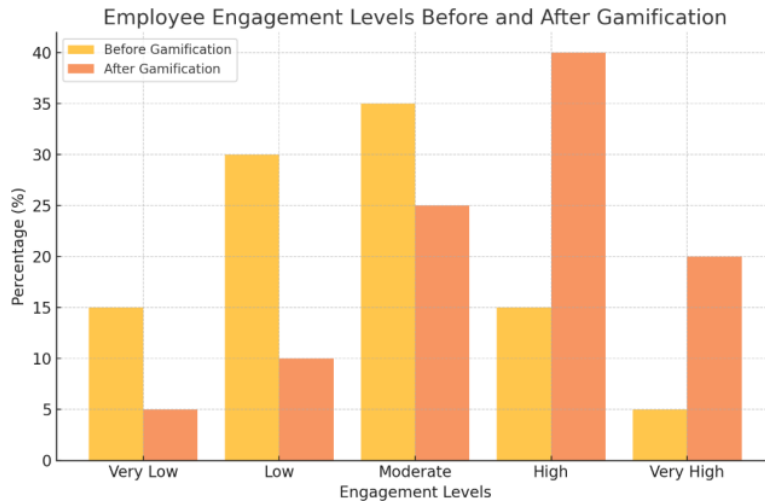


Figure 1. Employee Engagement Levels Before and After Gamification

This transformation underscores the critical role of gamification in driving intrinsic motivation by creating a more engaging and interactive work environment. Gamification elements such as rewards, challenges, and social interaction were well-received by employees, aligning with their interests. This approach not only enhanced employee engagement but also fostered a dynamic work atmosphere where individuals felt motivated to actively participate in various organizational activities. These findings align with previous research (Justin M A & Joy, 2024), emphasizing gamified work environments' psychological benefits in improving employee satisfaction and productivity. Furthermore, gamification was shown to stimulate healthy competition among employees, ultimately strengthening team collaboration. Consequently, the use of gamification provides added value not only for individuals but also for the overall success of the organization.

While the results are promising, several challenges were identified during the implementation process, as depicted in Figure 2. Key challenges included technological barriers, such as limitations in technological infrastructure and integration issues, accounting for 20% of the reported difficulties. Resistance to change among employees was also a significant challenge (15%), highlighting the need for improved training and communication during the adoption phase. Additionally, there was a need for personalization of gamification elements (20%) and alignment of these elements with daily work processes (25%). These findings underscore the importance of an adaptive approach to ensure that gamification is not only conceptually appealing but also contextually relevant to organizational workflows. Proactive efforts to minimize resistance through transparent communication and employee involvement during the planning stage can

help mitigate these obstacles. Therefore, these challenges must be systematically addressed to ensure the effective implementation of gamification.

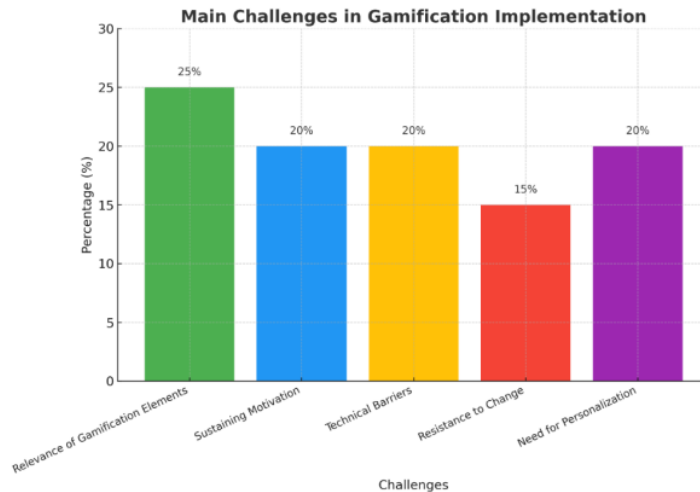


Figure 2. Key Challenges in Gamification Implementation

These findings indicate that while gamification clearly has the potential to enhance workplace engagement, addressing implementation challenges is crucial for achieving long-term success. Strategies such as targeted training, tailoring gamification elements to meet employee needs, and improving technological support can help overcome these barriers and ensure the platform's long-term effectiveness. Furthermore, involving employees in the design and evaluation process of the platform can foster a sense of ownership and acceptance of the technology. Data-driven analysis to identify specific user needs can also serve as a critical step in creating a more relevant and effective gamification experience. Equally important is the collaboration between various departments, such as information technology and human resources management, which can strengthen coordination and support a more holistic implementation.

V. DISCUSSION

The findings of this study reveal that the implementation of gamification significantly enhances employee engagement, particularly through elements such as rewards, challenges, and team collaboration. This is evident in the increase in "High" and "Very High" categories of employee engagement. These findings align with the research of (Bitrián et al., 2024), which demonstrated that game elements like rewards can boost satisfaction and motivation in technology-driven environments. Moreover, the results support the conclusions of (Behl et al., 2022), who highlighted that gamification platforms improve productivity by addressing needs for

autonomy, competence, and social relatedness. However, there are notable deviations from prior studies. For example, (Bizzi, 2023) emphasized that the success of gamification heavily depends on user acceptance, whereas this study identifies technical challenges and resistance to change as primary barriers to adoption. This underscores the necessity of a more adaptive approach in gamification design, as suggested by (Oke et al., 2023), to accommodate individual employee needs across diverse work contexts.

From a theoretical perspective, these findings corroborate ¹ SDT and Flow Theory, which emphasize the importance of autonomy, competence, and optimal experiences in fostering intrinsic motivation among employees. Gamification elements, such as skill-based challenges and immediate feedback, play a crucial role in creating a more meaningful and enjoyable work experience, as proposed by (Guay, 2022) and Csikszentmihalyi (1990). Practically, these findings are particularly relevant for organizations in the technology sector, where the demand for innovation often necessitates technology-based solutions to enhance employee engagement. By leveraging personalized gamification designs, organizations can foster a work environment that promotes collaboration and productivity.

Despite the overall positive outcomes, the study observed anomalies among certain respondents whose engagement did not improve significantly despite using the gamification platform. Potential reasons include resistance to technological changes that hindered gamification adoption and the lack of personalization in gamification elements, which may have failed to align with individual preferences. (Bizzi, 2023) also highlighted user acceptance of new technology as a critical determinant of gamification success. In this case, resistance and technical barriers appear to play significant roles. Further analysis is required to determine whether demographic factors, such as age or technological background, influenced these outcomes.

²³ Penelitian ini memiliki beberapa keterbatasan yang perlu diperhatikan. Pertama, ukuran sampel yang relatif kecil (15 informan) dapat memengaruhi generalisasi temuan ke populasi yang lebih luas, terutama mengingat kompleksitas perilaku manusia dalam konteks kerja. Kedua, penelitian ini dilakukan di perusahaan teknologi menengah, sehingga temuan mungkin tidak sepenuhnya berlaku untuk organisasi dengan skala yang berbeda atau sektor lain yang memiliki karakteristik budaya dan teknologi yang unik. Selain itu, metode kualitatif yang digunakan, meskipun memberikan wawasan mendalam tentang pengalaman dan perspektif karyawan, tidak memungkinkan pengukuran kuantitatif yang lebih terperinci mengenai dampak gamifikasi terhadap produktivitas dan keterlibatan. Hal ini juga membatasi kemampuan untuk mengidentifikasi pola hubungan sebab-akibat yang lebih luas. Keterbatasan ini memberikan peluang untuk penelitian lebih lanjut dengan pendekatan kuantitatif dan populasi yang lebih besar

guna memperkuat validitas hasil serta menghasilkan generalisasi yang lebih komprehensif. Penelitian lanjutan juga dapat mempertimbangkan variabel kontekstual lain, seperti perbedaan budaya organisasi atau tingkat adopsi teknologi, yang berpotensi memengaruhi hasil implementasi gamifikasi.

⁵ This study has several limitations that warrant consideration. First, the relatively small sample size (15 informants) may limit the generalizability of the findings to a broader population, particularly given the complexity of human behavior in the workplace. Second, the research was conducted in a mid-sized technology company, which means the results may not fully apply to organizations of different scales or sectors with unique cultural and technological characteristics. Additionally, the qualitative method employed, while providing in-depth insights into employee experiences and perspectives, does not allow for more detailed quantitative measurements of the impact of gamification on productivity and engagement. This also restricts the ability to identify broader causal patterns. These limitations present opportunities for future research. Quantitative approaches with larger populations could enhance the validity of the findings and provide more comprehensive generalizations. Future studies could also examine other contextual variables, such as differences in organizational culture or levels of technological adoption, that may influence the outcomes of gamification implementation.

Looking ahead, this study recommends the development of more flexible gamification strategies to address technical challenges and resistance to change, as highlighted by (Abril et al., 2024). These strategies should include the adaptation of gamification elements to align with individual preferences and organizational contexts, ensuring their relevance and effectiveness. Furthermore, involving employees in the planning stages and providing adequate training can enhance the acceptance of gamification, thereby facilitating the integration of technology into daily workflows. This approach is also crucial for fostering a sense of ownership among employees toward the platform, which in turn promotes active participation and engagement. Organizations are also encouraged to conduct periodic evaluations of gamification implementations to identify areas requiring improvement. Such evaluations enable iterative enhancements, ensuring that the platform remains effective and relevant over time. By adopting a comprehensive and sustainable approach, gamification has the potential to create a more dynamic, interactive work environment that supports organizational goals while simultaneously fostering employee engagement and productivity.

VI. CONCLUSION AND RECOMMENDATION

This study demonstrates that gamification is a promising strategy for enhancing employee engagement in the technology sector. By utilizing elements such as rewards, challenges, and

collaboration, gamification has proven effective in creating an interactive work environment that supports employees' intrinsic motivation. The significant increase in employee engagement levels following gamification implementation indicates that this approach successfully addresses psychological needs, such as autonomy, competence, and social relatedness, as proposed in SDT and Flow Theory. However, this study also identifies critical challenges that must be addressed, including technical barriers, resistance to change, and the need for personalization of gamification elements. Organizations must ensure that gamification platforms are designed to align with employees' preferences and technological readiness. This adaptive approach will enhance the acceptance and effectiveness of gamification in supporting organizational objectives.

For future research, it is recommended to explore further the contextual factors that influence the success of gamification, such as organizational culture and levels of technological adoption. Organizational culture may shape how gamification elements are received and utilized by employees, while the degree of technological adoption can determine how effectively gamification platforms can be implemented. Additional research is also needed to develop more flexible and sustainable gamification implementation models, taking into account the influence of social elements and personalization on team performance. Social elements, such as competition and collaboration, have the potential to strengthen employee engagement if applied strategically. Furthermore, the personalization of gamification elements can enhance the relevance and ownership employees feel toward their work processes. Longitudinal studies are also recommended to provide deeper insights into the long-term impacts of gamification on employee motivation, productivity, and well-being across various industrial sectors. Such long-term research is crucial for understanding the dynamics of behavioral changes among employees over time and ensuring the sustainability of gamification's benefits in an ever-evolving workplace environment.

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