Digital Collaborative Tools, Strategic Communication, and Social Capital: Unveiling the Impact of Digital Transformation on Organizational Dynamics

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The rapid advancement of digitalization has significantly impacted how organizations operate, with collaborative tools like Asana, Trello, and Slack becoming integral to fostering internal communication, collaboration, and social capital. Despite their widespread adoption, the comprehensive impact of these tools on organizational culture, employee engagement, and social capital remains underexplored. This study aims to bridge this gap by examining the potential of digital collaborative tools to enhance organizational social capital and exploring the role of strategic communication and digital inclusivity in this process. Utilizing a quantitative research approach, data were collected from 557 professionals through a survey distributed via LinkedIn. The questionnaire, designed with Likert scale closed-ended questions, focused on the utilization of collaborative tools and their perceived impact on communication, collaboration, and social capital within organizations. Multiple regression analysis was employed to test four hypotheses related to the effects of digital tool usage on organizational dynamics. The findings reveal that digital tools significantly enhance communication and collaboration within organizations, with the frequency and purpose of tool usage being key factors. Moreover, digital tool usage for networking and the quality of interactions facilitated by these tools were found to positively impact the development of social capital. However, challenges in integrating digital tools were shown to negatively affect this development, though technical support and training could mitigate these effects. Interestingly, the introduction of a 'social score' feature within digital tools was perceived positively, indicating its potential to further engage users and enrich organizational social capital. This study underscores the importance of adopting a strategic approach to implementing digital tools, emphasizing their role beyond operational efficiency to include the enhancement of social interactions and organizational culture. Recommendations include fostering digital tool usage for networking, providing adequate technical support and training, and exploring the integration of 'social score' features to incentivize engagement and collaboration.

1. BACKGROUND TO THE STUDY

As digitalization continues to advance, influencing work and life generally, organizations are increasingly leveraging collaborative tools like Asana, Trello, and Slack to foster internal communication and collaboration. These platforms and tools have opened new avenues for enhancing communication, collaboration, and ultimately, social capital within and without these organizations [1]. While these tools have been embraced widely across various sectors, understanding their profound effects on organizational culture, employee engagement, and the broader concept of social capital remains an area ripe for exploration [2]. The discourse around these digital tools, as highlighted by Sundararaja et al. [3], suggests a nuanced understanding of the role of strategic communication and digital inclusivity in leveraging technology to build robust social networks within organizations.

However, despite the widespread adoption of these tools, there remains a significant gap in understanding their comprehensive impact on organizational social capital—a concept crucial for enhancing community engagement and promoting a collaborative organizational culture. This gap is particularly evident when considering the insights provided by Acree [4], which emphasizes the critical role of Chief Communications Officers (CCOs) in steering organizational communication strategies. Also, Mossberger [5], highlights the disparities in broadband access and the importance of digital inclusivity for community engagement. These perspectives underscore the necessity of not only implementing digital tools but also strategically utilizing them to build and measure social capital within the workforce, stakeholders, and the organization generally.

The lack of a systematic approach to integrating these digital tools within the broader framework of organizational social capital constitutes a major corporate hurdle for organizations, especially in the face of growing necessity for remote working [6,7]. There is a missed opportunity in harnessing these tools for more than just operational efficiency; they could also play a pivotal role in enhancing social

interactions, employee engagement, and ultimately, the organization's social capital. Moreover, the proposition by Acree [4] of the CCO's role in managing an organization's internal and external communication landscape points to a broader implication for how digital tools could be optimized to support these efforts. More so, it is essential to develop a comprehensive framework that integrates the use of these collaborative tools with metrics that can provide insights into the social dynamics and performance of its users within organizations and the broader community.

Hence, this study seeks to bridge these gaps by exploring the potential of digital collaborative tools in enhancing organizational social capital, examining the role of strategic communication as advocated by Acree [4], and addressing the digital inclusivity concerns raised by Mossberger [5]. By doing so, it aims to provide a nuanced understanding of how these tools can be better leveraged to foster a more engaged and collaborative organizational environment, thereby contributing to the broader discourse on digital transformation's impact on community engagement and social capital.

This study seeks to address these challenges by exploring the impact of digital transformation on social capital within organizations, particularly through the lens of collaborative tools by investigating how these tools are currently utilized within organizational settings, the gaps in leveraging these tools for enhancing social capital, and the potential for a 'social score' feature to provide a more nuanced understanding of social and professional engagement. By doing so, the research intends to fill a critical gap in the understanding of digital tools' role in organizational dynamics and offer a pathway towards more strategic and effective use of technology in building social capital. Hence, the aim of this study is to explore the impact of digital transformation on enhancing social capital within organizations through the utilization of collaborative tools like Asana, Trello, and Slack; investigate the potential for a 'social score' feature to reflect users' social or professional performance, and provide actionable recommendations for leveraging these tools to foster a more connected and productive organizational environment. The objectives of the study are:

1. Assess how digital tools facilitate communication and collaboration within organizations.

2. Analyse the relationship between the use of project management and communication tools on organizational culture, employee engagement, and the development of social capital.
3. Investigate the challenges organizations face in integrating digital tools into their processes and how these challenges affect social capital.
4. Explore the feasibility and potential impact of introducing a 'social score' feature within these tools to measure and enhance users' social or professional engagement.
5. Provide recommendations for organizations on optimizing the use of collaborative tools to enhance social capital, including the innovative use of a 'social score' feature.

1.1 Research Hypotheses

1. H1: The use of digital collaborative tools (Asana, Trello, Slack) significantly enhances communication and collaboration within organizations.
2. H2: There is a positive relationship between the use of project management and communication tools and the development of social capital within organizations, positively impacting organizational culture and employee engagement.
3. H3: Challenges in integrating digital tools into organizational processes negatively impact the development of social capital within organizations.
4. H4: The introduction of a 'social score' feature within digital collaborative tools positively influences users' social or professional engagement within organizations.

2. LITERATURE REVIEW

Digital transformation represents a comprehensive shift in how organizations leverage technology, culture, and processes to fundamentally alter their business operations and customer interactions. This transformation, along with adopting new technologies encompasses, a strategic overhaul that affects the entire organizational structure and operational ethos. Digital transformation initiatives are aimed at enhancing efficiency, agility, and customer value, thereby unlocking new avenues for growth and competitiveness. Approaching digital transformation is unique for each organization,

influenced by their specific goals, challenges, and the technological landscape they operate within [8].

At the heart of successful digital transformation efforts is the focus on reimagining business models and processes from the ground up, moving away from traditional paradigms towards a more integrated, agile, and experimental approach. This shift is crucial for fostering innovation, improving customer experiences, and driving fundamental growth at the organizational level. The transition from traditional business processes to digitized operations (digitization) and the strategic use of digital technologies to change business models (digitalization) are critical steps in this journey [9,10]. Digital transformation goes beyond the project level, impacting the entire organization and necessitating a shift in mindset towards collaboration and experimentation.

Social capital according to Milana and Maldaon [11] refers to the networks of relationships among people who work within or are connected to an organization. These networks are a valuable asset because they facilitate cooperation, exchange of information, and influence across various stakeholders. In an organizational context, social capital is crucial for enhancing communication, collaboration, and fostering a culture of trust and mutual support, thus playing a significant role in achieving strategic objectives, driving innovation, and improving overall organizational performance.

Schwetner [12] avers that digital transformation initiatives foster new ways of working and enhance communication and collaboration, which have the potential to significantly impact an organization's social capital. For instance, the adoption of collaborative tools like Asana, Trello, and Slack can transform how teams interact, share information, and work together on projects, potentially enhancing the organization's social fabric and collective efficacy. However, cite argues that leveraging digital transformation for social capital enhancement is not without its challenges, considering that successful digital transformations require coordinated action across all organizational domains, from customer experience to internal processes. More so, cite McCarthy et al. [13] alludes that leadership plays a critical role in managing digital transformation for enhancing social Capital and the CEO, C-suite executives, are solely responsible for ensuring alignment, commitment, and the

strategic integration of digital initiatives with organizational goals. In addition, Tidd [14] and Olaniyi [15] opines that the rapid technological change and the pressure to keep up with innovation is an essential requirement for organizations today, as depicted by the COVID-19 pandemic which accelerated the adoption of digital technologies and highlighted the importance of digital transformation in operational efficiency and innovation, and as a result, organizations are now required to adapt to technological change as digital transformation becomes the catalyst for enhancing productivity and collaboration.

2.1 The Role of Collaborative Tools in Organizations

Studies have shown that the adoption of collaborative tools such as Asana, Trello, and Slack enhance communication and collaboration amongst co-workers in organizations. These tools facilitate a culture of open dialogue, knowledge sharing, and innovative thinking, crucial for modern organizational productivity, growth and success. Also, these tools are central to building communities within organizations, enabling employees to connect with one another, communicate, and work together more effectively as it supports the free flow of information; allowing for the formation of new ideas that contribute to a collaborative culture of innovation. In addition, these tools break down departmental silos, enable focused collaboration, promote cross-functional teamwork, enhance knowledge sharing and creativity within the organization. With the help of features like badges, endorsements, and upvotes which enable employees to showcase their skills and share expertise, an interconnected ecosystem that supports collaboration, productivity and innovation is created Clark [16] Olaniyi [17] Sakulwichitsintu [18]. However, Clark [16] avers that the integration of social technologies into day-to-day work reveals a more detailed and multifaceted environment. Despite the rapid adoption of these tools, traditional communication methods like email, phone calls, and texting remain prevalent, but there is a clear trend towards greater integration of social technologies, especially in companies that have adopted message-based platforms, which indicates that a lot of organizations are leaning towards real-time collaboration tools. More so, this shift has led to more efficient communication within teams as well as across organizational levels, highlighting the tools' potential to drive

significant changes in employee-to-employee communication, thereby increasing the relevance of social tools across various operational processes, such as procurement and supply-chain management [19].

Babu [20] avers that the utilization of these collaborative tools in various organizations have altered the means of communication and collaboration, thus offering a plethora of opportunities to enhance organizational efficiency and innovation. In other words, these tools have significantly impacted the dynamics of teamwork, making it easier for team members to work together, regardless of physical location. By providing platforms for real-time document collaboration, project management, and communication, they reduce the need for back-and-forth emails and meetings, streamlining workflows and speeding up decision-making processes. According to Khan et al. [21] the adoption of collaborative tools leads to a noticeable increase in productivity by enabling real-time updates and communications amongst workers. These tools help teams stay updated on projects, and reduce the time spent to attend status meetings and read email updates. Also, the ability to share information instantly enables faster modifications to project schedules and priorities, thereby keeping the workflow moving smoothly. In addition, these collaborative platforms foster a culture of transparency and openness, where team members can easily share ideas, feedback, and progress, thus encouraging a sense of unity and cooperation and making it easier for teams to tackle complex problems together this providing a framework where brainstorming and idea development can occur without physical boundaries, allowing diverse inputs that can lead to innovative solutions [22,23].

Real-time collaboration minimizes the risk of errors and miscommunications that often occur with traditional methods of communication and sharing documents as it allows every team member access to the latest version of documents and project plans hence reducing the chances of working with outdated information [24,25,26]. However, in contrast, Olaniyi et al. [27] implies that with the increase in digital collaboration, there is an escalating concern regarding data privacy and security and information management and governance. In response to this challenge, some studies have suggested that organizations must ensure that these tools comply with data protection regulations and all the sensitive information is securely managed [28,29,30]. More so, the constant inflow of updates, messages, and notifications can lead to information overload for some employees hence It is crucial for organizations to establish best practices for using these tools, such as setting clear guidelines on communication channels and ensuring that notifications are managed effectively to avoid overwhelming team members [31]. While these tools offer numerous benefits, achieving widespread adoption and engagement among employees can be challenging [32]. Some may resist changing their work habits or may not be technologically adept. In response, Olaniyi and Omubo [33] suggests that organizations need to invest in training and change management strategies to demonstrate the value of these tools and how they can make employees' work easier and more effective. Moreover, ensuring that new collaborative tools seamlessly integrate with existing systems and workflows is essential, as poor integration can lead to friction in adopting these tools, and employees may find it cumbersome to switch between different platforms for different tasks [34,35,36]. Therefore, to maximize the benefits while mitigating the challenges, organizations must adopt a strategic approach to the implementation of collaborative tools [37]. This includes selecting tools that align with the organization's specific needs, fostering a culture that values open communication and collaboration, and providing ongoing support and training for employees [38]. By doing so, organizations can leverage these tools to foster a more engaged, productive, and innovative workforce.

2.2 Strategic Communication and Organizational Culture

Due to the advanced level of digital transformation globally, strategic communication has become increasingly pivotal for organizations to navigate the complexities of online and offline engagement with their stakeholders, underscored by a shift towards leveraging social media and other digital platforms to foster relationships and craft organizational narratives that resonate across diverse audiences [39,40,41]. The significance of strategic communication (a key aspect of community engagement) lies in its ability to shape organizational culture and narratives in a manner that aligns with the company's mission, values, and goals [42]. In this context, the CCO plays a critical role in steering the organization's

communication strategies to ensure consistency and coherence across all channels of stakeholders engagement [43]. This responsibility extends to fostering an inclusive culture that not only attracts diverse talent but also retains it by effectively communicating the organization's commitment to diversity, equity, and inclusion [44,45].

The adoption of digital platforms for strategic communication offers a dual advantage: the ability to reach a wider audience more efficiently and the opportunity to engage in two-way communication that enhances stakeholder involvement [46]. Universities, for instance, utilize social media for stakeholder engagement, employing strategies that focus on recruiting prospective students, retaining current students and staff, and reporting on activities and achievements [47]. This thematic approach demonstrates the strategic use of digital communication to fulfill specific organizational objectives while maintaining an ongoing dialogue with key stakeholders.

Furthermore, the use of digital media and other forms of community engagement medium for marketing, CSR communication, and stakeholder engagement illustrates how companies are navigating the digital landscape to communicate commercial information and promote their business and organizational values [44,48]. Platforms like Facebook, LinkedIn, YouTube, Instagram, and Twitter serve as critical channels for disseminating information and engaging with audiences [49,50]. The strategic selection of platforms and content plays a crucial role in ensuring effective reach and engagement with target audiences.

2.3 Putnam's Civic Community Concept

This study leverages Putnam's civic community concept, which outlines the profound impact of digital transformation on enhancing social capital within organizations, focusing on community engagement and collaboration through the use of digital tools [51,52]. Putnam emphasizes the importance of networks, norms, and trust in fostering collaborative and engaged communities [51]. Within the context of digital transformation, this framework suggests that digital tools and platforms can significantly enhance the social capital of organizations by facilitating new forms of community engagement and collaboration [53]. Digital collaborative tools such as Asana, Trello, and Slack embody the potential to create

and enhance networks that are central to Putnam's concept of social capital [54]. These platforms enable organizations to foster internal communication and collaboration beyond traditional boundaries, creating virtual communities that mirror the civic communities Putnam describes [55,56]. By facilitating easier and more efficient communication, these tools can enhance the collective efficacy of an organization, thereby enriching its social capital.

Moreover, trust and shared norms are critical components of social capital in Putnam's framework [51]. In the context of digital transformation, these elements translate into the trust users place in digital platforms and the shared norms that develop around their use within organizations. Thus, the widespread adoption of these digital tools necessitates a culture of trust in the technology itself and in the organization's commitment to leveraging these tools responsibly and inclusively [57,58].

Building on Robert Putnam's influential conceptualization of social capital, this paper proposes a theoretical framework for examining the impact of digital transformation on enhancing social capital within organizations [51]. Putnam's framework, which highlights the significance of networks, norms, and trust in fostering community engagement and collaboration, serves as a foundation for understanding how digital tools and platforms can contribute to or detract from social capital in the context of modern organizations [59].

At the core of this framework is the notion of Digital Collaborative Networks and tools such as Asana, Trello, and Slack which have the potential to create virtual equivalents of Putnam's civic communities, bridging geographical and organizational divides to enable new forms of connection and interaction [54]. These digital networks, characterized by their size, connectivity, and the diversity of connections they facilitate, mirror the social networks that Putnam identifies as essential to social capital. By fostering frequent and meaningful interactions across various levels and departments within an organization, digital networks can significantly contribute to the shared goals, collective problem-solving capabilities, and innovation that are indicative of high social capital [54,59].

Another critical component of this framework is Trust and Digital Ethos which encompasses not only confidence in the security and efficacy of

digital tools but also faith in the organization's ethical use of these technologies [60,61]. The digital transformation of an organization challenges traditional notions of trust, requiring employees to navigate new digital interfaces and organizational leaders to ensure that digital strategies are transparent and ethically sound [62]. The level of trust employees place in digital platforms and the organization's digital strategies can significantly impact their willingness to share information, collaborate, and engage in the digital community, thereby affecting the organization's social capital [63]. The development of Digital Norms and Practices constitutes the third pillar of this theoretical framework. As organizations integrate digital tools into their operations, shared norms and practices regarding the use of these tools emerge, shaping the digital culture of the organization [64]. These norms influence how information is shared, how inclusively digital spaces operate, and how collaboration is facilitated within the digital environment. The inclusivity of digital practices, ensuring that all members of the organization have access and the ability to participate fully, is crucial for the development of a digital community that contributes positively to social capital [65].

3. RESEARCH METHODS

This study employs a quantitative research methodology to investigate the impact of digital transformation on community engagement and enhancing social capital within organizations. Data for this study were collected using a survey distributed to professionals who work in remote or hybrid environments. A total of 557 respondents participated in the survey, providing valuable insights into the use of digital collaborative tools and their impact on organizational dynamics. The respondents were identified and contacted through LinkedIn, following a careful assessment of their profiles. Criteria for selection included the relevance of their job description, experience, and the nature of their organization to ensure they were suitable participants for the study. The primary instrument for data collection was a questionnaire, designed to gather quantitative data on the use of digital collaborative tools and their perceived impact on communication, collaboration, and social capital within organizations. The questionnaire consisted of closed-ended questions based on the Likert scale, allowing respondents to express their degree of agreement or disagreement with a series of statements related to the study's

objectives. This format was chosen to facilitate the analysis of responses and to ensure consistency and comparability of data across participants. The responses collected from the questionnaire were analysed using multiple regression analysis. This statistical technique was utilized to test the research hypotheses and to determine the strength and direction of the relationships between the use of digital collaborative tools (independent variables) and measures of social capital, including communication, collaboration, and employee engagement within organizations (dependent variables). The multiple regression analysis allowed for the assessment of the impact of multiple independent variables simultaneously, providing a comprehensive understanding of the factors that contribute to the enhancement of social capital through digital transformation Confidentiality and anonymity of the respondents were strictly maintained, with data being used solely for the purposes of this research.

4. RESULTS

For Hypothesis 1, regarding the impact of digital tools on communication and collaboration within organizations, the mean scores indicate a positive perception among respondents. The mean score for the statement "Digital tools have improved communication within the team" is 4.2 with a standard deviation of 0.8, demonstrating a high level of agreement among participants. Similarly, for the statement "Digital tools have affected collaboration positively," the mean score is 4.1 with a standard deviation of 0.9. Both statements exhibit negative kurtosis (-0.5 and -0.4, respectively), indicating a flatter distribution than a normal distribution, and negative skewness (-0.8 and -0.7, respectively), suggesting that the distribution of responses is skewed towards higher agreement.

On Hypothesis 2 which explored the development of social capital through the use of digital tools, the responses also lean positively, the mean score for "Tools contributed to building relationships within the organization" is 4.0 with a standard deviation of 0.85, and for "Tools influenced sense of belonging and engagement," the mean score is 3.9 with a standard deviation of 0.95. These responses also show a tendency towards agreement, with negative kurtosis (-0.6 and -0.3, respectively) and skewness (-0.6 and -0.5, respectively), indicating a flatter and left-skewed distribution.

Table 1. Descriptive analysis

Question	Mean	Standard Deviation	Kurtosis	Skewness
H1: Impact on Communication and Collaboration				
Digital tools have improved communication within the team	4.2	0.8	-0.5	-0.8
Digital tools have affected collaboration positively	4.1	0.9	-0.4	-0.7
H2: Development of Social Capital				
Tools contributed to building relationships within the org.	4.0	0.85	-0.6	-0.6
Tools influenced sense of belonging and engagement	3.9	0.95	-0.3	-0.5
H3: Challenges Integrating Digital Tools				
Faced challenges integrating digital tools	2.7	1.2	0.2	0.4
Challenges affected relationship and collaboration	2.5	1.3	0.5	0.5
H4: 'Social Score' Feature				
Interested in a 'social score' feature	3.8	1.1	-1.0	0.1
'Social score' would increase engagement	3.7	1.1	-0.9	0.2

Table 2. Multiple linear regression analysis summary

Variable	Beta	Standard Error	T-test	P-value	R	R²
Model for H1: Communication and Collaboration					0.75	0.57
Frequency of Digital Tool Usage	0.25	0.05	4.75	<0.01	0.62	0.39
Purpose of Digital Tool Usage	0.18	0.05	3.89	<0.01	0.60	0.36
Model for H2: Social Capital					0.73	0.53
Extent of Digital Tool Usage for Networking	0.23	0.05	4.42	<0.01	0.66	0.43
Quality of Interactions Facilitated by Digital Tools	0.21	0.05	4.54	<0.01	0.64	0.41
Model for H3: Challenges Integrating Digital Tools					0.69	0.48
Integration Challenges	-0.15	0.03	-4.47	<0.01	-0.51	0.26
Technical Support and Training	0.14	0.03	4.42	<0.01	0.59	0.35
Model for H4: 'Social Score' Feature					0.70	0.49
Interest in a 'social score' feature	0.22	0.05	4.84	<0.01	0.64	0.40
Perceived Impact of 'Social Score'	0.19	0.04	4.57	<0.01	0.62	0.38

Hypothesis 3 (H3) addresses challenges in integrating digital tools. The results show a lower level of agreement with the statements related to challenges, with mean scores of 2.7 and 2.5 for "Faced challenges integrating digital tools" and "Challenges affected relationship and collaboration," respectively. The standard deviations are higher (1.2 and 1.3, respectively), indicating a wider dispersion of responses. Both statements show positive kurtosis (0.2 and 0.5, respectively) and skewness (0.4 and 0.5, respectively), suggesting a more peaked distribution with a tendency towards disagreement.

For Hypothesis 4 (H4), regarding the interest in and perceived impact of a 'social score' feature, the mean scores are 3.8 and 3.7 for "Interested in a 'social score' feature" and "'Social score' would increase engagement," respectively, with both having a standard deviation of 1.1. These results indicate a moderate level of interest and belief in the potential of a social score feature to enhance engagement. The kurtosis for these statements is negative (-1.0 and -0.9, respectively), indicating flatter distributions, while the skewness is slightly positive (0.1 and 0.2, respectively), showing a slight tendency towards agreement.

Model for H1

- R (correlation coefficient) = 0.75 and R² (coefficient of determination) = 0.57 indicate a strong positive correlation and that approximately 57% of the variance in communication and collaboration can be explained by the frequency and purpose of digital tool usage.
- Frequency of Digital Tool Usage: A significant positive impact (Beta = 0.25, p < 0.01) suggests that as the frequency of digital tool usage increases, so does the quality of communication and collaboration. The high t-test value (4.75) confirms the robustness of this finding.
- Purpose of Digital Tool Usage: Also shows a significant positive effect (Beta = 0.18, p < 0.01) on communication and collaboration, with a t-test value of 3.89, reinforcing the importance of not just how often tools are used, but also how purposefully

Model for H2

- R = 0.73 and R² = 0.53, indicating a strong positive correlation and explaining 53% of the variance in social capital development through digital tool usage.
- Extent of Digital Tool Usage for Networking: Demonstrates a significant positive relationship (Beta = 0.23, p < 0.01) with social capital, indicating that more extensive use of digital tools for networking purposes is associated with higher social capital.
- Quality of Interactions Facilitated by Digital Tools: This factor also significantly positively affects social capital (Beta = 0.21, p < 0.01), suggesting that higher quality interactions via digital tools contribute to social capital.

Model for H3

- R = 0.69 and R² = 0.48, showing a strong relationship and explaining 48% of the variance in challenges faced during the integration of digital tools.
- Integration Challenges: Has a significant negative impact (Beta = -0.15, p < 0.01) on the successful integration of digital tools, indicating that as integration challenges increase, the effectiveness of digital tool integration decreases.

- Technical Support and Training: Contrarily, shows a significant positive impact (Beta = 0.14, p < 0.01), suggesting that providing adequate technical support and training can mitigate the negative effects of integration challenges.

Model for H4

- R = 0.70 and R² = 0.49, indicating a strong positive correlation and that 49% of the variance in interest and perceived impact of a 'social score' feature can be explained by the variables analyzed.
- Interest in a 'Social Score' Feature: Shows a significant positive relationship (Beta = 0.22, p < 0.01) with the interest in and potential adoption of a social score feature, indicating that higher interest is associated with a positive perception of its impact.
- Perceived Impact of 'Social Score': Also significantly positively affects the perception of the feature's impact on engagement (Beta = 0.19, p < 0.01), suggesting that seeing the social score as beneficial is likely to increase engagement within organizations.

H1: The Use of Digital Collaborative Tools Significantly Enhances Communication and Collaboration Within Organizations

The descriptive analysis for Hypothesis 1 showed high mean scores for the improvement of communication (4.2) and collaboration (4.1) within teams due to digital tools, indicating a positive perception among respondents. This finding is supported by the results of the multiple linear regression analysis, which revealed a significant positive relationship between the frequency and purpose of digital tool usage and the quality of communication and collaboration within organizations (Beta values of 0.25 and 0.18, respectively, both p < 0.01). The regression model's R-value of 0.75 and R² of 0.57 further indicate a strong correlation and explain a substantial proportion (57%) of the variance in communication and collaboration outcomes.

This alignment between the descriptive and regression analysis outcomes suggests that not only do professionals perceive digital tools as beneficial for enhancing communication and collaboration, but these perceptions are quantitatively supported by the significant positive impacts of how frequently and purposefully these tools are used. Essentially,

the more frequently and purposefully digital tools are utilized, the greater the improvement in communication and collaboration, corroborating the hypothesis and highlighting the critical role of these tools in facilitating effective organizational interactions.

> H2: There is a Positive Relationship Between the Use of Project Management and Communication Tools and the Development of Social Capital Within Organizations, Positively Impacting Organizational Culture and Employee Engagement

The descriptive results for Hypothesis 2 indicated a generally positive view of digital tools' role in building relationships within organizations (mean score of 4.0) and influencing a sense of belonging and engagement (mean score of 3.9). These findings suggest that respondents believe digital tools contribute to the development of social capital. Supporting these perceptions, the multiple linear regression analysis showed a significant positive impact of the extent of digital tool usage for networking (Beta = 0.23, $p < 0.01$) and the quality of interactions facilitated by digital tools (Beta = 0.21, $p < 0.01$) on the development of social capital. The regression model for social capital yielded an R-value of 0.73 and an R^2 of 0.53, indicating a strong correlation and that approximately 53% of the variance in social capital development can be explained by these factors.

These results validate Hypothesis 2, demonstrating a clear quantitative link between the use of digital tools for networking and the quality of interactions they facilitate, and the development of social capital within organizations. This aligns with the descriptive findings that highlighted a positive perception of digital tools in fostering relationships and engagement, thereby contributing to a stronger organizational culture and enhanced employee engagement. The evidence suggests that the strategic use of digital tools not only supports operational objectives but also plays a crucial role in building and maintaining the social infrastructure of organizations.

> H3: Challenges in Integrating Digital Tools Into Organizational Processes Negatively Impact the Development of Social Capital Within Organizations

Descriptive analysis for Hypothesis 3 indicated a lower level of agreement among respondents regarding the integration challenges of digital tools (mean scores of 2.7 and 2.5), suggesting that while there are recognized challenges, they might not be overwhelmingly negative in the perception of the participants. This nuanced view is crucial for understanding the context in which these tools are deployed and the obstacles encountered. The regression analysis further elaborates on this by showing a significant negative relationship between integration challenges and the effectiveness of digital tool integration (Beta = -0.15, $p < 0.01$), indicating that as challenges in integrating digital tools increase, the potential for developing social capital decreases. Conversely, technical support and training show a positive impact (Beta = 0.14, $p < 0.01$), suggesting that adequate support can mitigate some of the negative impacts of integration challenges. The model for this hypothesis had an R-value of 0.69 and an R^2 of 0.48, meaning that nearly half of the variance in the challenges faced during digital tool integration can be explained by these factors.

These results, in relation to the descriptive findings, suggest that while challenges in integrating digital tools are acknowledged, their impact can be moderated with proper support and training. This indicates a pathway for organizations to not only anticipate and manage these challenges but also to leverage support mechanisms to enhance the integration process, thereby minimizing the negative impact on social capital development.

> H4: The Introduction of a 'Social Score' Feature Within Digital Collaborative Tools Positively Influences Users' Social or Professional Engagement Within Organizations

The descriptive analysis showed moderate interest and optimism regarding the potential of a 'social score' feature to enhance engagement, with mean scores of 3.8 and 3.7 for interest in and perceived impact of such a feature, respectively. This indicates a positive but cautious perspective from respondents about integrating gamification elements like social scores into digital tools. The regression analysis supports this optimism, showing a significant positive relationship between interest in a 'social score' feature and the perception of its impact on engagement (Beta values of 0.22 and 0.19, respectively, both $p < 0.01$). The R-values for this model are 0.70 (interest) and 0.62 (perceived impact), with R^2 values of 0.49 and 0.38,

respectively, suggesting that these factors explain a substantial proportion of the variance in engagement levels.

These findings corroborate Hypothesis 4, indicating that there is not only a theoretical interest in 'social score' features but also a measurable positive expectation of their impact on enhancing engagement within organizations. The alignment between the descriptive and regression outcomes suggests that such features, when well-designed and implemented, could be a valuable addition to digital tools, potentially fostering higher levels of social and professional engagement.

5. DISCUSSION AND RECOMMENDATION

The first hypothesis posited that the use of digital collaborative tools significantly enhances communication and collaboration within organizations. The findings confirmed this hypothesis, with descriptive analysis showing high mean scores for improvements in communication and collaboration due to digital tool use. These results were further supported by regression analysis, which demonstrated significant positive impacts of the frequency and purpose of digital tool usage. This aligns with the discourse highlighted by Sundararaja et al. [3], emphasizing the nuanced understanding of strategic communication and digital inclusivity in leveraging technology to build robust social networks. The results suggest that digital tools are not merely operational utilities but are pivotal in fostering a collaborative organizational culture, enhancing employee engagement, and thus contributing significantly to the organization's social capital.

The study's second hypothesis explored the relationship between digital tool usage and the development of social capital within organizations. Findings from this segment of the research underscored a strong positive correlation, with digital tools facilitating networking and high-quality interactions that significantly contribute to social capital. These outcomes resonate with the perspectives offered by Milana and Maldaon [11], who define social capital as the networks of relationships among people connected to an organization. The evidence from this study suggests that digital tools effectively extend these networks, enriching the organizational social fabric and echoing Schwetner [12] 's assertions on digital transformation initiatives fostering new ways of

working and enhancing communication and collaboration.

The third hypothesis addressed the challenges in integrating digital tools into organizational processes and their impact on social capital. The findings highlighted a nuanced perspective among respondents regarding these challenges, with regression analysis revealing that integration challenges negatively impact the effectiveness of digital tool integration. However, technical support and training present mitigating factors. This aspect of the findings calls attention to the insights provided by Acree [4], emphasizing the critical role of Chief Communications Officers in steering organizational communication strategies amidst digital transformation challenges [66].

6. CONCLUSION

Finally, the study examined the potential impact of introducing a 'social score' feature within digital collaborative tools. The descriptive and regression analyses indicated moderate interest and optimism about such features' potential to enhance engagement. This innovative approach to measuring social or professional engagement within digital platforms could offer a new dimension to fostering an engaged and collaborative organizational environment, potentially reflecting a more nuanced understanding of social and professional interactions as advocated by Mossberger [5] in the context of digital inclusivity.

Based on the insights of this study, the paper recommends that organizations should adopt a strategic approach to the implementation of digital tools, ensuring that these tools are aligned with the company's overarching goals and objectives. Also, organizations should encourage the use of digital tools for networking purposes both within and outside the organization. This can be facilitated through the creation of internal social networks, communities of practice, or discussion forums that enable employees to connect, share knowledge, and collaborate on projects. In addition, organizations should provide adequate technical support and training for their employees.

Finally, this study strongly recommends the implementation of 'Social Score' Features on these collaborative tools. Considering the interest in and perceived positive impact of 'social score' features on engagement, organizations should explore the integration of gamification elements

into digital tools. Such features can incentivize participation, collaboration, and knowledge sharing, thereby enhancing engagement and social capital. However, it is essential to design these features thoughtfully to ensure they align with organizational culture and values and do not lead to unintended negative consequences.

Future research could delve deeper into the long-term effects of digital tool integration on organizational culture and employee engagement, exploring the sustainability of these impacts. Additionally, investigating the broader implications of 'social score' features within various organizational contexts could provide further insights into their utility and effectiveness in enhancing social capital and engagement.

CONSENT

Throughout the research process, ethical considerations were meticulously observed. Respondents were informed about the purpose of the study, and written consent was obtained before their participation.

ETHICAL APPROVAL

The study's protocols were designed to adhere to ethical standards and guidelines for research involving human subjects, ensuring that the rights and well-being of participants were protected.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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