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**RESEARCH ARTICLE**

# Impact of Collaborative Technology on Work Performance: A Study of IT Women Rejoining Post Maternity Leave

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## Abstract

This research examined the impact of Collaborative Technology (CT) its precursors (Access to Networks and Mentorship (ANM), Social Support (SS), and Work–Family Balance (WFB)) on organisational culture, organisational effectiveness, and work performance. This study focused on women employees in IT sector in Karnataka who have recently rejoined to work after their maternity leave. It employed a quantitative approach and collected data from, 395 respondents using survey. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to simultaneously assess the measurement and structural aspects of the model. Convergent and discriminant validity analysis confirmed that the indicators of ANM, SS, WFB, CT, OC and OE and WP were reliable in measuring their corresponding constructs and discriminating their respective constructs. The structural model evaluated the relationship between ANM, SS, WFB and CT and further to OC, OE and WP. The strength of these relationships was measured by effect size ($f^2$) and IPMA determined the relative importance and performance of constructs with OE, OC and CT being identified as major drivers of WP. The results of the study demonstrate the value of integrating technology with supportive organisational resources to promote efficient and seamless collaborative work processes and unambiguous communication. This study is useful for organisations aiming to improve technology adoption in a manner that supports organisational culture and performance outcomes. It also provides a foundation for further research on the long-term and cross-cultural impacts of collaborative technology across diverse industries and settings.

*Keywords:* collaborative technology, organisational culture, organizational effectiveness, work-family-balance, work performance

## Introduction

In the modern digital world, organisations increasingly utilise collaborative technologies (CT) to promote innovation, interconnectedness, and efficiency across diverse work environments (Adornes & Muniz, 2019; Gao, 2025). The integration of collaborative technologies has become a strategic move to promoting communication, knowledge sharing, and collaborative problem-solving in different environments (Cherbonnier et al., 2025; De Vreede et al., 2016). Studies have shown that the adoption of collaborative technologies in different environments promotes employee engagement, learning, and adaptation in dynamic market environments (Alyami et al., 2023; Przegalinska et al., 2025). Notably, collaborative technologies have become a significant contributor to the development of organisational culture in different environments. This has transformed the way people interact and deliver value in virtual and hybrid environments (Deschenes, 2024; Beer & Mulder, 2020).

Access to networks and mentorship is an essential antecedent to successful collaborative technology adoption, which cultivates digital literacy, knowledge sharing, and trusting professional relationships (Amin et al., 2022; Gao, 2025). Research has shown that employees with high access to networks and mentorship tend to exhibit high levels of adaptability in embracing collaborative technologies (Abdelrahman et al., 2025; AlNuaimi et al., 2022). Additionally, mentorship encourages a culture of guidance and innovation in the adoption of collaborative technologies to permeate all levels in the organisation (Homayoun et al., 2024; Leso et al., 2023). This is essential in creating foundational elements in determining organisational readiness to adopt technological transformation (Borodako et al., 2022; Wu et al., 2024).

Social support is also an important enabler in facilitating technological collaboration. This includes its impact on psychological safety, motivation, and intention to participate in digital collaboration (Al-Omar et al., 2019; Medina-Garrido et al., 2023). When employees perceive strong organizational support, they are more encouraged to adopt the effectively use collaborative technology (Sasmaz & Fogarty, 2023; Niemann et al., 2022). This social capital helps to create a sense of cohesion in an organisation, which in turn helps to create a culture that values inclusiveness (Abebe & Assemie, 2023; Amoa-Gyarteng & Dhliwayo, 2024). Organisational culture is also very closely related to digital collaboration in an organisation. This includes its impact on employees' perception and usage of digital collaboration (Wijethilake et al., 2023; Tadesse Bogale & Debela, 2024).

Work-family balance has also emerged a key feature in the adoption and usage of collaborative technologies (Stephen et al., 2024; Kavya, et al., 2025). Flexible work arrangements facilitated by collaborative technologies help in balancing both personal and professional obligations in a better way, thereby enhancing satisfaction and efficiency at work (Irfan et al., 2023; Kangas et al., 2023). However, striking a balance between digital engagement and personal life is yet another significant challenge in the adoption and usage of collaborative technologies, as excessive engagement in digital platforms can cause technostress and burnout (Sadaf et al., 2026; Rasool et al., 2022). Collaborative technologies can also have a positive impact on the well-being of employees (Maraqa et al., 2025; Zaitouni et al., 2024).

Access to networks and mentorship, social support, and work-family balance collective exert a synergistic effect that facilitates the adoption and successful use of collaborative technology (Manzoor et al., 2025; Amankona et al., 2025). In this context, the present study aims to explore how these antecedents affects the adoption of collaborative technology,

how it affects organisational culture and organisational effectiveness, and how these organisational dimensions can lead to better work performance in the technology-enabled work environment. This type of collaboration based on the use of technology contributes to the organizational culture, as it encourages shared values, transparency, and adaptability (Tran et al., 2025; Bilderback & Kilpatrick, 2024). Moreover, the existing evidence suggests that organizations integrating collaborative technologies have greater chances of reaching a higher degree of innovation capability, organisational effectiveness, and long-term performance outcomes (Lam et al., 2021; Sadaoui et al., 2025). Thus, the integration of human, technological and cultural dimensions is the key to organisational success in the digital age.

## Literature Review

### Antecedents of Collaborative Technology

Even though collaborative technologies have been suggested as important catalysts of organizational performance, their procurement is prone to a plethora of antecedent conditions, which encompass network access, mentorship, social support, and work-life balance (Sun, 2024; Dirks & Wanda, 2022). The literature indicates that exposure to strong professional networks and mentorship relationships positively influence the adoption of collaborative technologies (Chen et al., 2025; Hsu & Shiue, 2017). These social structure components catalyze sharing of resources, building trust relationships, and developing employees' capabilities to effectively utilize collaborative technologies to achieve work coordination, collaborative decision-making, and innovation. Nonetheless, limited research examined how these antecedent conditions and collaborative technologies can interact to change the organizational culture/organizational performance (Borodako et al., 2022; Gao, 2025). This study tries to address this gap by examining collaborative technologies as a critical component of this process.

There is substantial evidence that social support is positively related to technology-mediated collaboration. Most studies suggest that employees can collaborate more efficiently by receiving collaboration technology and social support on the part of their supervisors and other employees in order to promote information sharing and overall effectiveness (Kong et al., 2023; Mayweg-Paus et al., 2021). Moreover, social support helps to reduce frustration and boost psychological security to enable workers to freely engage with technology-enabled collaboration systems (Beer & Mulder, 2020; Dirks & Wanda, 2022). The prior research findings have focused on the general organizational context; however, the relationship between social support, technology-enabled collaboration, and specific aspects of the organisation, such as culture, efficacy, and performance, remain unexplored particularly in technology-intensive work environments (Trenerry et al., 2021; Chen et al., 2025).

The role of work-family balance (WFB) in the adoption of collaborative technologies has also attracted employees' attention. Previous researches showed that employees who maintain work-family balance are more productive and, are better to use collaborative technologies effectively to synchronise the work, thereby enhancing organizational productivity (Khan, 2025; Alkhodary, 2023). Conversely, poor work-family balance may create stress among employees negatively affecting their output (Sadaf et al., 2026; Raffi et al., 2020). However, the indirect role of work-family balance in shaping the culture of an organisation through collaborative technologies has not been investigated (Verma et al., 2024; Hunsaker, 2021). Based on these theoretical and empirical insights, the following hypotheses are proposed:

*H1*: Access to Networks and Mentorship (ANM) has a positive and significant effect on Collaborative Technology

(CT).

*H2:* Social Support (SS) has a positive and significant effect on Collaborative Technology (CT).

*H3:* Work–Family Balance (WFB) has a positive and significant effect on Collaborative Technology (CT).

**Collaborative Technology and Organisational Outcomes**

The impact of CT in developing organisational culture is well established. CT facilitates open and transparent communication, shared values, and collective problem-solving, hence facilitating the cultural foundations that are vital in efficient efficacy (Abebe & Assemie, 2023). Previous research point out that organisations effectively utilizing CT are more flexible, innovative and enthusiastic than others. In other words, CT helps in developing positive cultural attributes in an organisation (Leso et al., 2023; Manzoor et al., 2025). Additionally, the effects of CT on various aspects of organisational performance, particularly streamlining the workflow, decision-making, and strategies alignment, have already been described (AlNuaimi et al., 2022; Wu et al., 2024). Nonetheless, there is hardly any research available that tries to integrate culture and effectiveness in an integrative model with CT. This study tries to address this limitation by exploring the importance of CT as a conduit to its predecessors and consequences within an organisation of the body of literature provides the basis for following hypothesis:

*H4:* Collaborative technology (CT) has a positive and significant effect on Organisational Culture (OC).

*H5:* Collaborative technology (CT) has a positive and significant effect on Organisational Effectiveness (OE).

**Contextual Dynamics for Post-Maternity IT Professionals and Work Performance**

The effect of work performance in technology-enabled settings is also becoming more influenced by collaborative technology especially in the way it has an indirect effect on organisational culture and organisational effectiveness. Collaboration Technology based collaboration enhances coordination, communication, and knowledge integration that subsequently enhance cultural alignment and operational effectiveness in organisations (Abebe & Assemie, 2023). Empirical evidence indicate that organisational culture with a high level of trust, openness, and knowledge sharing helps to increase the engagement and productivity of employees, and organisational effectiveness, which is manifested in the effective utilisation of resources and strategic alignment also supports performance results (Leso et al., 2023; Manzoor et al., 2025).

These dynamics are especially important in the case of IT women employees, who are returning back to the workplace after maternity leave. Technology mediated-flexible work practices facilitate a more seamless reintegration into professional roles giving workers an opportunity to balance personal commitments and performance levels. The extent to which collaborative technology supports this transition through its interaction with organisational culture and effectiveness remains unexplored. Previous research has mostly concentrated on the independent impacts of culture and effectiveness on performance without considering the mediating role of collaborative technology (AlNuaimi et al., 2022; Wu et al., 2024).

By establishing the following hypothesis, this study provides a deeper insight into the role of digital work practices in driving performance in modern organisational contexts by integrating antecedent factors with collaborative technology and organisational outcomes. This integrated approach is relevant in hybrid work settings, where technology functions as boyh a collaboration enabler and a performance-sustaining mechanism, thereby addressing a critical gap in the

current literature.

*H6:* Organisational Culture (OC) has a positive and significant effect on Work Performance (WP).

*H7:* Organisational Effectiveness (OE) has a positive and significant effect on Work Performance (WP).

## Research Methods

A quantitative research design was adopted to investigate how collaborative technology and its antecedents change the organisational culture, organisational effectiveness, and work performance. Primary data were gathered by a cross-sectional survey of women employees working in the IT sector in Karnataka who had recently returned to their work after maternity leave, and were employed at the operational level. The area was chosen to embrace organisations that are technologically endowed and work in a hybrid work set up environment hence offering a suitable context to research on technology-enabled collaboration.

A purposive non-probability sampling technique was employed, as it allows the selection of respondents who possess specific characteristics relevant to the study, namely women IT professionals returning to work after maternity leave. This method ensures a contextual relevance and enhances the validity of insights related to technology use, work-life balance, and organisational dynamics. A total of 395 valid responses was received meeting standard SEM sample adequacy requirements. For confirmatory factor analysis, a 35-item instrument requires at least 350 cases with a subject to item ratio of at least 15:1, which is higher than the recommended 10:1 ratio. The adequacy of the sample size was further supported by power analysis of multiple regression with three predictors (ANM, SS, and WFB) at 0.05, power = 0.80, and small effect size (f 2 = 0.02). Moreover, SEM guidelines indicate that a sample size above 200 is good, and 500 is excellent (Kline, 2015). Therefore, the sample size of 395 guarantees strong estimation of small to medium effects in PLS-SEM.

The data analysis was conducted using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS. Initial testing of the measurement model was carried out using convergent validity. Indicator loadings, composite reliability, and average variance extracted were used to ensure that constructs such as ANM, SS, WFB, CT, OC, OE, and WP were measured reliably. This was followed by the discriminant validity test using the Fornell-Larcker criterion which established that each construct was empirically distinct. Path coefficient estimation was then used to assess the hypothesised relationships using structural model to test the hypothesis and the effect size ($f^2$) was used to measure the strength of each predictor. Moreover, it was followed by Importance-Performance Map Analysis (IPMA) which determined the relative importance and performance of key constructs which provided the practical insight into priority areas to increase work performance.

Ethical issues were strictly followed during the research. All the participants were informed about the purpose of the research and the informed consent was obtained prior to data collection. Participation was voluntary and respondents were assured of confidentiality and anonymity, with no any personally identifiable information was collected. No data were utilized in any other way other than academically as per the normal human-subject research standards. Overall, the proposed methodological approach ensures rigor, reliability, and contextual relevance in evaluating the conceptual framework related to IT women employees returning from maternity leave.

## Results

Figure 1 demonstrates the hypothesised relationships among access to networks and mentorship, social support, work–family balance, collaborative technology, organisational culture, organisational effectiveness, and work performance. Path coefficients indicate the strength and direction of relationships, with collaborative technology acting as a mediating construct between antecedents and organisational outcomes.

**Figure 1**

*Analysed Model of Proposed Study*

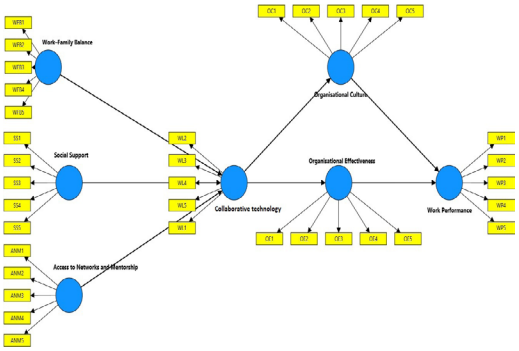



**Table 1**

*Results of Convergent Validity*

| Item | Details | loadings |
|---|---|---|
| Access to Networks and Mentorship | | |
| ANM1 | I have access to professional networks that support my leadership growth. | 0.790 |
| ANM2 | I receive guidance and advice from mentors who help me improve as a leader. | 0.847 |
| ANM3 | My organisation provides opportunities to connect with influential professionals. | 0.790 |
| ANM4 | Networking with peers and seniors has enhanced my leadership capabilities. | 0.800 |
| ANM5 | Mentorship has played a significant role in advancing my career as a leader. | 0.807 |
| **Alpha = 0.866, CR = 0.871, AVE = 0.651** | | |
| Termini et.al., 2021; Christou, et.al., 2017; Haynes, et.al., 2008 | | |
| Organisational Culture | | |
| OC1 | Our organisation values teamwork and collaboration. | 0.746 |
| OC2 | The culture here encourages open communication and trust. | 0.729 |
| OC3 | Employees are motivated to share ideas and knowledge freely. | 0.756 |
| OC4 | Continuous learning and improvement are promoted by the organisation. | 0.708 |
| OC5 | Inclusiveness and fairness are embedded in our organisational culture. | 0.733 |
| **Alpha = 0.788, CR = 0.791, AVE = 0.540** | | |
| Bilderback & Kilpatrick, 2024; Wu, et. al., 2024; Wijethilake, et. al., 2023 | | |
| Organisational Effectiveness | | |
| OE1 | The organisation achieves its strategic goals efficiently. | 0.795 |
| OE2 | Resources are used effectively to meet organisational objectives. | 0.757 |
| OE3 | Employees adapt quickly to changes in the work environment. | 0.798 |
| OE4 | The organisation delivers high-quality services/products to stakeholders. | 0.803 |
| OE5 | The organisation maintains a good reputation for performance. | 0.827 |
| **Alpha = 0.856, CR = 0.859, AVE = 0.634** | | |
| Kataria, et al., 2013; McMahan & Sprague, 2024 | | |
| Social Support | | |
| SS1 | I receive emotional encouragement from my family that strengthens my leadership. | 0.711 |
| SS2 | My colleagues provide assistance when I face challenges at work. | 0.755 |

| | | |
|---|---|---|
| SS3 | I can rely on friends or peers for advice and guidance in my leadership role. | 0.747 |
| SS4 | My organisation provides resources and support that make my leadership easier. | 0.730 |
| SS5 | I feel supported by both my family and workplace in pursuing leadership responsibilities. | 0.748 |
| **Alpha = 0.793, CR = 0.797, AVE = 0.545** | | |
| Sasmaz, & Fogarty, 2023 | | |
| Work–Family Balance | | |
| WFB1 | I am able to balance the demands of my leadership role with my family responsibilities. | 0.790 |
| WFB2 | My work schedule allows me to fulfil both professional and personal obligations. | 0.805 |
| WFB3 | I rarely experience conflict between my leadership duties and family needs. | 0.801 |
| WFB4 | I feel that my organisation supports me in managing both work and family roles. | 0.748 |
| WFB5 | My family responsibilities do not interfere with my effectiveness as a leader. | 0.783 |
| **Alpha = 0.846, CR = 0.854, AVE = 0.618** | | |
| Žnidaršič & Bernik, 2021; Frone, 2003; Llanes-Ordóñez, et.al., 2024 | | |
| Collaborative technology (CT) | | |
| CT1 | Collaborative technology helps me balance work and personal responsibilities effectively | 0.796 |
| CT2 | Collaborative technology provides easy access to professional networks and resources | 0.802 |
| CT3 | Collaborative technology enables social support from colleagues and supervisors for task completion | 0.800 |
| CT4 | Using collaborative technology improves my work performance and efficiency | 0.817 |
| CT5 | Collaborative technology strengthens organisational culture and effectiveness through teamwork and transparency | 0.754 |
| **Alpha = 0.853, CR = 0.857, AVE = 0.63** | | |
| Gao, 2025; Hsu & Shiue, 2017 | | |
| Work Performance | | |
| WP1 | I consistently meet the performance standards expected in my role. | 0.755 |
| WP2 | I complete my work tasks on time and with accuracy. | 0.773 |
| WP3 | I contribute effectively to the success of my team. | 0.760 |
| WP4 | I demonstrate initiative and creativity in my job. | 0.770 |
| WP5 | I exceed expectations in achieving my performance targets. | 0.748 |
| **Alpha = 0.819, CR = 0.857, AVE = 0.58** | | |
| Przegalinska et.al., 2025; Maraqa et.al., 2025 | | |

Table 1 depicts the result of convergent validity for all of the study's constructs. All indicator loadings are higher than the suggested level of 0.70, and Cronbach's alpha and composite reliability values are also higher than 0.70, which shows that the data is very consistent. The average variance extracted (AVE) values also range from 0.540 to 0.651, which is higher than the minimum acceptable level of 0.50. These results show that the measurement model is reliable and has convergent validity for all constructs.

## Measurement Model Assessment

Convergent validity was assessed using outer loadings, Composite Reliability, and Average Variance Extracted. As recommended by Hair et al. (2016), the reliability of the measurement indicators is achieved when outer loadings exceed 0.708. In this study, all items loadings range from 0.708 (OC4) to 0.847 (ANM2), indicating acceptable indicator reliability. The values of composite reliability for all constructs exceeded the recommended threshold value of 0.70 (Chin, 1998). The values ranged from 0.791 (Organisational Culture) to 0.871 (Access to Networks and Mentorship). Therefore, this study achieved the reliability of the constructs. The values of average variance extracted for all constructs were higher than the threshold value of 0.50. The values ranged from 0.540 (Organisational Culture) to 0.651 (Access to Networks and Mentorship). Therefore, this study achieved the reliability of the constructs.

**Table 2**

*Discriminant Validity Using the Fornell and Larcker*

| Construct | ANM | OC | OE | SS | CT | WP | WFB |
|---|---|---|---|---|---|---|---|
| Access to Networks and Mentorship | **0.807** | | | | | | |
| Organisational Culture | 0.172 | **0.735** | | | | | |
| Organisational Effectiveness | 0.340 | 0.187 | **0.796** | | | | |
| Social Support | 0.244 | 0.172 | 0.236 | **0.738** | | | |
| Collaborative technology (CT) | 0.322 | 0.256 | 0.319 | 0.297 | **0.794** | | |
| Work Performance | 0.491 | 0.377 | 0.431 | 0.430 | 0.440 | **0.761** | |
| Work–Family Balance | 0.260 | 0.187 | 0.218 | 0.191 | 0.253 | 0.400 | **0.786** |

*Source:* Authors Calculation via SmartPLS

Table 2 confirmations discriminant validity based on the Fornell and Larcker (1981) standard. The table shows the square roots of the AVE values, which are in bold along the diagonal. The values are 0.807 for ANM, 0.735 for OC, 0.796 for OE, 0.738 for SS, 0.794 for CT, 0.761 for WP, and 0.786 for WFB. These diagonal values are higher than the inter-construct correlations for each case. This means that each construct has more variance with its indicators than with other constructs in the model. These results clearly show that the discriminant validity is good. Moreover, the table also shows the mean and standard deviation values for all constructs.

Table 3 confirmations the results of the structural model evaluation using the coefficient of determination ($R^2$), predictive relevance ($Q^2$), path coefficients ($\beta$), and effect sizes ($f^2$), as suggested by Hair et al. (2016). Table 3 shows that the endogenous construct Work Performance had a $R^2$ value of 0.276. Cohen (1988) rules say that this value shows a high level of explained variance. The $Q^2$ value for Work Performance is 0.097, which is higher than zero. This means that the structural model has good predictive relevance.

## Structural Model Assessment

**Table 3**

*Results of R2 and Q2 values*

| Endogenous latent variable | R-square | $Q^2$ predict | Interpretation |
|---|---|---|---|
| Work Performance | 0.276 | 0.097 | Substantial |

**Table 4**
*Hypotheses Testing and Effect Size*

| Hyp | Path | Beta | STDEV | **T value** | **P values** | **Supported** | **f-square** | **Interpretation** |
|---|---|---|---|---|---|---|---|---|
| H1 | ANM → CT | 0.231 | 0.046 | 5.077 | 0.000 | Yes | 0.058 | Small |
| H2 | OC → WP | 0.307 | 0.037 | 8.312 | 0.000 | Yes | 0.125 | Medium |
| H3 | OE → WP | 0.373 | 0.036 | 10.248 | 0.000 | Yes | 0.186 | Medium |
| H4 | SS → CT | 0.211 | 0.040 | 5.220 | 0.000 | Yes | 0.050 | Small |
| H5 | CT → OC | 0.256 | 0.046 | 5.620 | 0.000 | Yes | 0.070 | Small |
| H6 | CT → OE | 0.319 | 0.041 | 7.791 | 0.000 | Yes | 0.113 | Medium |
| H7 | WFB → CT | 0.153 | 0.043 | 3.573 | 0.000 | Yes | 0.026 | Small |

*Source:* Authors Calculation via SmartPLS

Table 4 represents the results of hypothesis testing, where all seven hypothesised relationships were supported at the 1% significance level ($p < 0.01$). Specifically, H1: ANM → CT was significant ($\beta = 0.231$, $t = 5.077$, $p = 0.000$, $f^2 = 0.058$, small effect). H2: OC → WP was also significant ($\beta = 0.307$, $t = 8.312$, $p = 0.000$, $f^2 = 0.125$, medium effect). H3: OE → WP showed the strongest path ($\beta = 0.373$, $t = 10.248$, $p = 0.000$, $f^2 = 0.186$, medium effect). Likewise, H4: SS → CT was significant ($\beta = 0.211$, $t = 5.220$, $p = 0.000$, $f^2 = 0.050$, small effect). For leadership-related outcomes, H5: CT → OC ($\beta = 0.256$, $t = 5.620$, $p = 0.000$, $f^2 = 0.070$, small effect) and H6: CT → OE ($\beta = 0.319$, $t = 7.791$, $p = 0.000$, $f^2 = 0.113$, medium effect) were supported. Finally, H7: WFB → CT was significant ($\beta = 0.153$, $t = 3.573$, $p = 0.000$, $f^2 = 0.026$, small effect). Overall, the model has acceptable levels of explanatory power, predictive relevance, and statistically significant structural relationships, which confirm the hypothesised relationships between Collaborative technology (CT), organisational culture, organisational effectiveness, work-family balance, and work performance.

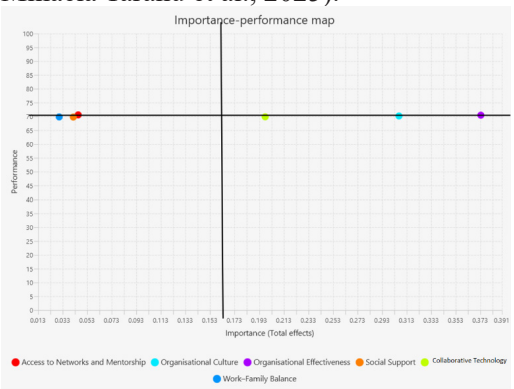
### Importance-Performance Map Analysis (Ipma)

Figure 2 displays the Importance-Performance map analysis of each construct in relation to Work Performance. As shown in the results, Organisational Effectiveness emerged as the most influential predictor of Work Performance. As shown by the results where Organisational Effectiveness has an importance index value of 0.373 and a performance index value of 70.455. Organisational Culture has been identified as having a strong influence on Work Performance, as indicated by Organisational Culture having an importance index value of 0.307 and a performance index value of 70.166. Collaborative technology (CT) has been identified as having a moderate influence on Work Performance, as indicated by Collaborative technology (CT) having an importance index value of 0.198 and a performance index value of 69.862. On the other hand, Access to Networks and Mentorship (importance = 0.046, performance = 70.564), and Social Support (importance = 0.042, performance = 69.776) have low importance values. However, their performance values are similar to other constructs. Finally, Work-Family Balance (importance = 0.030, performance = 69.829) has the lowest importance value. This construct has a small impact on performance; therefore, it plays a supporting role rather than a dominant one. Based on the IPMA results, it is recommended to focus on developing the organisation's effectiveness, culture, and collaborative technology (CT), which have high leverage potential to improve work performance.

## Discussions and Implications

The findings of this study underscore the critical role of collaborative technology (CT) and its antecedent's access to network and mentorship (ANM), social support (SS),

and work-family balance (WFB) in shaping organizational culture, organizational effectiveness, and work performance. The results of convergent and discriminant validity confirmed that all constructs were measured reliably and validly, while the structural model for work performance ($R^2$ = 0.276) indicates substantial explanatory power of the proposed framework. The findings demonstrate that organisational effectiveness is the most significant predictor of work performance (β = 0.373, medium effect), followed by organisational culture (β = 0.307, medium effect). These results are consistent with prior literature emphasising the importance of resource utilisation, strategic goal alignment, and a collaborative culture of trust in improving employee outcomes (Kataria, et al., 2013; Wu, et al., 2024). In addition, the findings reveal that CT significantly enhances organisational culture and effectiveness (H5 & H6), indicating that technology-enabled collaboration promotes communicative clarity, cooperative engagement, and efficient workflow processes (Gao, 2025; Mihaela Taranu et al., 2025).




Though CT demonstrates a moderate direct effect on work performance, this effect is greater when it is mediated by the organisational culture and organisational effectiveness. This validates the mediating effect of CT in decoding antecedent conditions to performance outcomes. The observed relatively small effects of ANM, SS, and WFB on CT, however, should be further interpreted. Although these antecedents are highly relevant theoretically, they might not be direct performance drivers, but enabling conditions, that is they are realised indirectly through the usage of technology and organisational processes. Specifically, the less significant impact of WFB can be attributed to the dual nature of pressures experienced by workers, as they have to balance between work and family matters and, therefore, cannot afford to be active users of collaborative technologies. On the same note, although social support facilitates involvement, the effect can be diluted through informal interactions, instead of directly affecting formal technological performance.

Moreover, these smaller effect sizes can be impacted by other new developments like technostress and digital fatigue where constant use of digital platforms may cause cognitive overload and decreased performance. These might mediate between antecedents and CT, diluting their observable effect despite conceptual significance. It is specifically applicable in the context of hybrid and post-maternity work, when staff members can encounter increased pressure of adjustment, and at the same time get used to working digitally.

According to the IPMA results, the managerial emphasis should be placed on the organisational effectiveness, organisational culture of collaboration, and the most effective use of the CT, which have the greatest influence on work performance. Investments in mentorship, networking and social support continue to be critical but should be considered as enabling factors that make the overall technological and organisational ecosystem stronger. In practice, organisations must develop comprehensive, technology-based interventions to integrate social support systems, mentorship programs, and flexible work structures to improve both culture and performance. Moreover, the alignment of cultural values to strategic technology adoption can result in long-term organisational performance improvements. Academically, the research fills a significant

gap by elucidating the inter-relationships between CT antecedents and organisational outcomes among IT women employees after they have gone on maternity leave, contributing to the body of knowledge on technology-facilitated performance outcomes in modern organisations.

## Conclusion

This study investigated the influence of collaborative technology (CT) and its main precursors (network and mentorship accessibility, social support, and work-family balance) on organisational culture, organisational effectiveness, and work performance. The findings highlight the significance of CT as a mediator between supportive resources and organisational outcomes, which reveals the influence of workplace collaborative technology on CT-facilitated interpersonal collaboration, especially among IT women employees on maternity leave.

The impact of organisational effectiveness and organisational culture on work performance was significant, thus validating the argument that organisational work performance depends on smooth processes, congruent goals, and a culture of trust. The study found that CT positively impacted culture and organisational effectiveness, thus validating the argument that technology can be a social and structural enabler of collaboration, interdependence, and integration of CT-based collaboration. Resources suggested for access and support, such as networking, mentorship, social support, and work-family balance, are of less direct impact on work performance, yet critical to the adoption of CT. These resources and performance outputs point to the importance of organisational culture and processes as a conduit to translating supportive resources into work performance.

The research also focuses on the practical implications of the study, which have been emphasized. The study shows the necessity of organizations finding a balance between investing in collaborative technology, strategic policy, mentorship, and work-life balance systems in order to realize the potential of CT. If organizations use technology and provide organizational balance support goals, it will lead to sustainable improvements in performance and cultural outcomes. The study also contributes to the literature on the interfaces between technology, the interpersonal and organizational contexts, and the performance of employees. The study reveals the significance of the integration of collaborative technology, which has been enhanced in organizational and social practices, on the efficiency and productivity of employees in the workplace. This study has also provided organizations with a great opportunity in using technology, which is based on organizational and human practices.

## Limitations

The study has some limitations that need to be addressed. The cross-sectional design limits causal inference as well as the ability to monitor changes with time on the adoption of collaborative technology and its results. Second, purposive non-probability sampling restricts the extrapolation of the results to other population segments besides IT women employees in Karnataka who had just come back to work after maternity leave. Third, self-reported data can cause common method bias, social desirability effects. Fourth, the model fails to categorically introduce moderating variables, e.g. technostress or digital fatigue, which could have an impact on the strength of relationships observed. Lastly, the research concentrates on the chosen antecedents, which may be missing other pertinent organisational or technological influences that may impact the performance outcomes.

### Future Scope of Study

A basic understanding of the role of

collaborative technology (CT) and its precursors (network access and mentorship, social integration, and work-family balance) in influencing certain facets of organisational culture, effectiveness, and employee work performance has been established. However, tremendous scope exists to further this understanding in several dimensions. In this study, attention was focused specifically on IT women employees in Karnataka who are returning to work after maternity leave. Further research can be conducted to take this study to its next level in cross-cultural and cross-industry contexts to see if similar relationships are established in different contexts. Comparative studies in different industries like healthcare, manufacturing, and education can provide valuable insights into differences in contexts with regard to CT adoption and its organisational consequences. Lastly, longitudinal research may address the gap in terms of the sustainability of the impact of CT on organizational culture and performance, particularly in terms of empirical research on the temporal dimensions and sustainability of technology-sustained collaborative work. Further, future research may include other moderating and mediating factors, which may include support for digital transformation, employee resilience, and technostress, in order to address the dimensionality of the conditions in which CT effectiveness may be observed. Moreover, in consideration of the growing importance of AI and collaborative technology, future research may include topics on how emerging technology may impact work-life balance, social support, and professional networking, and to what extent this may influence workplace culture and performance. All these may provide valuable extensions to the research in order to contribute to practice and advance the subject.

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**Availability of Data and Materials**

Data will be available on request to the first author.

**Conflict of Interest**

I hereby declare that there is no conflict of interest in relation to this manuscript.

**Ethical Compliance**

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**Plagiarism and AI Use**

The manuscript is free from plagiarism and improper use of AI-generated content. Use of Open AI tools was limited to language support and has not replaced original scholarly contribution.

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