

Empowering Excellence: The Role of Sustainable Leadership towards Flourishing of Software Professionals in IT Organizations

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Abstract

Information Technology organizations (ITOs) face the challenge of maintaining system reliability and ensuring business continuity through sustainable practices, while also promoting flourishing. While the complexity of IT environments is well-recognized, the pandemic underscored the urgent need to prioritize employee well-being in this sector. This research investigates the effect of sustainable leadership practices on flourishing and the role of psychological empowerment as mediator among software professionals in ITOs. The hypothesized model was tested in ITOs in India using a quantitative approach, employing judgmental and stratified sampling techniques. A total of 300 software professionals participated in the study. The analysis utilized Hayes' process macro to examine both direct and indirect relationships amid the constructs. The findings reveal that sustainable leadership practices have a significant impact on flourishing, and this connection is significantly mediated by psychological empowerment. Sustainable leadership fosters flourishing among software professionals by enhancing their psychological empowerment, which strengthens autonomy, competence, and meaningful work. This, in turn, boosts motivation, engagement, and overall performance while improving employees' social, emotional, and psychological well-being. The relationship between sustainable leadership, psychological empowerment, and flourishing is vital for building a productive and resilient IT workforce. The study explores the theoretical implications of its findings, which support both Self-Determination Theory (Ryan & Deci, 2000) and Social Exchange Theory (Blau, 1964). These theories highlight the critical role of leadership support in enhancing engagement, productivity, and organizational culture. By demonstrating how sustainable leadership practices foster psychological empowerment and employee well-being, the study addresses a gap in the existing

literature and aligns with the AMO framework as well as prior research (Hendriks et al., 2020; Choi, 2021). It also provides practical insights for Human Resource Managers and policymakers in IT organizations, based on the study's results.

Keywords: Sustainable Leadership, Psychological Empowerment, Flourishing, Informational Technology Organizations, Software Professionals

Introduction

The notion of “Commonweal” which emphasizes a greater purpose for society and the world, forms the basis of sustainability as outlined in the United Nations’ Sustainable Development Goals (SDGs) (United Nations, 2015). In addressing the major challenges of the 21st century — such as climate change, technological disruptions, cybersecurity threats, and economic inequality (Elahi et al., 2022; Aust et al., 2020), sustainable strategies and leadership (Abid et al., 2023) are crucial for guiding IT organizations toward achieving long-term, sustainable performance (Ahsan and Khawaja, 2024; Javed et al., 2021). For instance, the snowballing frequency of cybersecurity breaches and system vulnerabilities, driven by rapid technological advancements and the growing reliance on digital infrastructure, highlights the urgent need for robust IT systems to address emerging threats (Nisha, 2022; Xu et al., 2020). Moreover, The COVID-19 pandemic highlighted the crucial role of digital transformation, making remote work, e-commerce, and online services essential for the functioning of society. As the likelihood of future pandemics and other global disruptions grows (EMRO WHO, 2022), ITO’s must adapt to new challenges, making it essential for software professionals to operate within their boundaries under

stressful and indeterminate conditions (Nisha, 2022; Iftekhar et al., 2021). This scenario emphasizes the importance of prioritizing flourishing of software professionals, as their mental and emotional health directly influences performance, innovation, and resilience in the ITO’s (Qaiser and Abid, 2022; Ilyas et al., 2022).

The overwhelming challenges posed by the pandemic, the primary goal of organizations in the ITO’s was to ensure business continuity and support their employee to flourish while maintaining high performance (Peethambaran and Naim, 2024; De Kock et al., 2021). However, it was not only customers and clients who required attention, but the employees themselves were also facing significant stress and uncertainty. The IT sector, much like healthcare, was affected by rapid shifts in work conditions, isolation, and heightened pressure, especially in such a volatile and high-stakes environment (Petrella et al., 2021; Sun et al., 2021). Recent studies, highlighted how software professionals experienced high levels of anxiety due to changes in work conditions, remote working, and the general uncertainty brought about by the pandemic (Digby et al. (2021),

Research indicates that factors like sustainable practices, organizational support, access to adequate resources, and resilience can help mitigate the negative impact on employees’ mental health and enhance

their psychological wellbeing (Piwowar-Sulej and Iqbal, 2024). In the fast-paced and demanding IT environment, where the focus on delivering innovation and customer service is critical, an empowering and supportive positive leadership style is essential for fostering employee flourishing (Ramdas and Sumitha, 2024; Ahsan and Khawaja, 2024). This leadership approach, known as sustainable leadership, strives to balance organizational goals, employee satisfaction, and long-term success through honey comb model (Kantabutra, and Avery, 2013).

Sustainable leadership, which includes elements of positive, transformational, servant, authentic, and ethical leadership (Choi, 2021; Adams et al., 2019; Ramdas and Patrick, 2018), is particularly effective in addressing environmental challenges within the IT sector. It emphasizes creating a supportive work environment, continuous learning, efficient stakeholder management, resource development, and long-term success—fostering strong relationships with the workforce while also promoting social responsibility (Liao, 2022). However, there is a lack of empirical research on the role of sustainable leadership in enhancing flourishing, especially within the context of the IT sector in Asia.

Framed within the AMO (Ability, Motivation, Opportunity) theory by Appelbaum et al. (2000), which highlights the importance of providing opportunities for employee participation, we propose that sustainable leadership plays a crucial role in influencing flourishing. The AMO model also incorporates the concepts of ability and motivation, which will be explored alongside other key variables in the proposed research. In the context of the information technology (IT) sector, sustainable leadership not only provides support and

encourages participation but also plays a crucial role in ensuring that tasks are performed appropriately and efficiently, especially during highly stressful situations. This is closely linked to psychological empowerment (Ramdas and Sumitha, 2024; Schermuly et al., 2022) fostering an environment that nurtures these dimensions such as autonomy and decision-making, competence development along with meaning and purpose, Impact and Influence, ethical and supportive environment and work-life balance. For instance, in an IT environment, sharing effective troubleshooting procedures or system maintenance protocols can help reduce the uncertainty and stress that employees may experience when faced with technical challenges or system fiascos.

In ITOs, where complex problems must be addressed rapidly under pressure, procedural knowledge sharing becomes essential for promoting employee wellbeing. According to the AMO framework (Appelbaum et al., 2000), the “ability” component refers to the knowledge and skills employees need to perform their tasks effectively, which helps alleviate the anxiety that arises from feeling overwhelmed or uncertain about how to complete their work. When the leaders practice psychological empowerment at workplace it enhances their collective ability to handle challenges, thereby reducing stress and supporting overall wellbeing (De Kock et al., 2021). The argue that in the high-pressure IT environment, where policies and tasks are constantly evolving, psychological empowerment is a key factor towards improving employee flourishing, and that sustainable leadership can act as a catalyst for empowerment.

The final component of the AMO theory is motivation, specifically the drive to

benefit others, which in the context of ITOs or software professionals, can be associated to a sense of service-oriented motivation. Let's say, healthcare sector this is closely tied to compassion, ITO can be associated to commitment towards creating solutions that improve user experiences or address customer needs. The desire to resolve customer's problems efficiently and effectively organizations, this alignment might encourage employees to go beyond routine tasks and innovate to solve complex challenges. For this exploratory study, the factors discussed are of particular interest as they can impact the flourishing of software professionals not only during periods of high demand but also during unpredictable events, such as system outages, tight deadlines, technology challenges or organizational shifts (global time zones). These situations may require employees to adapt quickly to frequent changes, much like healthcare workers adjusting to health crises (Digby et al., 2021). Based on this reasoning, the propose a research model in which sustainable leadership influences flourishing and psychological empowerment hypothetically mediating this relationship. Based on these considerations, the research questions are:

RQ1: Could sustainable leadership influence the flourishing of software professionals from ITO.

RQ2: How is psychological empowerment at workplace is associated with employees' flourishing in ITO?

Literature review and hypotheses development

Sustainable leadership and Flourishing

Sustainable leadership is a modern leadership approach that emphasizes strategies for ensuring long-term success by meeting the needs of stakeholders, society, and the environment through sustainable development (Wamsler et al., 2024; Iqbal and Ahmad, 2021). It is grounded in principles like long-term vision, systemic innovation, workforce growth, and quality, with a strong emphasis on ethics, social responsibility, sustainability and commitment towards employee development. Sustainable leaders are positive individuals with virtuous behavior who focus on balancing people, planet, and profit, striving to create a positive, lasting impact on both their organizations and the wider community (Bag et al., 2022).

Multiple people have defined sustainable leadership, Gutterman (2023) and Kantabutra and Avery,(2013) defines sustainable leadership as a “sustainable ‘honeybee’ leadership approach”, which has been described as sophisticated, stakeholder, social and sharing. It's an approach that provides solutions for environmental, social, and economic challenges in the world and acknowledges leadership as an influence process and deconstructs silos to make leaders work collaboratively for change and transformation. Way back in 2011, Avery and Bergsteiner identified two contrasting solutions that distinguish sustainable or “honeybee” leadership approaches from non-sustainable or “locust” management. Honeybee leadership builds communities, fosters collaboration among stakeholders and promotes long-term value. In stark

contrast, the “locust” metaphor aptly conjures up images of swarms of voracious insects descending on green fields and stripping them bare. Research shows that honeybee principles are more sustainable, more likely to lead to higher performance and are more socially responsible than locust behaviors (Avery and Bergsteiner, 2011). They further broadly defined sustainable leadership practices, incorporating the concept of corporate social responsibility (CSR) from a strategic management perspective. Lee (2017) integrated internal CSR and sustainable human resource management (HRM) with elements of diversity management, employee development, organizational justice, and work-life balance, all of which impact employee satisfaction, motivation, and performance. In contrast, Choi (2021) framed sustainable leadership in terms of specific behaviors associated with positive leadership theories. Hallinger and Suriyankietkaew (2018) traced the origins of sustainable leadership to the “Rhineland model of capitalism” in Germany, which emphasizes social responsibility and the duty leaders have toward both employees and society. Further refining the concept, they developed a framework highlighting key features of sustainable leadership, including social well-being, social responsibility, and stakeholder engagement, which link long-term organizational objectives to fostering innovation within a sustainable system. The values embedded in sustainable leadership, along with accumulated knowledge and experience, enhance the effectiveness of CSR initiatives, supporting the triple bottom line—social, ecological, and economic performance (Durst et al., 2021; Hallinger and Suriyankietkaew, 2018).

Research indicates that sustainable leadership positively influences both

organizational performance and employee satisfaction. For instance, valuing employees, ethical conduct, and a shared vision are key drivers of employee satisfaction (Abid et al., 2023), with individualized consideration—often described as “serving as a carrot”—helping to meet employees’ personal needs. Choi (2021) further highlighted that sustainable leadership practices, particularly those aligned with authentic, servant, and positive leadership styles, have a notable positive impact on both employee well-being and organizational success. Similarly, virtuous leadership, characterized by ethical leadership practices, fosters sustainable leadership outcomes and has been shown to enhance work-related flourishing (Cameron, 2012). This includes positive emotions, job satisfaction, and work engagement, with trust in leadership and psychological empowerment serving as key mediators (Ramdas and Sumitha, 2024; Hendriks et al., 2020). Eventually, sustainable leadership aims to foster the flourishing of all stakeholders while generating both present and future organizational profits. It highlights the core importance of sustainability across personal, organizational, and societal dimensions. Based on this, we propose the first hypothesis: **Sustainable leadership is positively associated with flourishing among software professionals in ITOs.**

Sustainable Leadership and Psychological Empowerment

Sustainable leadership and psychological empowerment are becoming essential concepts in organizational behavior and human resource management. Sustainable

leadership aims to secure long-term organizational success while addressing the needs of various stakeholders, such as employees, customers, and the environment (Schermuly et al., 2022). Psychological empowerment occurs when employees experience autonomy, competence, meaning, and impact in their work (Spreitzer, 1995). Which examines how sustainable leadership practices foster psychological empowerment, improving employee performance and overall organizational success. Sustainable leadership creates an empowering environment through trust-building, promoting autonomy. Research indicates that sustainable leadership practices positively influence psychological empowerment in the workplace (Iqbal et al., 2020b). Leaders who focus on employee development, autonomy, and well-being foster an environment of empowerment (Lee, 2017). By demonstrating fairness and integrity, leaders enhance employees' competence and self-determination, driving engagement and organizational success (Choi, 2021).

Avery and Bergsteiner (2011) found that organizations with sustainable leaders experienced higher levels of employee engagement and empowerment. Sustainable leadership practices, such as participative decision-making and ethical behavior, help create an environment that enhances employees' autonomy, skills, and motivation, fostering psychological empowerment. Choi (2021) demonstrated that leadership styles like servant and authentic leadership significantly boost psychological empowerment by promoting trust, engagement, and autonomy, which improve both performance and well-being. Hendriks et al. (2020) showed that virtuous leadership behaviors, linked to ethical decision-making, positively impact empowerment, with

trust mediating this relationship. Lee (2017) highlighted that sustainable leadership practices such as diversity management, employee development, and work-life balance support empowerment by enhancing employees' competence, sense of meaning, and impact—key aspects of psychological empowerment. However, research examining the influence of sustainable leadership across various industries and cultural contexts remains limited. Which leads to the second hypothesis; **Sustainable leadership is positively associated with psychological empowerment among software professionals in ITOs.**

Psychological Empowerment and Flourishing

Psychological empowerment and flourishing are key concepts in positive organizational behavior, enhancing individual well-being and performance. Psychological empowerment refers to a state where employees feel autonomous, competent, meaningful, and impactful in their work (Spreitzer, 1995). Flourishing, as defined by Keyes (2002), is a state of well-being marked by positive emotions, life satisfaction, personal growth, and purpose. These concepts are closely linked, with psychological empowerment often driving flourishing, especially in the workplace. This literature review examines the theoretical and empirical evidence connecting psychological empowerment and flourishing, highlighting mechanisms through which empowerment fosters both personal and professional flourishing.

Meaning and purpose: Meaning, a key aspect of psychological empowerment, is

closely linked to a sense of purpose, which is central to flourishing (Spreitzer, 1995; Keyes, 2002; 2012). When employees find meaning in their work, it enhances their sense of purpose and overall well-being. Sustainable leaders fostering purpose-driven cultures can promote both empowerment and flourishing. Competence and Personal Growth; The competence aspect of psychological empowerment is tied to personal growth and self-actualization, key elements of flourishing (Ryan & Deci, 2001). Empowered individuals feel more capable, fostering development and growth leading to a stronger sense of accomplishment and flourishing (Demerouti and Bakker, 2023). Self-Determination and Autonomy; Self-determination, the ability to make decisions and control one's work, enhances autonomy, a key component of flourishing. Research shows autonomy is linked to well-being and life satisfaction (Ryan & Deci, 2000). Empowered employees with decision-making control experience higher satisfaction and well-being, contributing to flourishing (Kuvaas et al., 2017). The impact dimension of psychological empowerment involves feeling that one's actions affect organizational outcomes, which is linked to meaningful work and flourishing (Dik & Duffy, 2009). When employees perceive their contributions as valuable, they experience higher life satisfaction and fulfillment, strengthening the relationship between empowerment and flourishing.

Research suggests that psychological empowerment plays a significant role in promoting employee well-being and flourishing. Spreitzer (1995) found that employees who felt empowered, especially in terms of meaning and competence, exhibited higher levels of well-being and engagement, both of which are key indicators of flourishing.

Empowerment was also linked to greater life satisfaction and improved mental health. Bakker and Demerouti (2023; 2008) demonstrated that empowered employees had higher engagement and better mental health, contributing to personal growth and flourishing. Nielsen et al. (2008) showed that empowerment helped reduce burnout and enhanced job satisfaction. Schaufeli and Bakker (2004) highlighted that engagement, which is fostered by empowerment, leads to more positive outcomes. The research consistently supports the idea that psychological empowerment is a key driver of flourishing. Employees who experience meaningful work, a sense of competence, autonomy, and impact are more likely to thrive both professionally and personally. Organizations can encourage flourishing by promoting empowerment through leadership that emphasizes autonomy, skill development, and the meaningfulness of work. This leads to our third hypothesis: **Psychological empowerment is positively associated with flourishing among software professionals in ITOs.**

Psychological Empowerment as a Mediator amid Sustainable Leadership and Flourishing

Sustainable leadership has gained increasing importance as organizations strive for long-term success while considering the needs of stakeholders, society, and the environment (Avery & Bergsteiner, 2011). Psychological empowerment, which involves employees feeling autonomy, competence, meaning, and impact in their roles (Spreitzer, 1995), is essential for both employee well-being

and performance. Flourishing, defined as a state of optimal well-being that includes positive emotions, personal growth, and life satisfaction (Keyes, 2002: 2012; Ramdas & Patrick, 2018), is a key objective for both individuals and organizations. The role of psychological empowerment as a mediator between positive leadership theories including sustainable leadership and flourishing, emphasizing how empowered employees experience higher engagement, job satisfaction, and performance, ultimately contributing to flourishing and organizational success (Abid et al., 2023; Ramdas and Patrick, 2021; Rantika and Yustina, 2017)

Psychological Empowerment as a Mediator

The concept of mediation suggests that psychological empowerment acts as a bridge through which sustainable leadership impacts employee flourishing. Various theoretical and empirical studies indicate that sustainable leadership fosters psychological empowerment, which in turn promotes greater flourishing. Psychological empowerment is a critical link between sustainable leadership and flourishing. Leaders who cultivate trust, autonomy, and development enhance employees' sense of meaning and competence, which directly contributes to their flourishing (Ahsan and Khawaja, 2024; Avery & Bergsteiner, 2011). As employees become more empowered, they experience increased positive emotions, life satisfaction, and personal growth—key elements of flourishing. Several studies support psychological empowerment as a mediator between sustainable leadership and flourishing: Positive leadership theories

have influenced empowerment, leading to improved well-being and engagement (Abids et al., 2023; Grošelj et al., 2022; Choh, 2021). Sustainable practices, such as ethical behavior and employee development, enhanced empowerment and predicted greater well-being and flourishing (Hendriks et al., 2020). Kuvaas et al. (2017) revealed that empowerment through ethical leadership and growth opportunities boosted job satisfaction and personal growth. Similarly, leaders who promote autonomy and competence positively affect employees' empowerment, well-being, and flourishing (Demerouti and Bakker, 2023; Bakker and Demerouti, 2008). In summary, psychological empowerment connects sustainable leadership to flourishing by strengthening employees' sense of meaning and competence. Research indicate that sustainable leadership practices promote development opportunities, increasing empowerment, leading to higher well-being, job satisfaction, and personal growth, all contributing to flourishing (Choi, 2021; Hendriks et al., 2020). Leading to the mediating hypothesis.; **Psychological empowerment mediates the relationship between Sustainable leadership and Flourishing among software professionals in ITOs.**

Methodology

The study employed a quantitative approach, utilizing judgmental and stratified sampling methods to select respondents and organizations, specifically targeting the top 25 ITOs (Indian and Foreign MNCs) based on various parameters from Nasscom's 2022 list of top ITOs in India. The sample inclusion criteria required software professionals to have at least 36 months of experience

in the ITO sector and 18 months with their current organization. This tenure was selected to ensure that respondents had ample time to develop an understanding of their immediate supervisor, as well as their psychological empowerment and flourishing. A questionnaire was distributed to 500 respondents, with 300 completed questionnaires returned, all of which were used in the final analysis.

Among those (60.2%) of the respondents were graduates and (39.8%) postgraduates, (51.4%) were married, and (48.6%) single; (39.2%) were between the age group of 26-30 years followed by (28.6%) 31-40 years, (19.8%) were below 25 years and (12.5%) were above 40 years. The average work experience of the respondents was 8 years, with a standard deviation of 6.20 years.

Sample size calculation

A preliminary power analysis was conducted using GPower (version 3.1.9.7, GPower, 2020) to determine the ideal sample size. With an effect size of $f^2 = 0.377$, the analysis suggested a minimum of 34 participants. Additionally, an a priori calculation, assuming a small effect size ($f^2 = 0.04$), a 0.05 α error probability, and 80% power, indicated that at least 277 participants were required. To ensure the validity and generalizability of the results, the target sample size was set at 500 participants. A post hoc analysis showed that a sample of 300 participants, with a small effect size of $f^2 = 0.05$, yielded a power of 0.96, which was deemed sufficient for drawing statistical conclusions.

Measures

Three standardized, valid, and reliable structured questionnaires were used to collect primary data from employees of the top 25 IT organizations located in Bangalore, India. Respondents answered all items using a seven-point Likert scale, where 1 indicated "Very Strongly Disagree" and 7 indicated "Very Strongly Agree." The seven-point scale was chosen as it provides a balanced level of discrimination without overwhelming respondents with too many options (Nunnally, 1978). Sustainable Leadership was assessed using a 4-item scale developed by Di Fabio and Peiró (2018), with a Cronbach's alpha of 0.93. The Flourishing Scale, developed by Ed Diener and Robert Biswas-Diener (2009), consisted of 8 items and had a Cronbach's alpha of 0.90. Psychological Empowerment was measured using a 12-item scale from Spreitzer (1995), also with a Cronbach's alpha of 0.90.

Results

Confirmatory factor analysis

Before testing the hypotheses, a measurement model was evaluated using Confirmatory Factor Analysis (CFA) with AMOS 21.0 to assess the fit of the variables. The CFA fit indices included the Chi-square test statistic (χ^2/df), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), and Root Mean Square Error of Approximation (RMSEA). A good model fit was considered when the Chi-square value was less than 3, and the GFI, AGFI, TLI, and CFI values were above 0.90, with RMSEA values below 0.08 (Kline, 2015). The four-factor model, which

TABLE 1 Fit indices of measurement and alternative models.

Models	χ^2/df	GFI	AGFI	TLI	CFI	RMSEA
Four-factor model	2.51	0.937	0.903	0.958	0.967	0.059
Three- factor model	20.13	0.698	0.531	0.437	0.554	0.247
Two-factor model	27.90	0.629	0.477	0.347	0.473	0.269
One-factor model	32.81	0.535	0.387	0.236	0.369	0.285

included sustainable leadership, psychological empowerment and flourishing demonstrated an acceptable fit ($\chi^2/df = 2.51$, GFI = 0.937, AGFI = 0.903, TLI = 0.958, CFI = 0.967, RMSEA = 0.059). Furthermore, this four-factor model showed a better fit than the alternative two- and one-factor models (see Table 1), justifying the decision to treat these constructs as distinct.

Three-factor model: sustainable leadership and psychological empowerment were combined; Two-factor model: sustainable leadership and flourishing were combined with Psychological empowerment; GFI, goodness of fit index; AGFI, adjusted goodness of fit index; TLI, Tucker-Lewis coefficient; CFI, comparative fit index; RMSEA, root mean square error of approximation. Source: Authors

Convergent and discriminant validity

Convergent validity refers to the degree to which a statistic correlates with other measures of the same construct (Hair et al., 2017). To evaluate convergent validity, both average variance extracted (AVE) and composite reliability were assessed (Fornell

and Larcker, 1981). For convergent validity to be established, the AVE must be above 0.50, and the composite reliability should be greater than 0.70. In this study, all constructs met these threshold requirements for both AVE and composite reliability, thus confirming convergent validity. Divergent validity, also known as discriminant validity, assesses how clearly a construct is differentiated from others. It is determined by comparing the square root of the AVE with the correlations between constructs. The results show that the square root of the AVE for each construct was greater than its correlations with other constructs, indicating adequate divergent validity (Fornell and Larcker, 1981) (Refer Table 2).

SL- Sustainable leadership; PE- Psychological Empowerment; FLR- Flourishing; CR, composite reliability; AVE, average variance extracted; MSV, maximum shared variance; ASV, average squared shared variance. The bold values mean square root of average variance extracted. Source Authors

The descriptive statistics and correlations of the variables. The correlation coefficients align with the expected direction and offer preliminary support for the findings of the study. Significant positive relationships

TABLE 2 Convergent and divergent validity.

Variables	CR	AVE	MSV	ASV	1	2	3
SL	0.92	0.08	0.08	0.04	0.89		
PE	0.77	0.53	0.13	0.09	0.28	0.73	
FL	0.76	0.51	0.08	0.09	0.10	0.28	0.71

TABLE 3 Descriptive Statistics, Pearson correlation coefficient, Model Summary, Anova and Coefficient values of:

	SL	PE	FL
Mean	4.63	5.47	5.56
SD	0.66	0.635	0.678
SL	1		
PE	.388**	1	
FLR	.409**	.681**	1

** . Correlation is significant at 0.01 level (2-tailed); * . Correlation is significant at 0.05 level (2-tailed); Source: The Author's Analysis

were found between sustainable leadership and psychological empowerment ($r = 0.159$, $p < 0.01$), as well as between sustainable leadership and flourishing ($r = 0.160$, $p < 0.01$). Additionally, a positive correlation was observed between psychological empowerment and flourishing ($r = 0.500$, $p < 0.01$). In addition, a strong correlation was found between psychological empowerment and flourishing ($r = 0.681$, $p < 0.01$). These significant correlations, which align with the expected direction, provide initial support for the proposed relationships.

Hypothesis testing;

H1. Sustainable leadership does influence flourishing

Sustainable leadership significantly influences FL, thereby predicting a variance of (17.0%) at ($P < 0 .001$). Thus, H1 is accepted, whereby we affirm that SL does significantly influence FL.

H2. Sustainable leadership does influence psychological empowerment

SL significantly influences PE, thereby predicting a variance of (15.9. %) at ($P <$

0 .001). Thus, H2 is accepted, whereby we affirm that SL does significantly influence PE.

H3: Psychological Empowerment does influence flourishing

PE significantly influences FL, thereby predicting a variance of (50.0%) of the variance, and thereby significantly influences FL at $P < 0.000$ level, Thus, H3 is accepted, whereby we affirm that PE does significantly influence FL.

To further evaluate the mediation model, to examine the indirect influence of variables, we used the method propounded by Preacher and Hayes, (2009). The study adopted SPSS's bootstrapping, Sobel test (Preacher and Hayes, 2004) and AMOS (Arbuckle, 2010) for estimating the indirect effect in the simple mediating model. Notably, the right processes of variables (CFI; GFI; NFI; RMSEA; and χ^2/df) guidelines were within a conventional range (Bollen, 1989), confirming cogency of the process thereof. To a sample of 300, using 2,000 bootstrap samples and bias-corrected, 90% confidence intervals for parameter estimation. Convergent validity refers to the extent to which a statistic

meaningfully aligns with other alternative measures of the same constructs (Hair et al., 2017). To assess convergent validity, average variance extracted (AVE) and composite reliability are evaluated (Fornell & Larcker, 1981). The AVE value should be greater than 0.50, and composite reliability should exceed 0.70.

All the constructs in the study met the required minimum criteria for AVE and composite reliability, confirming the achievement of convergent validity. Divergent validity, also known as discriminant validity, measures how distinct a construct is from others. It is assessed by comparing the square root of the AVE with the correlations among constructs. For divergent validity to be established, the square root of the AVE for each construct should be greater than its correlations with other constructs. The results show that the square root of the AVE for the selected constructs exceeds the correlations with other constructs (Fornell & Larcker, 1981) (Refer Table 2).

Estimate the Mediation Effect

Mediation analysis was conducted using AMOS 20 and SOBEL's Test. Baron and Kenny's (1986) procedures for mediation

were understood before examining the mediation path. It states that all paths amongst independent variables (IV) as well as mediator's paths. Amongst mediators and dependent or outcome variables (DV) besides paths amongst independent variables (IV's) and outcome variables (DV's) minus mediators in the research model should be noteworthy (see below tables 4, 6, 7). Subsequently it looks like all paths remained noteworthy at ($p < .01$ level) to meet the first criteria. Moreover, the insignificant paths of the defaulted model were left out. Due to compliance with the further criteria for mediation test. Meanwhile the residual paths of the model are noteworthy. All comparative direct, indirect, and total influence of default model are reported (refer table 5,8).

In addition, mediation test was undertaken through bootstrapping (2000 samples) via percentile method. Indicating the entire effect is reflected as independent variable effect on a dependent variable. It is the variable mediator that's important for the influence of independent variable on outcome variable (Hayes, 2009; Preacher and Hayes 2009: Baron and Kenny, 1986). However, both analyses (AMOS and Sobel test) confirms that all mediation paths have partial mediation as direct effect, indirect effect and total effects are all significant at (0.01 level).

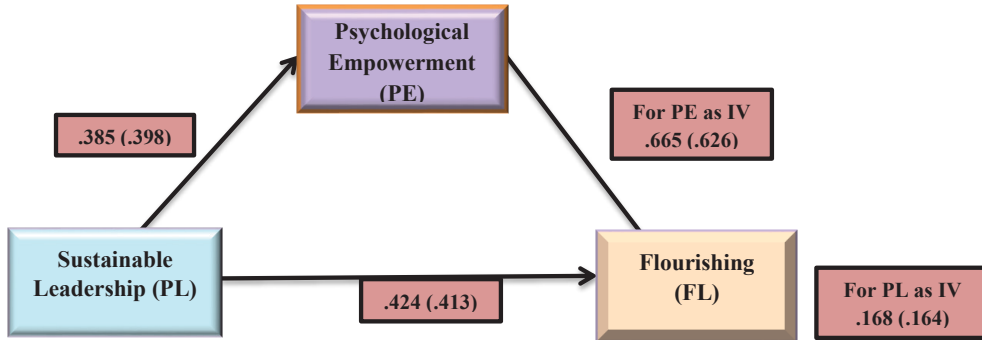
H4: Psychological Empowerment does indirectly influence the relationship amid positive leadership and flourishing.

TABLE 4: Summary of Regression Analysis for Significance of Mediation of PE in the Path SL – PE - FL

IV	DV	Un-Standardised Coefficient B	Standardised Coefficient Beta	t value	p-value	R ²
SL	FL	.424	.413	13.574	<.001	.170
SL	PE	.385	.398	12.999	<.001	.159

SL	FL	.168	.164	6.354	<.001	.500
PE		.665	.626	24.302	<.001	

FIGURE 1: Mediating effect of psychological empowerment on the relationship between sustainable leadership and flourishing



Source: Author’s analysis

Note: Un- standardised coefficients values are stated in the paths. The standardised coefficient values are stated in parenthesis. PE: Psychological Empowerment, SL: Sustainable Leadership, FL: Flourishing, IV: Independent Variable.

The total per cent of the effect is mediated via psychological empowerment thru the path of positive leadership – flourishing equals (60.361%) significant at (<.001 level). The Sobel’s investigation of mediation point out that psychological

empowerment intervenes significantly amongst the path positive leadership plus flourishing. Henceforth sustainable leadership has positive effect on flourishing indirectly via psychological empowerment.

The Summary of AMOS mediation analysis of psychological empowerment amid sustainable leadership and flourishing

Sustainable leadership has positive and direct effect on flourishing.

TABLE 5: Summary of Sobel Test for mediation of relationship between SL and FL by PE

H	Hypothesized Mediating Effect	Sobel Test Statistic	Percentage of the total effect that is mediated	Ratio of the indirect to the direct effect	p-value
H15	PL → PE → FL	11.469	60.361	1.522	<.001

TABLE 6: Path (PL –FL) with Un-standardised and Standardised Coefficient

H	Path From --→ To	UPC	SE	CR (t values)	SPC	p-value
H4.1	SL --→ FL	.159	.035	4.600	.148	<.001

TABLE 7: Path (PE → FL) with Un-standardised and Standardised Coefficient

H	Path From --→ To	UPC	SE	CR (t values)	SPC	p-value
H4	PE → FL	.811	.043	18.855	.652	<.001

Legend: H: Hypothesis, UPC: Un-standardised Coefficient, SE: Standard Error, CR: Critical Ratio, SPC: Standardised Path Coefficient.

The un-standard regression beta weight for sustainable leadership – flourishing path is (0.159, p-value is <.001). The importance of regression beta weight point to the likelihood of receiving a critical ratio as huge as (4.60, is 0.001 level). This point out to the regression beta weight for positive leadership in the prediction of flourishing is significantly different from zero (0.001 level, two-tailed). As positive leadership value upsurges by single unit, flourishing value upsurges by (0.159). The estimation of standardized regression beta weight point out that, when single unit of standard deviation of sustainable leadership increases the standard deviation unit of flourishing by (0.148 value). The path amongst sustainable leadership and flourishing is (p<.001) significant. This indicates that sustainable leadership has a positive and direct effect on flourishing.

Legend: H: Hypothesis, UPC: Un-standardised Coefficient, SE: Standard Error, CR: Critical Ratio, SPC: Standardised Path Coefficient.

The un-standardized regression beta weight for psychological empowerment

– flourishing path is (0.811, p-value is <.001). The importance of regression beta weight point to the likelihood of receiving critical ratio as huge as (18.85, is 0.001 level). This point out to the regression beta weight for psychological empowerment in forecasting flourishing is considerably different from zero (0.001 level, two-tailed). As psychological empowerment value upsurges a single unit of flourishing value by (0.811). The estimate of standard regression beta weight point out that, when single unit of standard deviation of psychological empowerment increase the value of the standard deviation units of flourishing value by (0.652). The path amongst psychological empowerment and flourishing is significant (p<.001). This indicates that psychological empowerment has a positive and direct effect on flourishing.

Both analysis (AMOS and Sobel) confirms that all mediation paths have partial mediation as direct, indirect and total effects are all noteworthy at (0.01 level). The null hypothesis was rejected as it was found that sustainable leadership influences flourishing indirectly and directly thru psychological empowerment. There is an effect of partial mediation (i.e., total, direct and indirect effect all are significant)

TABLE 8: Indicating a relative standardised direct, indirect and total effects towards independent variable Sustainable leadership (SL), mediating variables - psychological empowerment (PE) and dependent variables - flourishing (FL).

Mediation Path	Direct Effect	Indirect Effect	Total Effect	Decision
PL → PE → FL	.168**	.322**	.490**	Partial Mediation

** effects are significant at p<.001 (2 tailed tests of significance)

of psychological empowerment amid sustainable leadership and flourishing.

Discussion

Organizations have increasingly recognized the importance of flourishing (for both employees and the organization) in recent years, as it offers potential benefits (Bakker & Oerlemans, 2011; Taheri et al., 2019; Busch et al., 2021; Ramdas and Patrick, 2021). The present study explored the relationship between sustainable leadership, psychological empowerment, and flourishing among software professionals using the AMO framework (Appelbaum et al., 2000). The results supported the study's hypotheses, showing that sustainable leadership is indirectly related to flourishing through the mediation of psychological empowerment. These findings suggest that sustainable leaders can foster psychological empowerment within IT organizations. Additionally, the study contributes to the existing literature by addressing gaps and expanding on previous research (Piwowar-Sulej and Iqbal, 2024).

Flourishing is widely regarded as a crucial element of positive organizational psychology (Bakker & Van Wingerden, 2021; Demerouti and Bakker, 2023) and plays a key role in employees' flourishing (Ramdas and Patrick, 2019; Wilkes et al., 2019). From a contextual perspective, the study findings indicate that the impact of sustainable leadership on flourishing is mediated through the enhancement of individual dynamics in the workplace, specifically through psychological empowerment. According to the AMO framework (Kellner et al., 2019; Appelbaum et al., 2000), the capabilities of software professionals are improved due to the psychological empowerment provided

by sustainable leaders, which in turn motivates them to experience both psychological empowerment and flourishing. This result aligns with the paradoxical view of happiness, which is often understood as subjective well-being in the literature (Martin, 2008). Additionally, the study's findings offer practical implications for promoting flourishing through sustainable leadership practices.

The findings made several contributions to the existing literature. While research has explored the impact of various leadership styles on employees, no studies have specifically examined how sustainable leadership promotes employee flourishing, particularly among software professionals in the IT sector. Sustainable leadership fosters workplace environments that support ethical decision-making, sustainability, and employee well-being through a culture of trust, shared values, and empowerment. These elements contribute to increased psychological empowerment (Kyes, 2002; Spreitzer, 1995), which in turn leads to higher job satisfaction, work engagement, and overall flourishing (Ramdas, 2023). Flourishing encompasses not just positive emotions, but also psychological well-being and social functioning, all of which can be fostered through sustainable leadership practices (Keyes). In ITO, when immediate supervisors empower their team members, it increases their psychological empowerment, which in turn enhances engagement, autonomy, and a sense of purpose at work, ultimately contributing to flourishing.

Empowered professionals are more likely to attain work-life balance, positive mental health, and long-term career satisfaction, according to Ryan and Deci's (2000) Self-Determination Theory, all of which are essential for intrinsic motivation and flourishing. Social Exchange Theory

(Blau, 1964) emphasizes the mutual benefits of positive leader-follower interactions, suggesting that when sustainable leaders empower their employees by providing resources, support, and growth opportunities, employees respond by becoming more engaged, productive, and committed to the organization. This creates a ripple effect that promotes flourishing both at the individual and organizational levels. When empowered software professionals contribute to a positive workplace culture, which ultimately drives innovation and sustainable business outcomes. The Organizational Support Theory (Eisenberger et al., 2002) suggests that when employees perceive that their organization values their contributions and cares about their well-being, they are more likely to experience psychological empowerment. This support can include recognition, opportunities for growth, and promoting a healthy work-life balance—key elements of sustainable leadership. Positive leadership theories are closely linked to sustainable leadership, which inherently aligns with the principles of psychological empowerment (Abids et al., 2023; Ramdas and Patrick, 2023).

Through their virtuous behavior, these leaders inspire employees to rise above their own self-interest for the greater good, which is linked to the development of meaningful work and autonomy. They cultivate creativity, motivation, and empowerment—key factors that drive professional growth and organizational success in the dynamic IT industry (Nisha et al., 2022; Patrick et al., 2022; Cameron, 2012). The findings align with previous research, highlighting how sustainable leadership fosters flourishing through psychological empowerment, offering valuable insights for enhancing the work experience of software professionals in ITOs. By promoting empowerment

through autonomy, competence, and relatedness, sustainable leadership can encourage long-term flourishing among software professionals, leading to improved performance, creativity, and retention in this highly competitive industry.

Theoretical implications

Research has shown that in high-stress industries such as ITOs, promoting psychological empowerment, and sustainable leadership which positively impacts both individual well-being and organizational performance (Peethambaran and Naim, 2024). By cultivating resilient, motivated, and innovative teams, sustainable leadership drives long-term productivity. This leadership style, emphasizes on ethical, collaborative, and supportive practices, playing a key role in fostering flourishing through psychological empowerment. While existing studies have explored various leadership styles and their effects on employees, the specific role of sustainable leadership in promoting flourishing, particularly among software professionals, has not been widely investigated. Sustainable leadership creates an environment grounded in trust, shared values, and empowerment, enhancing psychological empowerment, job satisfaction, and engagement, as highlighted by Keyes (2002) and Spreitzer (1995). The findings also support Self-Determination Theory (Ryan & Deci, 2000) and Social Exchange Theory (Blau, 1964), which emphasize the importance of leadership support in boosting engagement, productivity, and organizational culture. This study fills a gap in the literature by showing how sustainable leadership practices enhance psychological empowerment and employee flourishing, aligning with the AMO framework and

previous research (Hendriks et al., 2020; Choi, 2021). Additionally, it explores the psychological mechanisms through which sustainable leadership fosters flourishing, highlighting that flourishing results not only from leadership but also from a positive, learning-oriented environment that boosts empowerment (Ramdas and Sumitha, 2024). The study further underscores the impact of virtuous behavior, strength-based approaches, and recognition in promoting flourishing (Ramdas and Patrick, 2019; Cameron, 2012), creating a more productive and innovative workplace.

Practical implications

Our results pose practical implications for Human Resource Managers, policymakers in ITO's. The practical implications of sustainable leadership in fostering flourishing through psychological empowerment for software professionals in ITO's are significant. Here are few key areas where it can be applied.

- Leadership development programs emphasizing sustainable leadership, ethical decision-making, empowerment, and collaboration can build trust and psychological well-being, increasing team motivation and productivity. Moreover, sustainable leadership practices enhance teamwork by encouraging open communication, shared goals, and support, fostering creativity, innovation, and resilience.
- Creating a Supportive Work Environment for Sustainable leadership practices that fosters environments in promoting autonomy, competence, and relatedness. Further psychological empowerment can be enhanced via skill

development, self-management, and constructive feedback opportunities.

- Promoting Employee Well-being and Mental Health: Sustainable leadership practices improve mental health and resilience by promoting work-life balance, offering flexibility, recognizing achievements, and implementing stress management programs to empower employees to flourish.
- Driving organizational innovation through psychological empowerment promotes creativity. Sustainable leadership, by recognizing achievements and encouraging autonomy, cultivates a dynamic, innovative culture in IT organizations.
- Sustainable leadership practices improve employee retention and engagement by focusing on empowerment and well-being. IT organizations can implement supportive policies to reduce turnover, strengthen loyalty, and retain valuable expertise.

Sustainable leadership promoting psychological empowerment benefits both employees and organizations. By prioritizing well-being, growth, and engagement, ITOs foster a productive, innovative workforce, driving long-term success and individual flourishing. The study findings reveal that sustainable leadership practices and psychological empowerment at workplace can have a positive influence on flourishing.

Limitations and future research

The study opens avenues for future research. Firstly, the cross-sectional data used does not fully establish causality between sustainable leadership, psychological

empowerment, and flourishing. Since the studies only capture a single moment in time, so they can't be used to analyze behavior over time or establish long-term trend. While the direction of effect aligns with other studies using the AMO framework, future longitudinal analysis of these variables would provide clearer cause-and-effect relationships. Secondly, there may be a potential single-method bias due to the use of a self-report questionnaire. To reduce bias from social desirability, participant anonymity was ensured, and Common Method Bias (CMB) was addressed. Future studies could explore alternative measurement methods, such as daily diary tracking of employees' activities during their shifts, to further investigate this issue. Additionally, the study focused on Indian software professionals, including software engineers, project leads, testing engineers, and technical architects, so the findings may not be applicable to European or American software professionals. Although the sample included professionals from organizations based in these regions but located in India, future research could explore specific industries and extend to other countries. Future studies with representative samples could assess the generalizability of these results across diverse groups or use positive leadership styles to better understand their impact on flourishing in a comparative context.

Conclusion

Sustainable leadership is receiving more attention as it is related to increasing the workers' subjective wellbeing. The AMO framework served as the foundation for this study, which focused on the significance of sustainable leadership in assisting

healthcare staff in successfully achieving subjective wellbeing via procedural knowledge and compassion during traumatic times. Further research to improve followers' wellbeing may concentrate on developing leaders to incorporate the elements of servant, authentic and ethical leadership hence making up sustainable leadership and persuading sustainable leaders to concentrate on providing a learning and compassionate work environment.

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