

Sustainable Talent Management and Employee Engagement in the IT Sector: An Empirical Study from Kerala

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ABSTRACT

Sustainable talent management has gained increasing importance as organizations seek to align workforce development and employee well-being with broader economic, technological, social, and environmental sustainability objectives. This issue is particularly relevant to the information technology (IT) sector, where rapid technological transformation, changing skill requirements, and evolving employee expectations create new challenges for sustaining an engaged workforce. Against this background, the present study examines the relationship between sustainable talent management and employee engagement among employees working in selected IT organizations in Kerala. The study conceptualizes sustainable talent management through four dimensions economic, technological, social, and environmental sustainability and examines their individual and collective relationships with employee engagement. A quantitative, cross-sectional research design was adopted, and primary data were collected through a structured questionnaire from 204 employees working in selected IT organizations in and around InfoPark, Kochi, Ernakulam, Kerala. Data were analysed using descriptive statistics, Pearson correlation, and multiple linear regression. The regression analysis revealed significant positive associations between all four sustainability dimensions and employee engagement. Technological sustainability emerged as the strongest predictor ($\beta = .403$, $p < .001$), followed by economic sustainability ($\beta = .338$, $p < .001$), while social and environmental sustainability also showed significant positive associations. The findings highlight that employee engagement in the IT-sector context is associated with a multidimensional approach to sustainable talent management rather than with a single sustainability-oriented practice. The study contributes empirical evidence from Kerala and underscores the importance of integrating technological readiness, economic sustainability, social well-being, and environmental responsibility within talent management practices to support an engaged and sustainable workforce.

Keywords: Sustainable Talent Management; Employee Engagement; Technological Sustainability; Economic Sustainability; Social Sustainability; Environmental Sustainability; IT Sector

INTRODUCTION

Sustainability has increasingly moved beyond its traditional association with environmental protection to become a broader organizational concern encompassing economic viability, social well-being, responsible resource utilization, technological development, and long-term value creation (Hariram et al., 2023). Within this changing business environment, human resource management has gained strategic importance because organizational sustainability ultimately depends not only on financial and technological resources but also on how employees are attracted, developed, supported, and retained. Sustainable human resource management (SHRM) has consequently emerged as an approach that connects human resource practices with longer-term

organizational, employee, social, and environmental objectives (Kramar, 2022). Recent scholarship emphasizes that SHRM extends the purpose of HRM beyond short-term organizational performance by considering the sustainability of both the organization and its workforce. (Iqbal et al., 2026) demonstrate that sustainable HRM is associated with employee engagement through cognitive and relational mechanisms, highlighting the importance of employee-level outcomes within sustainability-oriented HR systems. Similarly, (Lopez-Cabrales & Valle-Cabrera, 2020) argue that sustainability and HRM need to be examined through the different ways in which HR practices contribute to multiple dimensions of sustainability rather than being confined to a single environmental perspective.

While sustainable human resource management broadly integrates sustainability principles into HR policies and practice (Macke & Genari, 2019), sustainable talent management focuses more specifically on managing and developing talent in ways that support long-term employee and organizational sustainability (Anlesinya & Amponsah-Tawiah, 2020). Building on this broader perspective, the present study examines economic, technological, social, and environmental sustainability as four dimensions of sustainable talent management in relation to employee engagement.

The growing relevance of sustainability-oriented human resource practices is particularly evident in knowledge-intensive and technology-driven industries. The information technology (IT) sector operates within an environment characterized by rapid technological change, continuous skill requirements, digital transformation, evolving work arrangements, and intense competition for skilled employees (Philomina et al., 2026). Consequently, the sustainability of the IT workforce cannot be considered solely in terms of environmental responsibility; it also involves the economic sustainability of employment, opportunities for employee development, technological readiness, employee well-being, fairness, inclusion, and supportive workplace relationships. The scale and continuing transformation of the Indian technology sector further reinforce this relevance. NASSCOM's 2026 strategic review projects direct technology-sector employment in India to reach approximately 6 million in FY2026, while highlighting AI, technological transformation, adaptable talent, and skill development as important features of the evolving sector (NasscomInsights, 2025). In such a context, sustainable talent management becomes increasingly important because organizations must simultaneously respond to technological transformation and the expectations of an increasingly skilled and mobile workforce (Atay et al., 2025).

Employee engagement represents an important employee-level outcome within this context. Engaged employees are generally characterized by greater psychological involvement, enthusiasm, motivation, and active participation in their work and organizational activities (Fleck & Inceoglu, 2010). From a sustainable HRM perspective, engagement is relevant because employees' perceptions of organizational practices may shape how they relate to their work and organization. Recent empirical evidence strengthens this connection. (Gomes et al., 2026) found that sustainable HRM associated with employee engagement through organizational attractiveness and perceived organizational support, demonstrating that sustainability-oriented HR practices can operate through both cognitive and relational pathways (Skypalova et al., 2026). Similarly, empirical research in India has examined sustainability-oriented HR practices in relation to employee outcomes, including research on Green HRM among IT employees, where sustainability-oriented HR practices were associated with meaningfulness of work, job satisfaction, green job performance, and organizational sustainability. These findings suggest that employee engagement should not be viewed independently of the organizational practices through which employees experience their workplace (Jenkins & Delbridge, 2013).

At the same time, the sustainability employee relationship within the IT sector requires a broader perspective than Green HRM alone. Environmental practices such as reducing paper use, promoting environmental awareness, and encouraging responsible resource utilization are important components of sustainability, but employees' workplace experiences are also shaped by compensation, career opportunities, technological support, learning opportunities, work-life balance, fairness, diversity, inclusion, and organizational well-being (Jackson et al., 2011). Recent research specifically examining sustainable HRM in the Indian IT sector identified practices such as staffing, performance appraisal and career management, compensation, training and development, work-family balance, diversity promotion, and occupational health and safety as important components of sustainable HRM (Yadav & Nigam, 2026). This broader understanding is particularly relevant to

technology-intensive organizations, where technological capability and human capability are closely interconnected (Udisha & Ambily Philomina, 2024). Thus, examining sustainability through economic, technological, social, and environmental dimensions provides a more comprehensive basis for understanding how sustainability-oriented talent management is associated with employee engagement (Cabezas et al., 2003; Papademetriou et al., 2025).

The Indian IT sector provides an important setting for examining these relationships, given the sector's continuing expansion and its simultaneous exposure to technological disruption, changing skill requirements, and sustainability expectations. While recent studies have contributed to understanding sustainable HRM and Green HRM within Indian organizations, considerable variation exists in the dimensions examined and the employee outcomes considered. For example, studies have investigated Green HRM and environmental outcomes in the IT sector, while other recent research has examined AI-enabled or sustainable HR practices in relation to employee performance and engagement. These studies demonstrate the growing empirical interest in sustainability-oriented people management in technology-intensive organizations, but they also indicate the value of examining multiple sustainability dimensions simultaneously rather than considering environmental or technology-related practices in isolation.

Within this broader context, the Kerala IT sector provides a relevant regional setting for examining sustainability-oriented talent management and employee engagement. The present study focuses specifically on employees working in selected IT organizations in and around InfoPark, Kochi, Ernakulam, Kerala. The study conceptualizes sustainable talent management practices through four dimensions: economic sustainability, technological sustainability, social sustainability, and environmental sustainability, and examines their relationship with employee engagement. Economic sustainability is reflected in employees' perceptions of fair compensation, career growth, benefits, and long-term employee well-being; technological sustainability concerns technological adoption, support, training, and work efficiency; social sustainability encompasses work-life balance, fairness, collaboration, diversity, and inclusion; and environmental sustainability reflects environmentally responsible organizational practices (Kurniawan et al., 2025). Employee engagement is considered as the outcome variable rather than as a component of sustainability itself. This distinction enables the study to examine whether employees' perceptions of these different sustainability-oriented practices are associated with their level of engagement at work.

Against this background, the present study seeks to empirically examine the relationship between sustainable talent management practices and employee engagement among employees working in selected IT organizations in and around InfoPark, Kochi, Kerala. Specifically, the study assesses employees' perceptions of economic, technological, social, and environmental sustainability practices and examines their individual and collective relationships with employee engagement. By bringing these four dimensions together within a single empirical framework, the study seeks to contribute to the growing literature on sustainable talent management by providing evidence from the Kerala IT-sector context. The study also provides a basis for understanding whether sustainability-oriented talent management needs to be approached as a multidimensional organizational practice in which technological, economic, social, and environmental considerations jointly shape employees' workplace experiences and engagement.

LITERATURE REVIEW

Sustainable human resource management (SHRM) has evolved from a predominantly organization-centred approach to HRM toward a broader perspective that integrates long-term organizational, employee and societal sustainability objectives. Recent scholarship conceptualizes SHRM as an approach through which human resource practices are aligned with sustainability objectives while addressing employee well-being, organizational performance and broader societal and environmental concerns. (Gomes et al., 2026) demonstrate that sustainable HRM is significantly connected with employee engagement and performance through cognitive and relational mechanisms, including organizational attractiveness and perceived organizational support. This reinforces the growing emphasis on employee-level outcomes within sustainable HRM research. (Barghini et al., 2026), through a cross-systematization of the sustainable HRM literature, highlight the need to examine how HR practices contribute to different dimensions and conceptualizations of sustainability rather

than treating sustainability as exclusively environmental. Thus, contemporary sustainable HRM research increasingly recognizes the interrelationship between economic, social, environmental and organizational dimensions, while technological transformation is becoming increasingly relevant to the way HR practices are designed and implemented. These developments provide a conceptual basis for examining sustainability-oriented HR practices in relation to employee engagement.

Within the Indian context, the sustainable HRM literature increasingly reflects the country's simultaneous digital transformation and sustainability transition, with the IT sector providing an especially relevant setting. (Yadav & Nigam, 2025), examined sustainable HRM practices specifically in the Indian information technology sector and identified compensation, career management, staffing, training and development, work–family balance, diversity promotion, and occupational health and safety as important sustainable HRM practices. Their findings demonstrate that sustainable HRM in Indian IT organizations extends beyond environmental initiatives to include economic and social dimensions of employment and employee development. (Dwivedi & Bhattacharjee, 2024) similarly examined HRM practices and the Sustainable Development Goals in Indian IT-sector multinational subsidiaries and emphasized a human-centred approach involving employee well-being, growth and belonging alongside organizational sustainability. More recently, (Sharma & Bhardwaj, 2025) synthesized 57 studies published between 2015 and 2024 and found that sustainable HRM practices in Indian organizations are associated with employee empowerment, sustainability-oriented mindsets, organizational commitment and employee performance. In addition, recent research on Indian IT employees has linked Green HRM with meaningfulness of work, job satisfaction, green job performance and organizational sustainability (Anshima et al., 2025). Collectively, these studies indicate growing attention within the Indian literature to employee-centred and sustainability-oriented HR practices that extend beyond environmental concerns to include compensation, career development, employee well-being, diversity, training and organizational sustainability.

At the Kerala level, emerging research has examined sustainability-oriented HR practices within technology-intensive workplaces, particularly in relation to Green HRM and organizational sustainability. (Korula & Injodey, 2024) examined the adoption of Green HRM practices in Kerala's IT sector, highlighting the growing relevance of environmentally responsible HR practices within the state's technology industry. Other research involving IT/ITES employees in the Kochi region has examined employee well-being and workplace-related outcomes, reflecting the importance of employee-centred HR practices within Kerala's technology sector. These studies provide useful contextual evidence on sustainability-oriented HR practices and employee-related outcomes in Kerala, but the literature remains relatively limited in comparison with the broader international and Indian evidence.

The review of existing literature indicates that sustainable human resource management has increasingly been examined in relation to employee and organizational outcomes, including employee engagement, well-being, commitment and performance. However, the literature remains fragmented across different sustainability-oriented HR practices and dimensions, with considerable attention devoted to environmental and Green HRM practices, while economic, social and technological dimensions have received comparatively less integrated empirical attention. In the Indian context, recent studies have examined sustainable HRM practices in the IT sector, including compensation, career management, training and development, work–family balance, diversity and occupational health and safety; however, relatively few studies have examined economic, technological, social and environmental sustainability simultaneously in relation to employee engagement. This contextual gap is particularly relevant to the Kerala IT sector and, more specifically, the Ernakulam–Kochi IT ecosystem, where an integrated examination of these four sustainability dimensions and employee engagement remains underexplored. Therefore, the present study addresses this gap by examining the relationship between economic, technological, social and environmental sustainability practices and employee engagement among employees working in selected IT organizations in and around InfoPark, Kochi, Ernakulam, Kerala.

Research Gap and Rationale of the Study

The review of existing literature indicates that sustainable human resource management has increasingly been examined in relation to employee and organizational outcomes, including employee engagement, well-being,

commitment and performance. However, the literature remains fragmented across different sustainability-oriented HR practices and dimensions, with considerable attention devoted to environmental and Green HRM practices, while economic, social and technological dimensions have received comparatively less integrated empirical attention. In the Indian context, recent studies have examined sustainable HRM practices in the IT sector, including compensation, career management, training and development, work family balance, diversity and occupational health and safety; however, comparatively limited empirical evidence has examined economic, technological, social and environmental sustainability simultaneously in relation to employee engagement. The contextual gap becomes particularly relevant at the regional level, where limited evidence is available on this integrated relationship among employees in the Kerala IT sector and, more specifically, within the Ernakulam, Kochi IT ecosystem. Therefore, the present study addresses this gap by examining the relationship between economic, technological, social and environmental sustainability practices and employee engagement among employees working in selected IT organizations in and around Info Park, Kochi, Ernakulam, Kerala.

Conceptual Framework and Hypotheses

Based on the literature reviewed and the identified research gap, the present study proposes a conceptual framework linking four dimensions of sustainable talent management practices economic sustainability, technological sustainability, social sustainability, and environmental sustainability with employee engagement. Employee engagement is considered the outcome variable, while the four sustainability dimensions are treated as independent variables. The proposed relationships are represented in Figure 1.

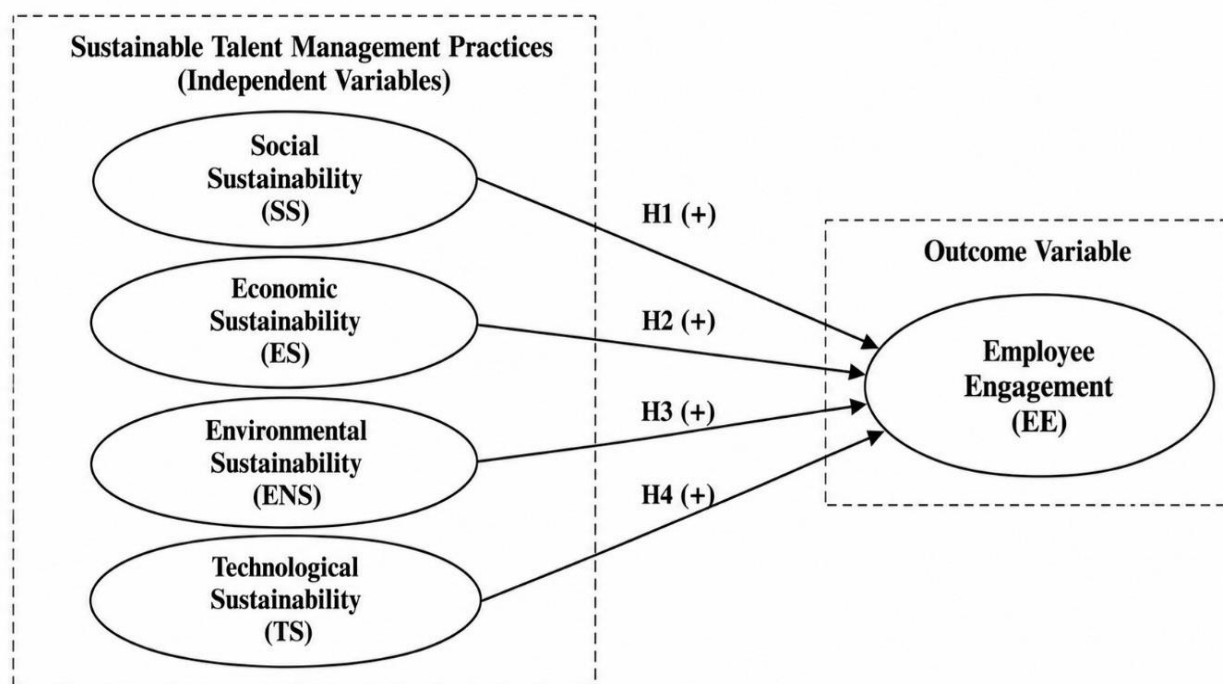


Figure 1. Conceptual Framework of the Study

Based on the proposed conceptual framework, the following hypotheses were formulated:

H1: Social Sustainability is positively associated with Employee Engagement.

H2: Economic Sustainability is positively associated with Employee Engagement.

H3: Environmental Sustainability is positively associated with Employee Engagement.

H4: Technological Sustainability is positively associated with Employee Engagement.

METHODOLOGY

Research Design

The study adopted a quantitative, cross-sectional research design to examine the relationship between sustainable talent management practices and employee engagement among employees working in selected IT organizations in Kerala, India. The study focused on four dimensions of sustainable talent management practices, namely economic sustainability, technological sustainability, social sustainability, and environmental sustainability, and examined their relationship with employee engagement. Primary data were collected using a structured questionnaire from employees working in selected IT organizations in and around InfoPark, Kochi, Ernakulam, Kerala. The collected data were coded and entered into Microsoft Excel and subsequently analyzed using IBM SPSS Statistics. Descriptive statistics, Cronbach's alpha, Pearson correlation, and multiple linear regression were employed to assess the characteristics of the sample, reliability of the measurement scales, relationships among the study variables, and the association with the four sustainability dimensions on employee engagement.

Study Area and Population

The study was conducted among employees working in selected IT organizations located in and around InfoPark, Kochi, Ernakulam, Kerala, India. InfoPark represents a major IT employment hub in Kerala and provides an appropriate setting for examining employees' perceptions of sustainability-oriented talent management practices. The target population comprised employees working in selected IT organizations within the study area. The study specifically examined employees' perceptions regarding economic, technological, social, and environmental sustainability practices and their relationship with employee engagement.

Sampling and Sample Size

A non-probability sampling approach was adopted for the selection of respondents. Employees working in selected IT organizations in and around InfoPark, Kochi, were approached through the researcher's personal and professional contacts. In addition, participating respondents were requested to circulate the questionnaire among other eligible employees working in the IT sector. Thus, respondent recruitment involved elements of convenience and referral-based snowball sampling. The questionnaire was circulated among a larger pool of potential respondents; however, only responses that were sufficiently complete and suitable for analysis were retained. A total of 204 usable responses were obtained and considered for the final analysis.

Data Collection Procedure

Primary data were collected using a structured questionnaire administered to employees working in selected IT organizations in and around InfoPark, Kochi. The respondents were approached through the researcher's personal and professional contacts, and the questionnaire was also circulated through participating respondents to other eligible IT employees. Respondents were provided with appropriate instructions regarding the purpose of the study and completion of the questionnaire. Participation was voluntary. A total of 204 usable responses were obtained. The responses were subsequently coded and entered into Microsoft Excel, and the finalized dataset was imported into IBM SPSS Statistics for statistical analysis.

Measurement of Variables

The study examined four dimensions of sustainable talent management practices, namely economic sustainability, technological sustainability, social sustainability, and environmental sustainability, with employee engagement considered as the outcome variable. The measurement items were developed with reference to relevant literature and previous empirical studies and were contextualized to the IT-sector setting. Economic sustainability, technological sustainability, social sustainability, environmental sustainability, and

employee engagement were operationalized through four measurement items each. All items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), with higher scores indicating stronger agreement with the respective statements. The measurement items and their corresponding codes are presented in Table 1.

Table 1. Measurement Constructs and Items

Construct	Code	Measurement Item
Social Sustainability	SS1	Work-life balance is promoted within the organization.
	SS2	Employees are treated fairly and respectfully.
	SS3	Team collaboration and mutual support are encouraged.
	SS4	Diversity and inclusion are valued within the organization.
Economic Sustainability	ES1	Fair compensation is provided for employees' work.
	ES2	Opportunities for career growth are provided.
	ES3	Employee benefits are satisfactory.
	ES4	Long-term employee well-being is supported.
Environmental Sustainability	ENS1	Environmentally responsible practices are encouraged.
	ENS2	Digital documentation is preferred to reduce paper usage.
	ENS3	Awareness of environmental sustainability is promoted.
	ENS4	Sustainable use of workplace resources is encouraged.
Technological Sustainability	TS1	Updated technologies are adopted effectively.
	TS2	Adequate technological support and training are provided.
	TS3	Digital tools improve work efficiency.
	TS4	Technology adoption supports organizational productivity.
Employee Engagement	EE1	Motivation to perform the job effectively.
	EE2	Emotional connection to the organization.
	EE3	Active participation in organizational activities.
	EE4	Enthusiasm toward work.

Data Analysis

The collected data were coded and entered into Microsoft Excel and subsequently analyzed using IBM SPSS Statistics. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to summarize the characteristics of the respondents and the study variables. The reliability of the measurement scales was assessed using Cronbach's alpha coefficient. Pearson correlation analysis was employed to examine the relationships among the study variables. Multiple linear regression analysis was conducted to determine the association with economic sustainability, technological sustainability, social sustainability, and environmental sustainability on employee engagement. In addition, tolerance and variance inflation factor (VIF) values were examined to assess the presence of multicollinearity among the independent variables. Statistical significance was evaluated at the 5 percent level.

Results

Demographic Profile of the Respondents

Table 2. Demographic Profile

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	99	48.5
	Female	105	51.5
Age	Below 25 years	26	12.7

	25–35 years	78	38.2
	36–45 years	71	34.8
	Above 45 years	29	14.2
Work Experience	Below 2 years	36	17.6
	2–5 years	79	38.7
	5–10 years	63	30.9
	Above 10 years	26	12.7
Monthly Income	Below ₹25,000	31	15.2
	₹25,000–₹50,000	68	33.3
	₹50,001–₹75,000	77	37.7
	Above ₹75,000	28	13.7

Source: Primary data.

Table 2. presents the demographic profile of the 204 respondents included in the study. The gender distribution indicates a relatively balanced representation, with female respondents constituting 51.5% of the sample and male respondents accounting for 48.5%. With respect to age, the largest proportion of respondents (38.2%) belonged to the 25–35 years age group, followed by respondents aged 36–45 years (34.8%). Respondents below 25 years constituted 12.7%, while 14.2% were above 45 years. In terms of work experience, the largest group of respondents (38.7%) had 2–5 years of experience, followed by those with 5–10 years of experience (30.9%). Respondents with below 2 years of experience accounted for 17.6%, while 12.7% had more than 10 years of experience. Regarding monthly income, 37.7% of respondents reported an income between ₹50,001 and ₹75,000, followed by 33.3% earning ₹25,000–₹50,000. A further 15.2% reported an income below ₹25,000, while 13.7% reported an income above ₹75,000. Overall, the sample represents employees across different age, experience, and income categories within the selected IT sector context.

Reliability Analysis

The internal consistency of the study constructs was assessed using Cronbach's alpha. The results indicated satisfactory internal consistency across all the constructs, with Cronbach's alpha values ranging from 0.705 to 0.821. Economic Sustainability recorded the highest reliability coefficient ($\alpha = 0.821$), followed by Employee Engagement ($\alpha = 0.763$), Technological Sustainability ($\alpha = 0.737$), Social Sustainability ($\alpha = 0.722$), and Environmental Sustainability ($\alpha = 0.705$). Since all the reliability coefficients exceeded the commonly accepted threshold of 0.70, the measurement scales demonstrated satisfactory internal consistency and were considered suitable for further statistical analysis. The analysis was based on 204 valid responses.

Descriptive Statistics

Table 3. Descriptive Statistics of the Study Variables

Study Variable	Mean	Standard Deviation
Economic Sustainability	3.23	0.78
Technological Sustainability	2.89	0.69
Social Sustainability	2.66	0.67
Environmental Sustainability	2.24	0.59
Employee Engagement	3.20	0.82

Source: Primary data.

Table 3. presents the mean and standard deviation of the study variables. Among the four dimensions of sustainable talent management practices, Economic Sustainability recorded the highest mean score ($M = 3.23$, $SD = 0.78$), followed by Technological Sustainability ($M = 2.89$, $SD = 0.69$) and Social Sustainability ($M = 2.66$, $SD = 0.67$). Environmental Sustainability recorded the lowest mean score ($M = 2.24$, $SD = 0.59$). Employee Engagement recorded a mean score of 3.20 ($SD = 0.82$). The findings indicate comparatively higher

perceptions of economic sustainability practices and comparatively lower perceptions of environmental sustainability practices among the respondents.

Pearson Correlation Analysis

Table 4. Pearson Correlation Matrix of the Study Variables

Variables	ES	TS	SS	ENS	EE
Economic Sustainability (ES)	1.000	.782**	.854**	.688**	.875**
Technological Sustainability (TS)	.782**	1.000	.808**	.720**	.886**
Social Sustainability (SS)	.854**	.808**	1.000	.772**	.869**
Environmental Sustainability (ENS)	.688**	.720**	.772**	1.000	.776**
Employee Engagement (EE)	.875**	.886**	.869**	.776**	1.000

Note: ** $p < .01$ (two-tailed). $N = 204$.

Source: Primary data.

Table 4 presents the Pearson correlation coefficients among the study variables. The results indicate positive and statistically significant relationships between all four dimensions of sustainable talent management practices and employee engagement. Technological Sustainability showed the strongest positive correlation with Employee Engagement ($r = .886$, $p < .01$), followed by Economic Sustainability ($r = .875$, $p < .01$), Social Sustainability ($r = .869$, $p < .01$), and Environmental Sustainability ($r = .776$, $p < .01$). These findings indicate that higher levels of perceived sustainability practices are associated with higher levels of employee engagement. The results provide preliminary evidence of positive associations between the sustainability dimensions and employee engagement and provide a basis for further analysis using multiple linear regression.

Multiple Linear Regression Analysis

Table 5. Multiple Linear Regression Results for Employee Engagement

Independent Variable	β	t	p	VIF
Economic Sustainability	.338	7.113	$< .001$	4.055
Technological Sustainability	.403	9.303	$< .001$	3.361
Environmental Sustainability	.140	3.641	$< .001$	2.651
Social Sustainability	.146	2.691	.008	5.304

Model Statistics: $R = .943$; $R^2 = .889$; Adjusted $R^2 = .887$; $F = 398.193$; $p < .001$.

Note: Dependent variable: Employee Engagement. β = Standardized regression coefficient.

Source: Primary data.

Table 5. presents the results of the multiple linear regression analysis conducted to examine the associations between four dimensions of sustainable talent management practices on employee engagement. The regression model was statistically significant ($F = 398.193$, $p < .001$), with an R^2 value of .889 and an adjusted R^2 of .887. This indicates that the four sustainability dimensions collectively explain 88.9% of the variance in employee engagement. Technological Sustainability emerged as the strongest predictor of employee engagement ($\beta = .403$, $p < .001$), followed by Economic Sustainability ($\beta = .338$, $p < .001$). Social Sustainability ($\beta = .146$, $p = .008$) and Environmental Sustainability ($\beta = .140$, $p < .001$) also showed significant positive associations with employee engagement. Overall, the findings indicate significant positive associations between the four sustainability dimensions and employee engagement within the present sample.

Hypothesis Testing

Table 6. Hypothesis Testing Results

Hypothesis	Relationship	Decision
H1	Social Sustainability → Employee Engagement	Supported
H2	Economic Sustainability → Employee Engagement	Supported
H3	Environmental Sustainability → Employee Engagement	Supported
H4	Technological Sustainability → Employee Engagement	Supported

Source: Primary data.

Table 6. presents the results of hypothesis testing. The findings indicate that all four proposed hypotheses are supported. Social Sustainability has a positive association with Employee Engagement ($\beta = .146$, $p = .008$), supporting H1. Economic Sustainability has a significant positive association with Employee Engagement ($\beta = .338$, $p < .001$), supporting H2. Environmental Sustainability also has a positive association with Employee Engagement ($\beta = .140$, $p < .001$), supporting H3. Technological Sustainability has a positive association with Employee Engagement ($\beta = .403$, $p < .001$), supporting H4. Among the four dimensions, Technological Sustainability has the highest standardized beta coefficient ($\beta = .403$), indicating that it is the strongest predictor of Employee Engagement, followed by Economic Sustainability ($\beta = .338$), Social Sustainability ($\beta = .146$), and Environmental Sustainability ($\beta = .140$).

DISCUSSION

The present study examined the relationship between sustainable talent management practices and employee engagement among employees working in selected IT organizations in and around InfoPark, Kochi, Kerala. The study considered economic, technological, social, and environmental sustainability as four dimensions of sustainable talent management practices. The findings demonstrate that all four dimensions have a positive association with employee engagement. The multiple regression model was statistically significant and explained 88.9% of the variance in employee engagement. This finding highlights the importance of adopting a broader sustainability-oriented approach to talent management rather than focusing exclusively on short-term organizational or economic outcomes. This perspective is consistent with the sustainable HRM literature, which emphasizes the integration of economic, social, and environmental objectives within HR systems and their implications for employee and organizational outcomes.

Among the four dimensions, technological sustainability emerged as the strongest predictor of employee engagement ($\beta = .403$, $p < .001$), followed by economic sustainability ($\beta = .338$, $p < .001$). The stronger contribution of technological sustainability may be particularly relevant to the IT sector, where employees operate in a technology-intensive and rapidly changing work environment. Technology-enabled work processes, opportunities for technological learning and skill development, and organizational readiness for technological change is associated with employees' ability to perform effectively and remain actively involved in their work. Recent research on sustainable HRM in the digital era similarly emphasizes the importance of digital readiness, skill development, and the alignment of HR practices with technological transformation for supporting employee engagement. The finding also supports the emerging view that sustainable talent management needs to respond simultaneously to the digital and sustainability transitions facing contemporary organizations.

Economic sustainability also demonstrated a strong and significant associated with employee engagement ($\beta = .338$, $p < .001$). This suggests that employees may respond positively when organizational practices support long-term economic viability while also providing a stable and supportive employment environment. Sustainable HRM extends beyond immediate organizational performance by considering the long-term sustainability of both the organization and its workforce. Thus, practices that contribute to organizational continuity, workforce development, productivity, and sustainable value creation may strengthen employees' perceptions of organizational support and encourage greater engagement. The finding is consistent with the broader sustainable HRM perspective, which views economic sustainability as an important component of a

balanced approach to organizational sustainability rather than treating environmental or social objectives in isolation.

Social sustainability was also found to have a positive association with employee engagement ($\beta = .146$, $p = .008$), although its relative predictive contribution was lower than those of technological and economic sustainability. This finding indicates that socially oriented organizational practices remain relevant to employees' engagement even within a highly technology-driven work environment. Sustainable HRM literature highlights employee well-being, fairness, inclusion, meaningful work, and supportive employment relationships as important dimensions of socially responsible people management. The positive relationship observed in the present study therefore suggests that technological advancement alone may not be sufficient to sustain employee engagement; organizations also need to maintain people-centred employment practices.

Environmental sustainability showed a positive association with employee engagement ($\beta = .140$, $p < .001$), although it recorded the smallest standardized coefficient among the four predictors. The finding indicates that environmental sustainability practices are positively associated with employee engagement, but their relative contribution was comparatively weaker in the present IT-sector context. This may reflect the relatively less direct visibility of environmental practices in employees' day-to-day work compared with technological and economic practices. Nevertheless, recent research emphasizes that HR practices can contribute to environmental sustainability by developing green skills, encouraging environmentally responsible behaviour, and integrating sustainability objectives into employee development and organizational practices. Thus, the positive relationship identified in this study suggests that environmental sustainability should remain an integral component of sustainable talent management, even when its immediate association with employee engagement is comparatively modest.

Overall, the findings indicate that employee engagement in the selected IT organizations is associated with a combination of technological, economic, social, and environmental sustainability practices. The relatively stronger effects of technological and economic sustainability suggest that IT organizations may need to prioritize technology-enabled employee development, continuous skill enhancement, organizational adaptability, and economically sustainable employment practices while simultaneously maintaining social and environmental responsibilities. This integrated approach is consistent with the emerging literature on sustainable talent management, which emphasizes the need to align human capital development with both digital transformation and broader sustainability objectives. The findings therefore reinforce the importance of viewing sustainable talent management as a multidimensional organizational approach capable of supporting both employee engagement and longer-term organizational sustainability.

The findings offer practical insights for IT organizations seeking to strengthen employee engagement through an integrated approach to sustainable talent management, while recognizing the importance of technological, economic, social, and environmental considerations. However, the study is limited to selected IT organizations in and around InfoPark, Kochi, and uses non-probability convenience and referral-based snowball sampling. These factors may limit the representativeness of the sample, and the findings should not be generalized to the entire IT workforce in Kerala. The cross-sectional design also limits causal interpretation. As the study is based on cross-sectional, self-reported data, the findings are interpreted within the scope of the research design. Although this approach provides useful insights into employees' perceptions of sustainable talent management practices and their association with employee engagement, future research could include employees from a wider range of IT organizations and locations, employ more representative sampling approaches, use longitudinal designs, and draw on complementary data sources to examine these relationships further.

CONCLUSION

The present study examined the relationship between sustainable talent management practices and employee engagement among employees working in selected IT organizations in and around InfoPark, Kochi, Kerala. The study considered economic, technological, social, and environmental sustainability as key dimensions of sustainable talent management practices. The findings demonstrate that all four dimensions have a positive association with employee engagement, indicating that sustainability-oriented talent management practices can

contribute to creating a more engaged workforce in the IT sector. Among the four dimensions, technological sustainability emerged as the strongest predictor of employee engagement, followed by economic sustainability. Social and environmental sustainability also demonstrated significant positive associated although their relative contributions were comparatively lower. The findings highlight the particular importance of technology-enabled work practices, continuous technological learning, and economically sustainable talent management in the IT-sector context, while also emphasizing the continued relevance of social and environmental considerations.

Overall, the study concludes that sustainable talent management should be approached as a multidimensional practice that integrates economic, technological, social, and environmental considerations. For IT organizations in Kerala, adopting such an integrated approach can support employee engagement while contributing to the long-term sustainability of the workforce and the organization. The study provides empirical evidence on the relevance of sustainability-oriented talent management in the IT sector and offers a basis for organizations to strengthen their human resource practices in response to evolving technological and sustainability demands.

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