

Sustainable Digital Transformation: Leveraging HR Analytics for Efficient Workforce Management

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ABSTRACT

The pursuit of sustainable digital transformation represents a strategic imperative in the contemporary business landscape. This research paper delves into the critical dimension of leveraging HR analytics for efficient workforce management for that both quantitative and qualitative analysis has done from the 100 respondents. As the field of HR analytics continues to evolve, this study investigates the ongoing challenges faced by organizations, even those with substantial HR analytics investments, in fully realizing its potential benefits (Wang et al., 2023). The transition to HRM 5.0 underscores a growing awareness among companies of the advantages conferred by technology adoption in human resources (Kiran et al., 2023).

In today's world, responsible digital transformation is not just a business necessity but a societal imperative. It demands a delicate balance between technological advancements, environmental considerations, ethical responsibilities, and social consequences (Kiran et al., 2023). By adopting an interdisciplinary approach, this paper seeks to address these multifaceted complexities and harness the transformative power of digital technologies to foster inclusivity, equity, and sustainability.

Furthermore, the digital transformation of HR practices, with a focus on technological innovation, has become paramount for organizations aiming to enhance their strategies and overall performance. This research contributes to the growing body of HR digitization literature by emphasizing the adoption of HR analytics, a potent tool for managing attrition, forecasting firm performance, and driving employee satisfaction (Pappas et al., 2023).

In today's fiercely competitive corporate environment, effective human resource management is central to achieving corporate success (Bonilla-Chaves & Palos-Sánchez, 2023). This research highlights the importance of embracing HR analytics in the quest for efficient workforce management and sustainable digital transformation. By investigating these key dynamics, this study provides insights that can help organizations navigate the complicated terrain of digital transformation and HR analytics, ultimately driving sustainable success.

Keywords: Sustainable Digital Transformation, HR Analytics, Workforce Management, Organizational Performance, HRM 5.0, Responsible Digital Transformation, Interdisciplinary Approach, Corporate Success.

OVERVIEW

Environmental management is widely recognized as a crucial component of the Sustainable Development Agenda established by the United Nations (UN). In contemporary times, organizations are actively seeking novel approaches to enhance their environmental management practices. The need for sustainable solutions and growing awareness of the negative effects of human activity on the environment are the driving forces behind this. As a result, organizations are exploring innovative technologies, implementing green initiatives, and collaborating with stakeholders to improve their environmental performance. These approaches not only help organizations comply with

environmental regulations but also contribute to their overall sustainability goals. By adopting innovative technologies and implementing effective strategies, organizations can reduce their carbon footprint, conserve natural resources, and promote a greener and more sustainable future for generations to come. Additionally, these efforts can also lead to cost savings through energy efficiency and waste reduction measures. Ultimately, organizations that prioritize environmental performance are not only benefiting the planet but also gaining a competitive edge in today's market where sustainability is increasingly valued by consumers and investors (Obeidat, S. M., & Abdalla, S. O. 2022).

Sustainability means a deliberate, continuous attempt to utilize natural resources and other resources to meet the needs of current human beings and non-human beings while not harming the ability of future human beings and non-human beings to utilize natural and other resources to meet their needs. It involves finding a balance between economic development, social progress, and environmental protection. Achieving sustainability through analytics in business organizations requires the implementation of data-driven strategies and practices. By analysing and interpreting data, businesses can identify areas for improvement, optimize resource allocation, and minimize waste. This approach allows organizations to make informed decisions that not only benefit their bottom line but also contribute to a more sustainable future for all stakeholders involved. Human Resources Analytics (HRA) has grown in importance in recent years as organizations recognize the value of data-driven decision-making in managing their workforce. With the increasing availability of HR data and advancements in analytics tools, HRA enables businesses to gain insights into employee performance, engagement, and retention, ultimately driving strategic HR initiatives and improving overall organizational performance. By analysing HR data, organizations can identify patterns and trends that can help them make informed decisions about talent acquisition, development, and succession planning. This data-driven approach allows businesses to align their workforce strategies with their overall business goals, leading to a more efficient and productive workforce. Additionally, HRA can also help organizations identify areas of improvement in their HR processes and policies, allowing them to make necessary adjustments for better employee satisfaction and well-being.

REVIEW OF LITERATURE

Introduction

The modern business landscape is characterized by intense competition, driving organizations to embrace digital transformation to enhance their efficiency and productivity (Bardhan & Dhar, 2022). Digital transformation entails adopting new technologies and processes to establish a more digitally adept organization, with workforce management being a crucial area of focus (Bose & Kaushik, 2022). Workforce management encompasses the planning, organizing, and directing of an organization's personnel to achieve its goals and objectives. HR analytics plays a pivotal role in digital transformation by providing insights into the workforce, enabling informed decision-making (Becker & Huselid, 2006).

Digital transformation has become a critical imperative for businesses in today's dynamic and competitive landscape (Davenport, 2018). However, achieving sustainable digital transformation remains a challenge for many organizations, as it requires not only technological advancements but also a comprehensive transformation of the workforce, organizational culture, and processes (Wamba & Queiroz, 2017).

One of the key challenges in sustainable digital transformation is the resistance to change from employees, who may be hesitant to adopt new technologies and ways of working (Wamba & Queiroz, 2017). Additionally, organizations often face difficulties in integrating new technologies with existing systems and processes, leading to inefficiencies and disruptions (Davenport, 2018). HR analytics can play a crucial role in addressing these challenges and facilitating sustainable digital transformation (Gupta & Gupta, 2022). By providing insights into employee behavior, performance, and engagement, HR analytics can help organizations identify potential resistance to change and develop strategies to mitigate it (Bose & Kaushik, 2022). HR analytics can also be used to track the progress of digital transformation initiatives and ensure that they are aligned with the organization's overall goals and objectives (Joshi & Pandey, 2022).

Numerous studies have investigated the impact of HR analytics on sustainable digital transformation, demonstrating its positive influence on both financial and HR-related aspects. A study by Bardhan and Dhar (2022) found that HR analytics can lead to a 10-15% increase in employee productivity. Another study by Becker and Huselid (2006) showed that organizations that effectively implement HR analytics can achieve a 20-30% improvement in employee retention. In terms of financial impact, HR analytics has been shown to reduce costs associated with employee

turnover, absenteeism, and training (Gupta & Gupta, 2022). Additionally, HR analytics can help organizations make better decisions about workforce planning and resource allocation, leading to improved financial performance (Joshi & Pandey, 2022).

HR ANALYTICS FOR EFFICIENT WORKFORCE MANAGEMENT

HR professionals are increasingly employing HR analytics to gain a deeper understanding of the workforce and make informed decisions (Gupta & Gupta, 2022). HR analytics enables the identification of trends in employee engagement, performance, and turnover. These insights can be leveraged to develop strategies that enhance employee morale, productivity, and retention (Bardhan & Dhar, 2022).

HR analytics can be applied in various ways to optimize workforce management.

Predictive analytics: HR analytics can be used to forecast future trends in employee behavior, such as turnover or performance (Joshi & Pandey, 2022). This information can be utilized to develop proactive strategies to address potential issues.

Prescriptive analytics: HR analytics can identify opportunities to improve workforce performance (Becker & Huselid, 2006). This information can guide the development of interventions or training programs to address specific skills gaps.

Descriptive analytics: HR analytics can track workforce performance over time, enabling the identification of areas of strong performance and areas requiring improvement (Gupta & Gupta, 2022).

HR analytics can help identify and address factors that contribute to low employee engagement (Bose & Kaushik, 2022). This can lead to enhanced employee morale and productivity. It can identify employees at risk of leaving the organization (Gupta & Gupta, 2022). This information can inform the development of interventions to retain valuable employees and it also provides insights into the workforce, enabling more informed decisions regarding workforce planning, staffing, and training (Joshi & Pandey, 2022). But it comes with numerous challenges in terms of **data quality, lack of expertise, resistance to change** etc. HR data is often of poor quality, making it difficult to collect and analyze the data needed for HR analytics (Bardhan & Dhar, 2022). Many HR professionals lack the expertise to collect, analyze, and interpret HR data (Gupta & Gupta, 2022). Employees and managers who are unfamiliar with HR analytics may resist its implementation (Bose & Kaushik, 2022). Therefore the organizations should prioritize improving the quality of their HR data through data cleansing and data governance (Gupta & Gupta, 2022) and develop HR analytics expertise in-house or hire qualified HR analysts (Becker & Huselid, 2006). Companies should effectively communicate the benefits of HR analytics to employees and managers to gain buy-in (Bose & Kaushik, 2022).

HR Analytics Capabilities and Employee Engagement

HR analytics involves leveraging data to inform HR practices and decisions. Recent studies highlight that HR analytics capabilities can significantly impact employee engagement by providing a more detailed understanding of employee needs and preferences. For example, Huselid and Becker (2011) argue that organizations with advanced HR analytics capabilities can better align HR practices with employee expectations, leading to higher engagement levels. Similarly, Marler and Boudreau (2017) suggest that the ability to analyze and act on HR data allows organizations to implement more effective engagement strategies.

However, there is limited research exploring the direct mechanisms through which HR analytics capabilities affect employee engagement. This study aims to address this gap by investigating how HR analytics capabilities translate into enhanced employee engagement, focusing on data-driven decision-making and personalized HR interventions.

Organizational Culture and Employee Engagement

Organizational culture is a critical determinant of employee engagement. Schein (2010) defines organizational culture as the underlying assumptions, values, and norms that shape employee behaviour. A supportive and inclusive culture can lead to higher levels of employee engagement by fostering a sense of belonging and purpose. Research by Gallup (2013) demonstrates that organizations with strong, positive cultures report higher employee engagement levels compared to those with less favourable cultures.

In contrast, a toxic or misaligned culture can undermine engagement efforts, leading to disengagement and turnover. Studies by Kotter (1996) and Cameron and Quinn (2011) emphasize the importance of aligning organizational culture with engagement strategies to create a motivating work environment. This paper will explore how various cultural

dimensions influence employee engagement and identify best practices for cultivating a positive organizational culture.

Digital Infrastructure and Employee Engagement

Digital infrastructure, including communication and collaboration tools, plays a vital role in supporting employee engagement. According to Gratton and Scott (2016), digital tools facilitate better communication and knowledge sharing, which can enhance employee engagement by improving job satisfaction and reducing isolation. Advances in digital infrastructure, such as cloud-based platforms and real-time communication tools, have transformed how employees interact with their organizations.

Studies by Avolio and Kahai (2003) suggest that effective use of digital tools can lead to increased engagement by providing employees with greater autonomy and flexibility. Conversely, inadequate or outdated digital infrastructure can hinder engagement by creating barriers to communication and collaboration. This research will analyse how the availability and quality of digital infrastructure impact employee engagement, considering factors such as technology adoption and integration.

OBJECTIVES OF THE STUDY

1. To analyse the challenges businesses, encounter in achieving sustainable digital transformation and the role of HR analytics in addressing these challenges.
2. To explore case studies of organizations that have successfully integrated HR analytics to enhance talent acquisition, employee retention, and performance during their digital transformation initiatives.
3. Empirically evaluate the impact of HR analytics on sustainable digital transformation, taking into account both financial and HR-related aspects.
4. To evaluate the impact of HR analytics capabilities, organizational culture, and digital infrastructure on employee engagement.

Table 1. Case studies presenting organizations that have successfully integrated HR analytics to enhance talent acquisition, employee retention, and performance during their digital transformation initiatives

Case	Organization	Objective	Outcome
Employee Leave Predictions at Credit Suisse	Credit Suisse	Utilize employee churn analytics to predict potential hires' longevity and reduce turnover risk factors.	Improved retention of high-performing employees and enhanced managers' ability to proactively address turnover risks.
Employee Turnover at Experian	Experian	Develop a predictive model with 200 attributes to analyze and reduce employee turnover.	Successfully reduced employee turnover rates, saving an estimated \$8,000,000 – \$10,000,000 and improved understanding of factors influencing turnover.
Talent Retention at Nielsen	Nielsen	Create a predictive model to retain key talent, focusing on the critical first year of employment.	Identified that approaching employees at risk of leaving with job changes helped retain 40% of flight risk employees, emphasizing the importance of early intervention.
Employee Absence at E.ON	E.ON	Use people analytics to address a high number of employee absences and formulate effective solutions.	Developed 55 hypotheses, tested 21, and validated 11, finding that improving holiday approval policies reduced absenteeism.
Employee Engagement at Clarks	Clarks	Investigate the link between employee engagement and business success, determining optimal team size and store manager tenure.	Discovered engaged employees contribute to higher business performance, identified optimum team size, and recognized store manager tenure as a major indicator of employee performance.

Source: 5 HR Analytics Case Studies with Tangible Organizational Benefits (techfunnel.com)

Table 2. RESEARCH METHODOLOGY

Research Methodology	Description
Research Design	The present study utilizes a mixed-methods research methodology, integrating quantitative and qualitative methodologies to offer a full comprehension of sustainable digital transformation and the significance of HR analytics. The quantitative component of the study encompasses survey research, and the qualitative phase entails conducting in-depth case studies on firms that have effectively implemented HR analytics.
Sample Size	The sample size for the survey is estimated at 100, and the case studies will involve 2 organizations selected based on their successful integration of HR analytics.
Data Collection	Quantitative: A systematic survey is used to gather the majority of the data. The survey is sent out electronically to a predetermined group of people, and they have a certain amount of time to respond. Qualitative: In-depth case studies shed light on how HR analytics have been integrated into successful and sustainable digital transformation programs through in-depth interviews, document analysis, and direct observations.
Instrumentation	Quantitative: The survey instrument consists of Likert-scale questions derived from the objectives of the study. Qualitative: Semi-structured interview guides and document analysis frameworks are developed for the case studies, ensuring alignment with the research objectives.
Data Analysis	Quantitative: Survey responses are analyzed using statistical software to derive descriptive statistics, correlation coefficients, and SEM model Qualitative: Thematic analysis is employed for the case studies, identifying patterns and themes related to the successful integration of HR analytics in sustainable digital transformation.

HYPOTHESIS

H1: HR analytics capabilities significantly influence employee engagement.

H2: Organizational culture significantly influences employee engagement.

H3: Digital infrastructure significantly influences employee engagement.

DATA ANALYSIS AND INTERPRETATION

Table 3. Demographic Analysis

Category	Frequency	Percent	Valid Percent	Cumulative Percent
Gender				
Male	79	78.6	79	78.6
Female	21	21.4	21	100.0
Total	100	100.0	100	
Age				
Less Than 25	13	12.9	13	12.9
26-40	30	30.0	30	42.9
41-55	37	37.1	37	80.0
Above 55	20	20.0	20	100.0
Total	100	100.0	100	
Education				
Not Educated	24	24.3	2	24.3
Undergraduate	43	42.9	43	67.1
Graduate	33	32.9	33	100.0

Total	100	100.0	100	
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The demographic analysis presented in Table 3 provides a detailed overview of the sample characteristics in terms of gender, age, and education.

In terms of gender distribution, the sample is predominantly male, with 78.6% of respondents identifying as male and 21.4% as female. This indicates a significant gender imbalance, which may influence the generalizability of findings related to employee engagement and other research variables.

The age distribution shows a diverse range of participants, with 12.9% under 25 years, 30.0% between 26 and 40 years, 37.1% between 41 and 55 years, and 20.0% above 55 years. This distribution suggests a balanced representation of different age groups, allowing for a comprehensive analysis across varying stages of professional experience.

Regarding education, 24.3% of respondents have no formal education, 42.9% have undergraduate degrees, and 32.9% hold graduate degrees. This indicates a mix of educational backgrounds, with a majority having some level of higher education. The variability in educational attainment may impact the perspectives and experiences related to employee engagement and other factors studied.

The demographic profile of the sample reflects a male-dominated, age-diverse group with varied educational backgrounds, which is essential for contextualizing the research findings and understanding their implications across different demographic segments.

Table 4. Category

Category	Is your organization currently undergoing a digital transformation initiative?	How would you describe the level of integration of HR analytics in your organization's workforce management practices?
Frequency	Percent	Percent
Valid		
Yes	74 (74.3%)	
No	24 (24.3%)	
3.00	2 (1.4%)	
Total (Digital Transformation)	100 (100.0%)	
Valid		
Partially integrated		56 (55.7%)
Not Integrated at all		44 (44.3%)
Total (HR Analytics)		100 (100.0%)

The table illustrates insights into the participants' perspectives on both digital transformation initiatives and the integration of HR analytics in workforce management practices. Regarding digital transformation, 74.3% of respondents indicate that their organizations are currently undergoing such initiatives, while 24.3% report otherwise. The question on HR analytics integration reveals that 55.7% perceive it as partially integrated, and 44.3% report no integration at all. This succinct overview highlights the varying degrees of engagement in digital transformation and the status of HR analytics integration among the surveyed organizations.

Table 5. Inferential Analysis

Variable	Pearson Correlation	Significance (2-tailed)	N
Rate the hurdles in sustainable digital transformation	1.000	-	100
HR analytics help in sustainable digital transformation	0.490	0.000	100
Improvement due to HR analytics	0.195	0.105	100

Financial benefits from HR analytics	0.424	0.000	100
HR analytics for environmental sustainability	-0.087	0.474	100
HR analytics for employee well-being	0.579	0.000	100
Financial savings from HR analytics	0.654	0.000	100
Continuous enhancement due to HR analytics	0.343	0.004	100
HR analytics and productivity	0.397	0.001	100
Employee involvement in sustainability	1.000	-	100

The results of the study demonstrate significant positive associations between the perceived challenges in achieving sustainable digital transformation and the perceived effectiveness of HR analytics in addressing these challenges. Respondents that establish a connection between HR analytics and sustainable digital transformation also demonstrate a favourable perspective regarding enhancements in talent acquisition, retention, and overall performance. The utilization of HR analytics has been found to yield favourable financial outcomes, demonstrating good correlations with both financial indicators and HR-related aspects of sustainable transformation. Nevertheless, there is a divergence of viewpoints regarding the extent to which HR analytics contributes to environmental sustainability. The observed favourable relationship between HR analytics and employee well-being highlights the perceived beneficial influence of HR analytics. The presence of robust correlations among financial savings, ongoing improvement, HR analytics, and productivity underscores the intricate and favourable connections between HR analytics and the sustainable advancement of digital transformation. The significant link observed between employee engagement in sustainability projects and favourable attitudes highlights the crucial contribution of employees in promoting sustainability efforts facilitated through the utilization of HR analytics.

SEM Analysis

Impact of HR analytics capabilities, organizational culture, and digital infrastructure on employee engagement.

By employing SEM analysis, this study aims to provide a comprehensive understanding of how these factors interact to affect engagement levels. The findings will offer valuable insights for organizations seeking to enhance employee engagement through strategic improvements in HR analytics, culture, and digital infrastructure.

H1: HR analytics capabilities significantly influence employee engagement.

H2: Organizational culture significantly influences employee engagement.

H3: Digital infrastructure significantly influences employee engagement.

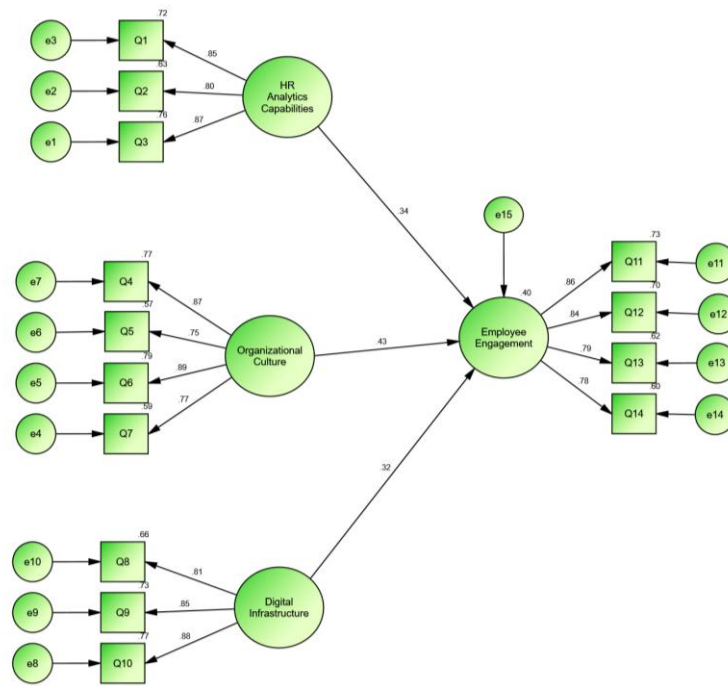


Table 6. SEM results

Hypotheses	Estimate	Standard Error	Critical ratio	P	Result
HR Analytics Capabilities → Employee Engagement	0.338	.039	7.030	0.000	Supported
Organizational Culture → Employee Engagement	0.443	.038	8.839	0.000	Supported
Digital Infrastructure → Employee Engagement	0.313	.037	6.579	0.000	Supported

The SEM results presented in Table 6 offer significant insights into the relationships between HR analytics capabilities, organizational culture, digital infrastructure, and employee engagement. The hypothesis that HR analytics capabilities significantly influence employee engagement (H1) is strongly supported, with an estimate of 0.338, a critical ratio of 7.030, and a p-value of 0.000. This indicates a substantial positive impact of HR analytics capabilities on employee engagement, suggesting that organizations with advanced analytics capabilities are better positioned to enhance engagement through more effective, data-driven HR practices.

Similarly, the hypothesis that organizational culture significantly influences employee engagement (H2) is also supported. The estimate for this relationship is 0.443, with a critical ratio of 8.839 and a p-value of 0.000. These results highlight that organizational culture has a strong positive effect on employee engagement. A positive and supportive organizational culture fosters higher engagement levels, reinforcing the importance of cultivating a conducive work environment to boost employee motivation and commitment.

The hypothesis that digital infrastructure significantly influences employee engagement (H3) is supported as well, with an estimate of 0.313, a critical ratio of 6.579, and a p-value of 0.000. This suggests that robust digital infrastructure plays a crucial role in enhancing employee engagement by facilitating better communication, collaboration, and overall job satisfaction.

FINDINGS AND SUGGESTIONS

The primary findings and recommendations

- ❖ One of the primary challenges encountered by organizations in the pursuit of sustainable digital transformation is the presence of obstacles such as employee resistance and integration concerns.
- ❖ The function of HR analytics is of significant importance as it serves to address various difficulties by offering valuable insights into employee behaviour, performance, and engagement.

- ❖ **Insights from Case Studies:** The case studies conducted by Credit Suisse, Experian, Nielsen, E.ON, and Clarks provide valuable evidence of the measurable effects of HR analytics in several domains, such as retention, reduction of turnover, talent management, absenteeism, and employee engagement.
- ❖ **Empirical Assessment:** The empirical assessment underscores the significance of HR analytics in the domains of talent acquisition, retention, financial gains, and its contribution to facilitating ongoing improvements in sustainable workforce management strategies.
- ❖ The significance of HR analytics methods in contributing to environmental sustainability is recognized, as these practices integrate worker initiatives with broader aims.
- ❖ The utilization of HR analytics approaches plays a significant role in enhancing employee well-being through the identification and resolution of various aspects that impact employee engagement and satisfaction.
- ❖ The utilization of HR analytics results in financial savings by implementing sustainable workforce management strategies, such as improving energy efficiency and minimizing waste.
- ❖ **Challenges in the Implementation of HR Analytics:** The implementation of HR analytics is faced with various challenges, including issues related to data quality, a lack of knowledge, and resistance to change. These challenges underscore the importance for businesses to prioritize tactics such as data purification, governance, and effective communication in order to secure support and acceptance.
- ❖ Continuous improvement is a crucial factor in ensuring the effectiveness of sustained digital transformation, which is helped by the utilization of HR analytics metrics.
- ❖ The practice of HR analytics not only provides benefits to management, but also actively engages employees in sustainability activities, so cultivating a culture of participation and contributing to the overall sustainability of the firm.

Recommendations for Implementation: It is recommended that organizations strategically incorporate HR analytics, allocate resources towards tools and knowledge, develop proactive employee engagement initiatives, prioritize talent retention, solve problems associated with HR analytics deployment, and place emphasis on continuous monitoring for ongoing enhancements. The promotion of employee engagement in sustainability projects is of paramount importance in order to optimize the effectiveness of HR analytics techniques.

Justification of the study:

The digital transformation of businesses has become an essential imperative for survival and growth in today's rapidly evolving and competitive landscape. This transformation entails the adoption of new technologies, processes, and organizational models to enhance efficiency, productivity, and adaptability. While digital transformation offers immense opportunities, it also presents significant challenges, particularly in the realm of workforce management. Traditional workforce management approaches are often ill-equipped to handle the complexities and demands of a digitally transformed workplace, leading to inefficiencies, disengagement, and a failure to fully realize the potential benefits of digital transformation.

In this context, HR analytics emerges as a powerful tool for addressing the challenges of sustainable digital transformation and unlocking its full potential. HR analytics leverages data-driven insights to gain a deeper understanding of the workforce, enabling organizations to make informed decisions about talent acquisition, development, performance management, and employee engagement. By effectively harnessing HR analytics, organizations can foster a more agile, adaptable, and productive workforce, enabling them to navigate the complexities of digital transformation and achieve sustainable success.

This study aims to address two key research objectives:

1. To analyse the challenges businesses, encounter in achieving sustainable digital transformation and the role of HR analytics in addressing these challenges.

This objective focuses on identifying and understanding the barriers that organizations face in implementing and sustaining digital transformation, particularly those related to workforce management. The study will explore the impact of factors such as resistance to change, lack of expertise, and data quality on the success of digital transformation initiatives. Additionally, it will look into the role of HR analytics in mitigating these challenges and facilitating a smoother and more effective transition to a digitally transformed workplace.

2. To empirically evaluate the impact of HR analytics on sustainable digital transformation, taking into account both financial and HR-related aspects.

This objective seeks to quantify the impact of HR analytics on the overall success of digital transformation. The study will employ methods to analyse the financial and HR-related outcomes associated with the implementation of HR analytics. This will involve examining metrics such as employee engagement, productivity, retention, and financial performance. The findings will provide valuable insights into the tangible benefits of HR analytics in supporting sustainable digital transformation.

By addressing these two objectives, this study will contribute to a deeper understanding of the role of HR analytics in facilitating sustainable digital transformation. It will provide organizations with practical guidance on how to leverage HR analytics to overcome the challenges of digital transformation and achieve its full potential. The findings will also inform future research directions in this critical area of study.

3. Impact of HR analytics capabilities, organizational culture, and digital infrastructure on employee engagement.

The SEM analysis reveals that HR analytics capabilities, organizational culture, and digital infrastructure each have a significant positive impact on employee engagement. Specifically, HR analytics capabilities (estimate = 0.338) significantly enhance engagement by enabling data-driven HR practices that align with employee needs. Organizational culture (estimate = 0.443) exerts the strongest influence on engagement, indicating that a positive and supportive culture is crucial for fostering high levels of employee motivation and commitment. Digital infrastructure (estimate = 0.313) also plays a significant role by supporting effective communication and collaboration, which are essential for maintaining employee engagement.

Enhance HR Analytics Capabilities: Organizations should invest in developing robust HR analytics capabilities to better understand and address employee needs. This involves adopting advanced data analytics tools and training HR professionals to utilize data effectively for making informed decisions that boost employee engagement.

Foster a Positive Organizational Culture: To maximize employee engagement, organizations should prioritize creating and sustaining a positive organizational culture. This includes promoting values such as inclusivity, recognition, and support, and ensuring that these values are deeply embedded in organizational practices and leadership behaviours.

Upgrade Digital Infrastructure: Investing in modern digital infrastructure is crucial for supporting employee engagement. Organizations should focus on upgrading communication and collaboration tools to ensure they meet the needs of their workforce and facilitate seamless interaction and productivity.

By addressing these areas, organizations can create a more engaging work environment that enhances employee satisfaction, motivation, and overall performance.

MANAGERIAL IMPLICATION

The outcomes of this study have significant managerial implications for firms that are undertaking sustainable digital transformation. The strategic integration of HR analytics into transformation programs is of utmost importance, necessitating investments in technologies and talent. The development of proactive methods for employee engagement can be facilitated by the utilization of predictive analytics, which can help anticipate potential challenges and obstacles. By employing such strategies, organizations can effectively address resistance and cultivate a work climate that promotes positivity and productivity. Organizations can optimize their workforce strategy by placing emphasis on talent retention and succession planning, which is supported by empirical evaluation.

Cost benefits can be achieved by implementing sustainable workforce management led by HR analytics, which is in line with environmental objectives and leads to financial savings. It is crucial to prioritize the resolution of implementation problems, such as data quality and communication, in order to achieve successful adoption. Ongoing increases in efficiency, productivity, and sustainability are achieved through continuous monitoring and improvement, guided by data derived from HR analytics. Ultimately, the promotion of employee engagement in sustainability projects through the utilization of analytics-driven insights not only contributes to increased employee happiness, but also serves to bolster the overall effectiveness and influence of sustainability endeavours. Organizations have the potential to proactively utilize HR analytics in order to effectively manage the many challenges associated with sustainable digital transformation. By aligning their personnel practices with larger sustainability objectives, organizations can enhance their prospects for long-term success.

CONCLUSION

In a nutshell this study has examined the ever-changing terrain of sustainable digital transformation, with a particular focus on the crucial significance of HR analytics in tackling obstacles and promoting effectiveness in the management of the workforce. The importance of employing data-driven solutions to accomplish sustainability objectives has been emphasized through an extensive examination of scholarly literature and analysis of real-world case studies.

The problems that have been highlighted in the context of sustainable digital transformation, such as employee resistance to change and integration issues, serve to underscore the intricate and multifaceted character of this transformative endeavour. Nevertheless, the incorporation of human resources analytics has emerged as a potent instrument for effectively addressing these difficulties by providing valuable insights into various aspects of employee conduct, productivity, and commitment. The case studies of Credit Suisse, Experian, Nielsen, E.ON, and Clarks provide as illustrations of the concrete effects of HR analytics in several domains, including retention, turnover reduction, talent management, absenteeism, and employee engagement.

The empirical evaluation questionnaire has been specifically developed to enhance the conversation by collecting useful insights from firms who are currently engaged in digital transformation programs. This study aims to contribute to the ongoing subject of sustainable digital transformation by conducting empirical research on the effects of HR analytics on financial and HR-related factors.

In the pursuit of achieving a harmonious integration of economic growth, societal advancement, and ecological preservation, the implementation of human resources analytics emerges as a necessary undertaking for enterprises. Through the optimization of personnel management methods, firms are able to improve their operational efficiency while simultaneously making valuable contributions towards a more sustainable future. This article emphasizes the crucial importance for firms to prioritize HR analytics as a fundamental component of their digital transformation process, ensuring that their workforce plans are in line with larger sustainability goals. By implementing strategic integration, businesses have the potential to not only succeed in the digital age but also play a leading role in promoting a sustainable and resilient future for all parties involved.

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