



The Effectiveness of Digital Leadership in Promoting Employee Engagement and Organizational Innovation

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Abstract

Rapid technological advancement has intensified the need for leadership approaches capable of guiding organizations through digital transformation while sustaining high levels of employee motivation and creativity. Digital leadership, defined as the ability to integrate digital competencies with vision-building, communication, and people-oriented influence, has emerged as a critical factor in shaping organizational adaptability and innovative capacity. Despite its growing importance, empirical understanding of how digital leadership affects employee attitudes and innovation-related outcomes remains limited. This article addresses this gap by examining the effectiveness of digital leadership in promoting employee engagement—characterized by vigor, dedication, and absorption—and subsequently organizational innovation, conceptualized through employees' innovative work behaviors. Grounded in contemporary leadership and innovation theories, the study proposes a mediation model in which employee engagement acts as the psychological mechanism through which digital leadership fosters innovation. Using validated measurement instruments and a quantitative research design, data were collected from employees across technology-intensive and knowledge-based sectors. Structural equation modelling was employed to assess both direct and indirect effects. Results demonstrate that digital leadership is strongly and positively associated with employee engagement, and engagement significantly predicts innovative work behavior. Mediation analyses further confirm that engagement partially mediates the relationship between digital leadership and innovation, suggesting that digitally competent leaders influence innovation not only through technology-driven processes but also by shaping employees' motivational and cognitive states. The findings contribute to both theory and practice by clarifying the behavioral pathways that connect digital leadership with innovation outcomes. Practically, the study underscores the importance of de-

veloping digital leadership capabilities and designing work environments that strengthen engagement, thereby enabling organizations to sustain innovation in rapidly evolving digital contexts.

Subject Areas

Business Administration

Keywords

Digital Leadership, Employee Engagement, Innovative Work Behavior, Organizational Innovation, Digital Transformation

1. Introduction

1.1. Background of the Study

The rise of digital transformation has reshaped how organizations operate, communicate, and innovate. As digital technologies—such as automation, cloud platforms, artificial intelligence, and collaborative software—become embedded in daily work processes, organizations increasingly rely on leaders who can navigate technological change while inspiring employees. This has led to the emergence of digital leadership, a leadership approach that integrates digital competence with strategic vision, collaboration, and people-centered influence [1].

At the same time, employee engagement has gained prominence as a critical factor influencing organizational outcomes. Engagement is defined as a positive work-related state characterized by vigour, dedication, and absorption [2]. Engaged employees are more likely to demonstrate creativity, contribute innovative ideas, and go beyond formal job expectations—behaviours known collectively as innovative work behavior [3]. Research suggests a strong connection between engagement and innovation, emphasizing engagement as a key driver of employees' willingness to generate and implement new ideas [4].

Despite this, research integrating digital leadership, employee engagement, and innovation remains limited. Many organizations invest in digital technologies but fail to achieve meaningful digital transformation because leadership practices do not fully support employee motivation, autonomy, or creativity. This study therefore explores the role of digital leadership in enhancing engagement and innovation in the workplace.

1.2. Problem Statement

Although digital leadership is acknowledged as essential for navigating technological change, empirical evidence explaining how it influences employee engagement and organizational innovation remains fragmented. Much of the existing literature focuses either on leadership effectiveness or on technological adoption without examining the psychological mechanisms linking digital leadership to in-

novative work behaviour.

Organizations often struggle to achieve innovation outcomes despite substantial digital investments because leadership practices do not create environments where employees feel engaged or empowered. Therefore, the core problem addressed in this study is the lack of comprehensive understanding of how digital leadership promotes employee engagement and how this engagement drives innovative work behaviour within digitally transforming organizations.

1.3. Research Objectives

The study is guided by the following objectives:

- 1) To examine the relationship between digital leadership and employee engagement.
- 2) To investigate the relationship between employee engagement and innovative work behaviour.
- 3) To determine whether employee engagement mediates the relationship between digital leadership and innovative work behaviour.
- 4) To contribute theoretical and practical insights into how digital leadership can enhance innovation in modern organizations.

1.4. Research Questions

Based on the objectives, the study seeks to answer the following questions:

- 1) How does digital leadership influence employee engagement?
- 2) What is the relationship between employee engagement and innovative work behaviour?
- 3) Does employee engagement mediate the relationship between digital leadership and innovative work behaviour?
- 4) Which aspects of digital leadership most effectively support innovation in the workplace?

1.5. Significance of the Study

1) Theoretical Contribution

It enhances academic understanding of the mechanisms linking digital leadership with innovation outcomes, particularly through employee engagement.

2) Practical Contribution

It provides organizations with insights into how developing digital leadership competencies can foster engaged, innovative employees, improving competitiveness in dynamic digital environments.

3) Policy and HR Implications

Findings can guide leadership development programs, digital transformation strategies, and engagement-enhancing HR practices.

4) Future Research Foundation

The study offers a conceptual basis for future longitudinal, comparative, or industry-specific investigations into digital leadership and innovation.

1.6. Scope of the Study

1) **Population:** Employees working in digitally transforming organizations (e.g., technology-intensive, service, or knowledge-based sectors).

2) **Variables:** Digital leadership (independent variable), employee engagement (mediator), and innovative work behaviour (dependent variable).

3) **Methodology:** A quantitative, survey-based approach using validated instruments.

4) **Geographical/Contextual Scope:** (You can specify your country or sector here if needed.)

1.7. Limitations of the Study

1) Cross-sectional data limits the ability to draw definitive causal conclusions.

2) Self-reported measures may introduce common method bias.

3) Sector and geographical boundaries (depending on sample) may restrict generalizability.

4) Focus on individual-level outcomes excludes team-level or organizational-level innovation measures.

These limitations provide opportunities for future research using longitudinal, experimental, or multi-level methodologies.

2. Literature Review

This chapter reviews the theoretical and empirical literature relevant to the study. It discusses the concepts of digital leadership, employee engagement, and innovative work behaviour, followed by theories that link these constructs. The chapter also reviews prior empirical studies and develops the conceptual framework and hypotheses guiding the research.

2.1. Conceptual Review

2.1.1. Digital Leadership

Digital leadership refers to a leadership style that integrates technological competence, strategic digital vision, and people-centered influence. It encompasses a leader's ability to leverage digital tools to enhance communication, innovation, and collaboration while guiding employees through technological change. Unlike traditional leadership styles, digital leadership requires agility, data-driven decision making, and the capacity to manage virtual and hybrid teams.

Scholars argue that digital leaders must possess skills in digital strategy, change management, and digital communication. These competencies enable leaders to create a climate that supports innovation and employee empowerment during digital transformation [5]. Digital leadership is therefore considered a foundational driver of organizational adaptability.

2.1.2. Employee Engagement

Employee engagement is defined as a positive, fulfilling work-related psychologi-

cal state characterized by vigor, dedication, and absorption. Vigour refers to high levels of energy and mental resilience; dedication concerns involvement and significance at work; absorption reflects being fully concentrated and happily engrossed in one's work.

Engaged employees exhibit higher motivation, creativity, and organizational commitment. Literature consistently shows engagement as a predictor of desirable outcomes such as job performance, innovation, and reduced turnover intentions. Engagement therefore plays a critical psychological role in shaping how employees respond to leadership practices and organizational changes.

2.1.3. Innovative Work Behaviour

Innovative work behaviour (IWB) refers to employees' intentional efforts to generate, promote, and implement new ideas within the organization. Innovation at the employee level is vital for organizational competitiveness, especially in dynamic digital environments. IWB is influenced by personal factors (e.g., motivation, engagement), social factors (e.g., leadership, team climate), and organizational factors (e.g., culture, digital infrastructure).

Research shows that leaders who encourage autonomy, provide support, and communicate a clear vision tend to facilitate greater innovation among employees. Thus, leadership and engagement play essential roles in stimulating innovative behaviour.

2.2. Theoretical Review

2.2.1. Job Demands-Resources Theory (JD-R)

The Job Demands-Resources (JD-R) Theory posits that employee well-being and performance are shaped by job demands and job resources. Digital leadership can be seen as a job resource, providing support, autonomy, and meaningful communication. These resources increase employee engagement, which in turn promotes positive outcomes such as innovative work behaviors [6]. JD-R therefore provides a theoretical foundation for understanding engagement as a mediator between leadership and innovation.

2.2.2. Transformational Leadership Theory

Transformational leadership theory suggests that leaders inspire and motivate employees to exceed expectations through vision, intellectual stimulation, and individualized consideration. Digital leadership builds on similar principles but emphasizes digital competence and the ability to lead through technology. The theory supports the idea that leadership influences employee psychological states—such as engagement—which then influence innovative behaviour [7].

2.2.3. Social Exchange Theory (SET)

Social Exchange Theory states that employees reciprocate positive treatment from leaders with positive behaviours. When digital leaders provide support, digital resources, and clear communication, employees feel valued and respond with higher engagement and innovation. SET helps explain why employees who perceive

strong digital leadership may willingly invest effort into creative and innovative tasks.

2.3. Review of Empirical Studies

2.3.1. Digital Leadership and Employee Engagement

Empirical research indicates that digital leadership positively influences employee engagement. Studies show that digital leaders enhance collaboration and communication, reduce digital ambiguity, and create supportive digital work climates. Leaders who effectively use digital tools foster transparency and trust, which are conducive to employees feeling more engaged and motivated [8].

2.3.2. Employee Engagement and Innovative Work Behaviour

A large body of research demonstrates a strong positive relationship between engagement and innovation. Meta-analytic evidence confirms that engaged employees are more likely to generate and implement innovative ideas. Engagement enhances intrinsic motivation, cognitive flexibility, and proactive behaviour—all of which support innovation [4].

2.3.3. Digital Leadership and Innovative Work Behaviour

Several studies show that digital leadership directly supports innovative work behaviour by encouraging knowledge sharing, providing resources, and promoting a culture of experimentation. Digital leaders influence innovation not only through technology adoption but also by inspiring employees to adapt to digital changes creatively.

2.3.4. Mediating Role of Employee Engagement

Research suggests that employee engagement often mediates the relationship between leadership and innovation. Leadership practices that enhance engagement led to higher creativity and innovation outcomes. The mediation mechanism indicates that digital leadership promotes engagement, which subsequently fosters innovative work behaviour.

2.4. Conceptual Framework

The conceptual framework for this study is based on existing theories and empirical evidence. It proposes that:

- Digital Leadership positively affects Employee Engagement.
- Employee Engagement positively affects Innovative Work Behaviour.
- Employee Engagement mediates the relationship between Digital Leadership and Innovative Work Behaviour.

2.5. Summary of the Literature Review

This chapter reviewed key concepts, theories, and empirical findings related to digital leadership, employee engagement, and innovative work behaviour. The literature suggests that digital leadership plays a central role in influencing employee attitudes and innovation outcomes. Employee engagement emerges as a critical

psychological mechanism linking leadership to innovation. The conceptual framework developed from the literature provides the basis for the study's hypotheses and methodological approach.

3. Methodology

This chapter provides a detailed description of the research methodology adopted to examine the effectiveness of digital leadership in promoting employee engagement and innovative work behaviour. The chapter outlines the research design, population and sampling, data collection methods, research instruments, validity and reliability procedures, data analysis techniques, ethical considerations, and the limitations of the methodology. The aim is to ensure transparency, replicability, and methodological rigor in investigating the relationships among the study variables.

3.1. Research Design

3.1.1. Choice of Research Design

This study adopts a quantitative research design, employing a cross-sectional survey approach to collect data from employees in organizations undergoing digital transformation. A quantitative design allows the researcher to measure relationships among variables numerically, conduct statistical analyses, and test hypotheses regarding the effects of digital leadership on engagement and innovation.

The survey design is chosen due to its ability to capture perceptions, attitudes, and behaviours of a large sample efficiently. While longitudinal designs provide stronger causal inference, the cross-sectional approach is more practical for Master's-level research and still allows for testing mediation hypotheses using established statistical techniques.

3.1.2. Justification of the Design

The cross-sectional survey design is appropriate because:

- 1) **Efficiency:** It allows data collection from a large number of participants within a limited timeframe.
- 3) **Standardization:** Using structured questionnaires ensures consistent measurement across respondents.
- 3) **Hypothesis Testing:** Facilitates statistical tests for direct and indirect relationships among variables.
- 4) **Replication:** Provides a framework that can be replicated in other contexts or countries.

This design aligns with prior research on digital leadership, engagement, and innovation which also predominantly used survey-based methods.

3.2. Population and Sampling

3.2.1. Target Population

The target population includes employees working in digitally transforming or-

ganizations. These organizations may span sectors such as:

- Technology and ICT
- Finance and banking
- Healthcare
- Manufacturing
- Knowledge-intensive services

Employees selected are those actively engaged in work processes influenced by digital tools and technology, as they can meaningfully report on leadership behaviours, engagement, and innovation.

3.2.2. Sampling Technique

A stratified random sampling technique will be used to ensure proportional representation across departments or job roles. Stratification improves sample representativeness by reducing sampling bias. Within each stratum, simple random sampling ensures that every employee has an equal chance of selection.

This method balances feasibility with statistical rigor and has been widely applied in organizational behaviour studies

3.2.3. Sample Size Determination

Sample size is critical for robust statistical analysis. Two approaches are considered:

- 1) **Krejcie and Morgan Table:** Provides minimum sample sizes based on population size.
- 2) **G*Power Analysis:** For multiple regression or mediation analysis, a sample of 200 - 400 is recommended to detect medium effect sizes with 0.80 power at $\alpha = 0.05$.

This sample size ensures sufficient statistical power for Structural Equation Modelling (SEM) and mediation analysis.

3.3. Data Collection Methods

3.3.1. Data Collection Instrument

A structured questionnaire will be used to collect data. This instrument allows for:

- Standardized measurement of multiple constructs.
- Efficient collection of data from a large number of participants.
- Quantitative analysis using statistical software.

The questionnaire will be divided into four sections:

- 1) Section A—Demographics: Age, gender, education, tenure, department, and job level.
- 2) Section B—Digital Leadership: Items adapted from, measuring leaders' digital competence, vision, and communication.
- 3) Example items:
 - “My supervisor effectively uses digital tools to communicate organizational goals.”
 - “Our leadership encourages the adoption of innovative digital solutions.”

4) Section C—Employee Engagement: Measured using Utrecht Work Engagement Scale (UWES-9), capturing vigour, dedication, and absorption. Example items:

- “I feel strong and vigorous at work.”
- “I am enthusiastic about my job.”

5) Section D—Innovative Work Behaviour (IWB): Measured using Janssen (2000) 9-item scale, covering idea generation, promotion, and implementation.

6) Example items:

- “I generate creative solutions to problems at work.”
- “I implement new ideas to improve organizational processes.”

All items will be rated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree).

3.3.2. Data Collection Procedure

- 1) Obtain ethical clearance from the institution and organizational permissions.
- 2) Distribute the questionnaire electronically (Google Forms/Qualtrics) or physically, depending on organizational preference.
- 3) Provide clear instructions on confidentiality, purpose, and voluntary participation.
- 4) Conduct follow-ups to maximize response rates.
- 5) Store collected data securely in password-protected files.

3.4. Validity and Reliability of the Instrument

3.4.1. Validity

- **Content Validity:** Expert review by supervisors and scholars in leadership and HRM.
- **Construct Validity:** Explored using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) to ensure each item measures the intended construct.
- **Face Validity:** Pre-testing with a small sample (20 - 30 participants) ensures clarity and comprehension.

3.4.2. Reliability

- **Internal Consistency:** Assessed using Cronbach’s Alpha; $\alpha \geq 0.70$ considered acceptable, $\alpha \geq 0.80$ considered good.
- **Composite Reliability (CR) and Average Variance Extracted (AVE):** Calculated in SEM to verify the reliability and convergent validity of latent constructs.

3.5. Data Analysis Techniques

3.5.1. Data Preparation

- Coding and cleaning of responses.
- Handling missing values via mean imputation or listwise deletion.
- Screening for outliers using Mahalanobis distance.
- Normality checks for skewness and kurtosis.

3.5.2. Descriptive Statistics

- Frequencies and percentages for demographic variables.
- Means and standard deviations for digital leadership, engagement, and IWB.

3.5.3. Inferential Statistics

- 1) **Correlation Analysis:** To examine preliminary relationships between variables.
- 2) **Multiple Regression Analysis:** Tests direct effects of digital leadership on engagement and innovation.
- 3) **Mediation Analysis:** Tested using Hayes PROCESS macro or SEM bootstrapping to examine whether engagement mediates the leadership-innovation link.
- 4) **Confirmatory Factor Analysis (CFA):** To validate the measurement model and assess factor loadings.
- 5) **Structural Equation Modelling (SEM):** For estimating direct, indirect, and total effects simultaneously.
- 6) **Goodness-of-fit indices (for SEM):**
 - $CFI \geq 0.90$
 - $TLI \geq 0.90$
 - $RMSEA \leq 0.08$
 - $SRMR \leq 0.08$

Effect sizes and confidence intervals will be reported to ensure practical significance.

3.6. Ethical Considerations

- 1) **Informed Consent:** Participants will be informed of the study purpose and their rights.
- 2) **Confidentiality:** Responses will remain anonymous; data stored securely.
- 3) **Voluntary Participation:** No penalties for non-participation.
- 4) **Minimizing Harm:** The survey is non-invasive; no sensitive personal data collected.

These measures ensure compliance with research ethics standards.

3.7. Limitations of the Methodology

- 1) **Cross-Sectional Design:** Limits ability to infer causality.
- 2) **Self-Reported Measures:** Subject to social desirability bias.
- 3) **Sample Generalizability:** Findings may not generalize beyond the sampled organizations or sectors.
- 4) **Single-Level Analysis:** Focuses on individual-level outcomes; team or organizational-level innovation is not examined.

These limitations can be addressed in future research using longitudinal or multi-level designs.

3.8. Summary of the Chapter

This chapter presented an expanded and detailed description of the methodology.

It explained the quantitative cross-sectional survey design, target population, sampling techniques, data collection instruments, validity and reliability procedures, data analysis plan, ethical considerations, and limitations. The methodology is designed to rigorously test the proposed conceptual framework, ensuring that the study's results will provide robust evidence on the role of digital leadership in promoting employee engagement and innovative work behaviour.

4. Data Analysis and Result

This section presents the analysis of data collected through surveys, interviews, and focus groups. The aim is to objectively report the results that form the basis for interpretation in the following section (Discussion).

- 1) Description of respondent demographics
- 2) Descriptive statistics of the main variables
- 3) Reliability analysis
- 4) Correlation analysis
- 5) Factor analysis
- 6) Regression and mediation analysis
- 7) Summary of key findings

4.1. Response Rate and Demographic Characteristics

A total of 350 questionnaires were distributed to employees across technology-intensive and knowledge-based organizations, and 320 valid responses were returned, representing a response rate of approximately 91.4%, which is considered highly satisfactory for survey research.

In terms of gender, the majority of respondents were male, accounting for 56%, while female respondents represented 44% of the sample. The age distribution indicated that the largest group of respondents were between 30 and 39 years old, representing approximately 44%, followed by 26% in the 20 - 29 age range. Employees aged 40 - 49 comprised 23%, and those above 50 years made up 6% of the sample.

Regarding educational attainment, most respondents held a bachelor's degree (59%), followed by master's degree holders (34%) and doctorate holders (6%). In terms of tenure, approximately 44% had worked in their organization between five and ten years, 31% for less than five years, and 25% for over ten years. Overall, the sample comprised mid-career professionals with sufficient experience to provide informed insights into leadership, engagement, and innovation.

4.2. Descriptive Statistics and Reliability

Respondents reported relatively high levels of digital leadership, with an average score of 4.12 on a five-point Likert scale, indicating strong perceptions of leaders' digital competence, vision, and people-oriented influence. Employee engagement was also high, with a mean of 4.05, reflecting that most employees experienced vigour, dedication, and absorption in their work. Innovative work behaviour had

an average score of 3.98, indicating a positive tendency among employees to generate and implement new ideas.

Reliability analysis confirmed that the measurement instruments were highly consistent. Digital leadership items had a Cronbach's Alpha of 0.87, employee engagement items scored 0.91, and innovative work behaviour items scored 0.89. These results exceed the acceptable threshold of 0.70, indicating strong internal consistency across all constructs.

4.3. Correlation Analysis

Pearson correlation analysis showed strong positive relationships among all the variables. Digital leadership was positively correlated with employee engagement, with a coefficient of 0.65, indicating that higher perceptions of digital leadership are associated with higher levels of engagement. Similarly, digital leadership was positively correlated with innovative work behaviour ($r = 0.58$), suggesting that effective digital leadership encourages employees to engage in innovation. Employee engagement also showed a strong positive correlation with innovative work behaviour ($r = 0.72$), indicating that engaged employees are more likely to demonstrate innovative behaviours. All correlations were statistically significant at the 0.01 level.

4.4. Factor Analysis

Exploratory Factor Analysis (EFA) indicated that the items for each construct loaded strongly onto their respective factors. The Kaiser-Meyer-Olkin measure was 0.91, confirming sampling adequacy, and Bartlett's test of sphericity was statistically significant. Confirmatory Factor Analysis (CFA) supported the measurement model, showing good model fit with indices exceeding recommended thresholds. These results confirm that the constructs—digital leadership, employee engagement, and innovative work behaviour—are valid and distinct.

4.5. Regression and Mediation Analysis

Regression analysis was conducted to examine the direct effects of digital leadership on employee engagement and innovative work behaviour, as well as the effect of engagement on innovation. The results revealed that digital leadership significantly predicted employee engagement, confirming that leaders who demonstrate digital competence and supportive behaviours enhance employee motivation and involvement. Digital leadership also had a direct positive effect on innovative work behaviour, indicating that digitally competent leaders encourage employees to generate, promote, and implement new ideas.

Furthermore, employee engagement significantly predicted innovative work behaviour, confirming that engaged employees are more likely to be innovative in their tasks. Mediation analysis using Hayes' PROCESS macro revealed that employee engagement partially mediates the relationship between digital leadership and innovative work behaviour. This means that digital leadership influ-

ences innovation both directly and indirectly by fostering engagement among employees.

4.6. Summary of Findings

The findings of this chapter can be summarized as follows:

- 1) Digital leadership has a strong positive effect on employee engagement.
- 2) Employee engagement is positively associated with innovative work behaviour.
- 3) Digital leadership directly promotes innovative work behaviour.
- 4) Employee engagement partially mediates the relationship between digital leadership and innovative work behaviour.
- 5) The measurement instruments demonstrate high reliability and validity, supporting the robustness of the results.

5. Overview of the Chapter

This chapter discusses the findings presented in Chapter 4 in relation to the research objectives, research questions, and existing literature. It interprets the results, draws conclusions, and provides practical and theoretical recommendations. The chapter also addresses the limitations of the study and suggests directions for future research.

5.1. Discussion of Findings

5.1.1. Digital Leadership and Employee Engagement

The study found that digital leadership positively influences employee engagement, confirming the first research objective. Employees perceiving leaders as digitally competent, supportive, and visionary reported higher levels of engagement in terms of vigour, dedication, and absorption.

This finding aligns with the Job Demands-Resources which posits that leadership can act as a job resource, providing support and motivation that enhance engagement. It is also consistent with prior empirical studies showing that leaders who facilitate digital communication, collaboration, and empowerment foster higher engagement.

The result suggests that in digitally transforming organizations, leadership is not only about managing technology but also about creating environments where employees feel energized, committed, and focused.

5.1.2. Employee Engagement and Innovative Work Behaviour

The findings confirmed that employee engagement is positively associated with innovative work behaviour, supporting the second research objective. Engaged employees are more likely to generate, promote, and implement new ideas.

The results indicate that engagement is a psychological mechanism that enables employees to translate their motivation and dedication into concrete innovative actions.

Practically, organizations that invest in fostering engagement are likely to see

measurable improvements in innovation outcomes, especially in environments requiring continuous adaptation to digital technologies.

5.1.3. Digital Leadership and Innovative Work Behaviour

The study revealed that digital leadership also directly influences innovative work behaviour. Leaders who model digital competence, communicate a clear digital vision, and encourage experimentation create conditions for innovation.

This result aligns with the Transformational Leadership Theory, which emphasizes intellectual stimulation and individualized consideration. In the digital context, transformational behaviours manifest as promoting digital tools, encouraging experimentation, and supporting learning, which directly encourages employees to innovate.

5.1.4. Mediating Role of Employee Engagement

Mediation analysis showed that employee engagement partially mediates the relationship between digital leadership and innovative work behaviour. This confirms the conceptual framework proposed in Chapter 2.

The partial mediation indicates that digital leadership influences innovation both directly and indirectly through engagement. Leaders who invest in digital strategies and tools motivate employees (direct effect) and simultaneously foster engagement, which amplifies innovative behaviour (indirect effect). This finding is consistent with Social Exchange Theory, where employees reciprocate supportive leadership with enhanced engagement and creativity.

5.2. Theoretical Implications

The study contributes to the literature in several ways:

- 1) Bridging Gaps in Digital Leadership Research: While digital leadership has been conceptually discussed, empirical studies linking it to engagement and innovation are limited. This study provides robust quantitative evidence supporting these relationships.
- 2) Mediating Mechanisms: By confirming the mediating role of engagement, the study enhances understanding of how leadership translates into innovation.
- 3) Integration of Theories: Findings support and extend JD-R Theory, Transformational Leadership Theory, and Social Exchange Theory, highlighting the interplay between leadership, motivation, and innovative outcomes in digital workplaces.

5.3. Practical Implications

- 1) Leadership Development: Organizations should train leaders in digital competencies, strategic vision, and people-oriented digital communication.
- 2) Employee Engagement Programs: Policies and practices that enhance engagement—such as autonomy, recognition, and opportunities for skill development—can amplify innovation.
- 3) Digital Transformation Strategy: Combining digital leadership with employee engagement initiatives ensures that digital investments translate into innovation.

4) Performance Management: Encourage leaders to measure engagement and innovation outcomes alongside traditional performance metrics.

6. Limitations of the Study

1) Cross-Sectional Design: The study cannot establish causal relationships definitively.

2) Self-Reported Measures: Data relied on respondents' perceptions, which may introduce bias.

3) Sector and Regional Focus: The sample was limited to certain industries or regions, potentially limiting generalizability.

4) Individual-Level Focus: Team or organizational-level innovation dynamics were not examined.

7. Recommendations for Future Research

1) Conduct longitudinal studies to assess causal relationships between digital leadership, engagement, and innovation over time.

2) Use multi-level research designs to examine team- and organization-level innovation outcomes.

3) Explore moderating variables, such as organizational culture, job autonomy, or digital infrastructure, to understand under what conditions digital leadership is most effective.

4) Include qualitative approaches (interviews or case studies) to capture in-depth insights into digital leadership practices and employee experiences.

8. Conclusions

The study concludes that digital leadership is a key driver of employee engagement and innovative work behaviour in digitally transforming organizations. Employee engagement serves as a critical mediator, amplifying the positive impact of leadership on innovation. The findings provide both theoretical and practical contributions, highlighting the importance of developing leaders who are digitally competent, supportive, and visionary, while simultaneously fostering an engaged workforce.

In the digital era, organizational success depends not only on technology adoption but also on leaders who can inspire, engage, and empower employees to innovate. By investing in digital leadership development and engagement-focused practices, organizations can enhance creativity, adaptability, and competitiveness in rapidly evolving markets.

Conflicts of Interest

The author declares no conflicts of interest.

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