# Steering the Digital Shift: Leaders Managing Ethical Debt in the Age of Accelerated Digital Transformation for the IT Sector

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**[1]Supriya Bisaria, [2]Manoj Agarwal**
[1]Research Scholar, [2]Guide
[1/2]Teerthanker Mahaveer University (TMU)
supriya.bisaria@gmail.com
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**Abstract**

Over the past few years, there has been a rapid shift in the organisation towards Digital. Transformation Front. This shift has been primarily driven by competitive gains in international markets. More likely similar to "Technical Debt", this paper focuses on "Ethical Debt", which is related to the pace at which technological adoption takes place, at times outpacing the development of robust ethical values or considerations. "Ethical Debt"—the accumulated cost of deferred moral considerations, such as data privacy gaps, algorithmic bias, and transparency deficits, incurred during accelerated digitalisation. Much like technical debt, ethical debt provides short-term agility at the expense of long-term organisational integrity and public trust. Through this paper, research explores how these "moral liabilities" leaders could identify and mitigate. This paper, through multi multi-disciplinary lens, tries to identify the need for alterations in traditional governance models to address the issues with Generative AI and the Automation framework. Through this paper, we propose a proactive Leadership Framework for Ethical Redress, which shifts the focus from reactive compliance to an "Ethics-by-Design" approach. The key findings of this paper will try to highlight the need for a deliberate shift towards ethical accountability, as well as the social and financial cost to remediate these Digital setbacks else potential failures of digital transformation are at higher risk. This paper concludes by offering integration of a robust policy framework that contributes to the core of digital strategy, ensuring that the drive for transformation does not come at the cost of human-centric values.

**Keywords**: Digital Transformation, Ethical Debt, Responsible Leadership, AI Governance, Tech Policy, Organisational Integrity.

## Introduction

The main face of the IT sector is Digital transformation; the pace at which the IT sector has evolved through digital transformation is relentless (Rai,et al., 2024). Every organisation is running after to integrate artificial intelligence, cloud computing, and big data analytics; the primary metric of success has shifted toward "speed to market." However, this speed brings automation at a cost. In this competition to deploy transformative technologies, leadership teams frequently bypass deep ethical deliberations, creating a phenomenon known as "Ethical Debt."

Ethical Debt refers to moral liabilities that arise when technical deployment bypasses ethical governance. IT industry, many times it is manifested with biased algorithms, opaque data collection practices, and security shortcuts that prioritise functionality over user safety. In the rush to gain competitive advantages, many a time, compromising on the ethical framework costs an organisation's future, eventually requiring "repayment" in the form of regulatory fines, reputational damage, and a breakdown in stakeholder trust.

Leaders play a vital role in this drifting shift towards digital transformation. Their effectiveness is driven by a perspective. During a technical change, merely going through the checklist is not enough. Treating ethics as a post hoc compliance check to bypass the surveillance of legal departments. The current landscape looks forward to those governance models where ethical values could be cultivated into the architectural DNA of digital shifts. This involves navigating the tension between innovation and accountability, ensuring that the drive for digital maturity does not erode the foundational values of transparency and human agency.

This taxonomy of ethical debt leads to uncovered risk of unchecked automation, data exploitation, and algorithmic bias. Unlike technical debt, which arises from short-term compromises in system design, ethical debt emerges when innovation outpaces moral reflection, leaving unresolved questions of fairness, accountability, and human dignity. Through this rapid acceleration of the digital automation phase organisational technical framework has been reshaped (Dubey et al., 2026).

This paper aims to propose frameworks for responsible governance that balance innovation with ethical stewardship. By treating ethical debt as a measurable and manageable construct, organisations can transform it from a hidden liability into a catalyst for sustainable growth. Ultimately, steering the digital shift requires not only technical agility but also a commitment to values that safeguard humanity in the age of accelerated transformation.

This paper examines the structural drivers of ethical debt within IT firms and analyses how leadership can pivot from reactive crisis management to proactive ethical stewardship. By examining the intersection of organisational policy and technological ethics, we argue that managing ethical debt is not merely a moral imperative but a strategic necessity for long-term sustainability in a digitally dominated world.

**Case Study**

The Bias Loop in Automated Recruitment (AI & HR)- A technology firm implemented an AI tool to filter the resumes during initial candidate screening, aiming to reduce the time to hire a candidate (Maurya, et al., 2025). All the programming and algorithms were set basis the 10-year historical data, while historically, IT has been a more male-dominated environment, AI took "male" as a success factor. Every resume was filtered based on the masculine verbs. Leadership prioritised operational efficiency over algorithmic auditing. They treated the tool as a "neutral" solution rather than a reflection of existing cultural biases. After years of use, the company faced a public relations crisis and potential legal liabilities once the bias was uncovered. The "debt" was repaid through a complete dismantling of the system, a loss of diverse talent, and the high cost of rebuilding an ethical hiring brand (Jaiswal et al., 2025).

Australia's "Robodebt" Scandal (Governance & Public Policy)- The Australian government introduced the "Online Compliance Intervention" system in an effort to transform the welfare management system. Through an automated algorithm, the date

related to the income of different agencies was compared. The system was working on a generic mathematical flaw of the average income. Policy leaders bypassed the "Human-in-the-Loop" principle to achieve massive budget savings. This debt was considered a transparent deficit. Leaders ignored warnings from front-line staff and legal experts about the system's inaccuracy, opting for "black box" automation to meet fiscal targets. The government eventually had to pay over $1.8 billion (AUD) in settlements and refunds. The scandal led to a Royal Commission, a total collapse of public trust in government algorithms, and criminal investigations into leadership accountability.

The "God View" and Data Access (Privacy & Ethics)- A major ride-sharing giant, while it was growing globally significantly, developed a tool to allow corporate employees to track the real-time location of any user. To promote "unrestricted innovation", it exposed sensitive data by providing widespread access to employees without any restrictions or authorisation. The "debt" was the privacy risk traded for internal agility. Leaders viewed data as a purely technical asset rather than a stewardship responsibility. The lack of "Privacy-by-Design" meant that the tool was eventually used by employees to stalk ex-partners and high-profile celebrities. The company was hit with massive fines from regulators (like the FTC), forced into 20 years of external audits, and faced a significant executive exodus. The interest on this debt was the permanent loss of the company's reputation as a safe, consumer-first platform.

**Theoretical Framework**

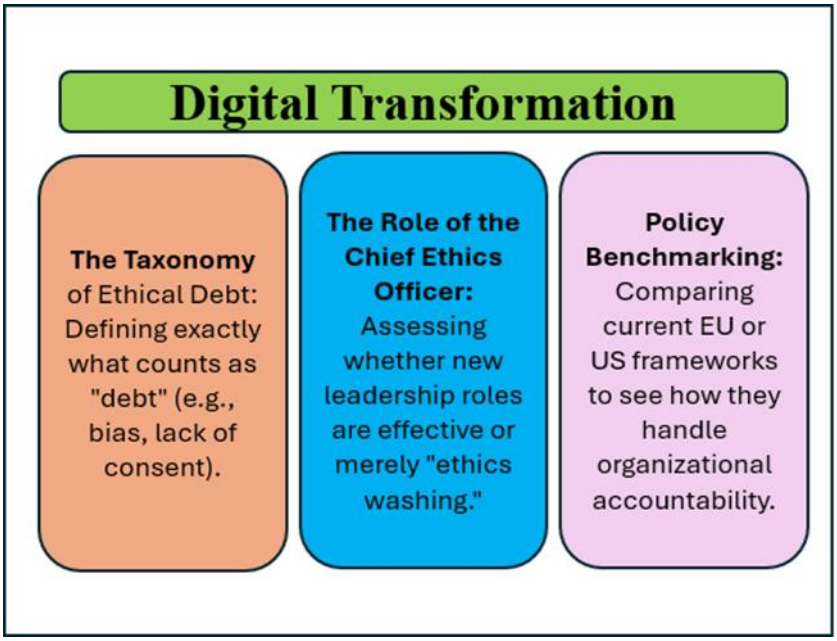



Figure 1: Framework of Digital Transformation

Digital adoption and Ethical debt

The term "Ethical Debt" has recently migrated from software engineering—where "technical debt" describes the cost of sub-optimal coding for speed—into the realm of

organisational governance and IT ethics. According to Magesa and Jonathan (2022), ethical debt represents the accumulated moral and social liabilities an organisation incurs when digital deployment outpaces its regulatory and ethical frameworks. Recent studies in Enterprise Architecture suggest that while technical debt affects system scalability, ethical debt directly impacts an organisation's "social license to operate,"

leading to long-term costs in the form of regulatory fines, loss of talent, and eroded consumer trust (LeanIX, 2023).

Many times, organisations run after the digital adoption of technical tools. During this phase, leaders set up the targets to achieve operational efficiency in this rush; they compromise on Ethical debt. Examples could be putting sensitive data at risk, skipping audits of some important phases, and ignoring mandates in the checklist. These alterations many a times lead to heavy debts and penalties.

**Digital transformation has an Inverse Relationship with Ethics**

Framework on Digital transformation: Ethical guidelines

Leaders face challenges when there is an intersection of digital transformation and social change. A study of major challenges, regular technological upgrades, scalability issues and ethical considerations could be judged with the help of interviews. There is a need for a collaborative partnership, agile business models, continuous learning and stakeholder engagement too.[1]. While the recent drifting has been more towards AI, an interest in Media and the Public has been generated. Technical tools (e.g. robots, chatbots, avatars and other intelligent agents) are the most attractive areas of research. Every minute detail is so much available in AI, which leads to trust issues in society and leads to the question of the existence of AI. It is important to design the frameworks at the time technical expectations of organisations are set.[2].

It is important to follow social, sustainable and responsible business practices. Any stream of technological stream should go through a deeper study in terms of Analysis, findings, empirical findings and the framework of governance. It should also include anticipation, reflexivity, inclusion, deliberation, responsiveness and knowledge management. Responsible innovation could be proposed through these knowledge gaps.[3]. As per the Japanese Society 5.0 initiative, the term responsible innovation should reduce the technical slack through organised models and a governance framework. Digital transformation and social needs both could be exploited. Models designed could manage the unified system for planning and implementation (Agarwal, C., & Rai, P. (2025). Models should always be reviewed and tailored as per the social needs; every innovation needs transformative needs, and the core of it is modularisation. This requires appropriate standards, audit and control support.[4]

The Moderating Role of Digital Leadership

Digital leadership plays a vital role on the organization. They concur a lot of responsibility for efficient implementation of digitalisation in

organization. Digitalisation not only enhances the organization performance but also results to effective work life balance for employee, which indirectly increases their performances (Khushbu, & Agarwal, C. (2025).). The study with the help of PLZ SEM basis

dynamic capability view could help to know if work life balance could be achieved with the help of effective digital leadership.[5] According to the Information Processing Theory digital technologies influence economic and environmental performance in the new era of Industry 4.0. Supply chain platforms effect the moderately environmental dynamics. In the era of Industry 4.0, such as big data analytics, the Internet of Things and cloud computing. Leaders play an influential role to balance out between supply chain platforms and environment to bring successful connectivity, communication and automation (Ardolino et al., 2018; Frank et al., 2019; Ivanov et al., 2019). [6].

During the transformational phase leadership influence, the agility of an organisation and organization strategy plays a role of moderator into it. It is important for the leadership to master or gain in the knowledge on different (Rai et al., 2024) Digital transformation streams like Internet, Internet, blockchain, big data, artificial intelligence (AI). Specially for the public sector while demand of customers is very dynamic, it is important for the organizations to be flexible and adaptive. However, public sector organizations are still facing many barriers to implementing digital transformation, such as the lack of administrative skills, data availability, lack of resources, lack of technological capabilities (Ferraris et al., 2020), and environmental uncertainty related to public management in the public sector (Oliva et al., 2019). Evading these difficulties there are various benefits that one drive from Digital transformation in public sector.[7]

The Framework of control and governance

There has been a radical change in terms of the way business is expanding under the umbrella of automation and transformation. There is more of understanding to be developed on how digital transformation is to be implemented. Research is to be directed on identifying the multifaceted conceptual and applied dimensions of digital transformation and integrating them into a single, unifying framework. Understanding key elements like roles, competencies, behaviours, and enablers is a must.[9].

One of the major concerns for today's Digital transformation framework is privacy concerns. Organisations control all the personal details of users or employees. In general, employers expect information regarding personal details of employees, as well as their access to employees' presence. The gorge between these two could be magnified through technological and regulatory trends. Viewpoints from key stakeholders could be taken to understand the granularity or research capacity of the privacy model. Their direction could help to rebuild such frameworks that could address this gap of privacy concerns.[10].

Traditional organisations could leverage dynamic capabilities to leverage digital transformation. As per the customer experiences, or requirements of the business to build new models or streamlining the operations organisation tries to augment mobile, artificial intelligence, cloud, blockchain, and the Internet of Things (IoT) technologies. Leaders many a times define inconsistency between defining the strategies and organising them. Through the experiences of various executive experts, as well as theories regarding micro foundation, that is, the use of individual decision making and generic contingency factors, help through the process of business transformation.[11].

## Research Methodology

Data Analysis Plan

This study employed a quantitative research design to assess employee perceptions of digital transformation. Data was collected through a structured survey administered to professionals across various sectors currently undergoing technological shifts.

Instrument and Measurement

The primary instrument was a 5-point Likert Scale questionnaire, ranging from "Strongly Disagree" to "Strongly Agree." The survey targeted four key dimensions of the workplace:

- Organisational Context: The extent of digital transformation in the current workplace.
- Professional Development: Impact on employee skills and competency growth.
- Operational Efficiency: Impact on work processes and productivity.
- Psychological Outcomes: Impact on job satisfaction and general well-being.

Ethical Considerations

As a study about ethics, the research itself will adhere to strict ethical standards. All participant data will be anonymised to prevent corporate backlash, and informed consent will be obtained, ensuring that participants understand they can withdraw at any time.

Expected Contributions

By integrating the Competing Values Framework with the concept of Ethical Debt, this paper aims to provide:

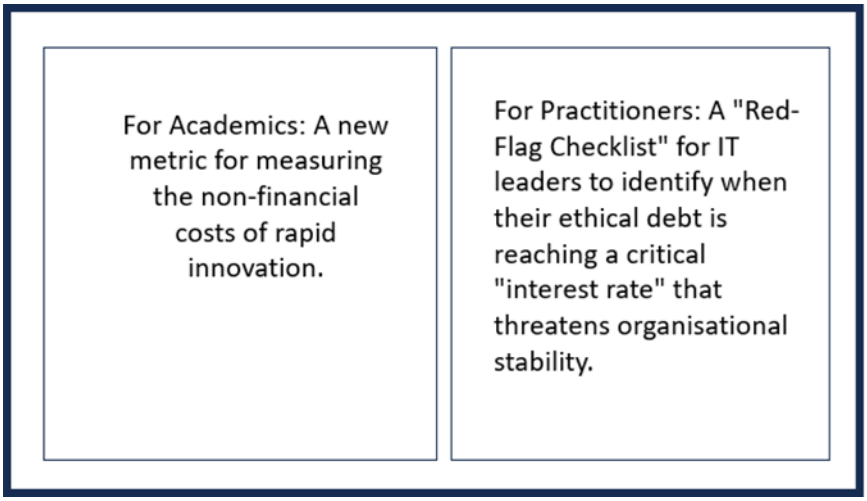



Figure 2: Expected aim of the research paper

## Key Findings

- Productivity as a Primary Driver: The strongest correlation to digital transformation was found in work processes and productivity, where over 80% of respondents reported improvements. This confirms that technological integration is achieving its core objective of operational efficiency.

- The Skill Augmentation Effect: The high level of agreement regarding skill development suggests that employees do not view digital tools as a threat to their roles, but rather as an opportunity for professional upskilling.
- The Well-being Threshold: While the results are positive across all metrics, "Job Satisfaction and Well-being" yielded the highest neutral response. This suggests that while digital tools improve how work is done, they have a more complex, less direct influence on how employees feel about their work environment.
- Implications for Management: Organisations should continue to prioritise digital integration but must remain mindful of the "human element." To move "Neutral" respondents toward "Positive" outcomes in well-being, leadership should complement technical rollouts with robust support systems and mental health considerations. Future research should explore the specific digital tools that contribute most to job satisfaction versus those that may cause digital fatigue.

**Results and Analysis**

The survey data reflects a high level of receptivity and perceived benefit regarding digital transformation and its subsequent impacts on the workforce. A total of 815 to 1,141 responses (depending on the category) were analysed.

**Data Summary for Graphs**

| Topic | Positive Sentiment (n) | Positive Sentiment (%) | Neutral (%) | Negative Sentiment (%) |
|---|---|---|---|---|
| **Digital Transformation** | 680 | 83.4% | 12.5% | 4.1% |
| **Work Productivity** | 935 | 81.9% | 14.9% | 3.2% |
| **Skills & Development** | 766 | 78.3% | 16.5% | 5.2% |
| **Job Satisfaction** | 614 | 75.3% | 20.1% | 4.6% |

Figure 3: Results from the survey

Digital Transformation Adoption

The majority of respondents acknowledge the presence and influence of digital transformation in their workplace. Approximately 83% (680) of participants "Agree" or "Strongly Agree" that digital transformation is actively occurring, with only a negligible minority (4%) disagreeing.

Impact on Performance and Processes

The most significant positive sentiment was recorded regarding work processes and productivity.

935 respondents (82%) agreed that digital shifts have improved productivity.

This category received the highest number of "Agree" votes (647), suggesting that digital tools are effectively streamlining operations.

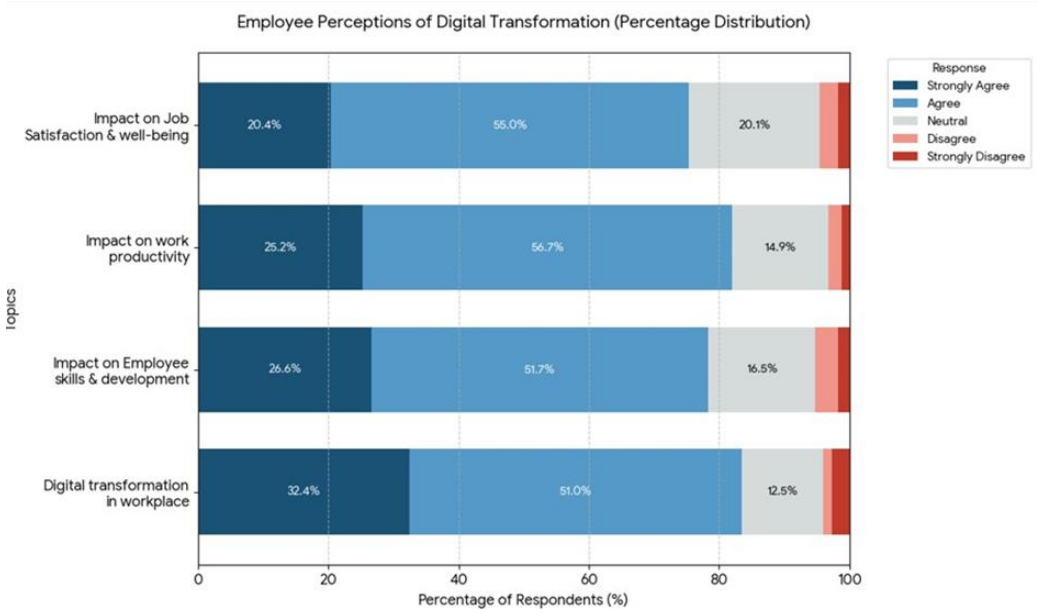
Human Capital and Well-being

While still overwhelmingly positive, the data shows more nuance regarding employee well-being:

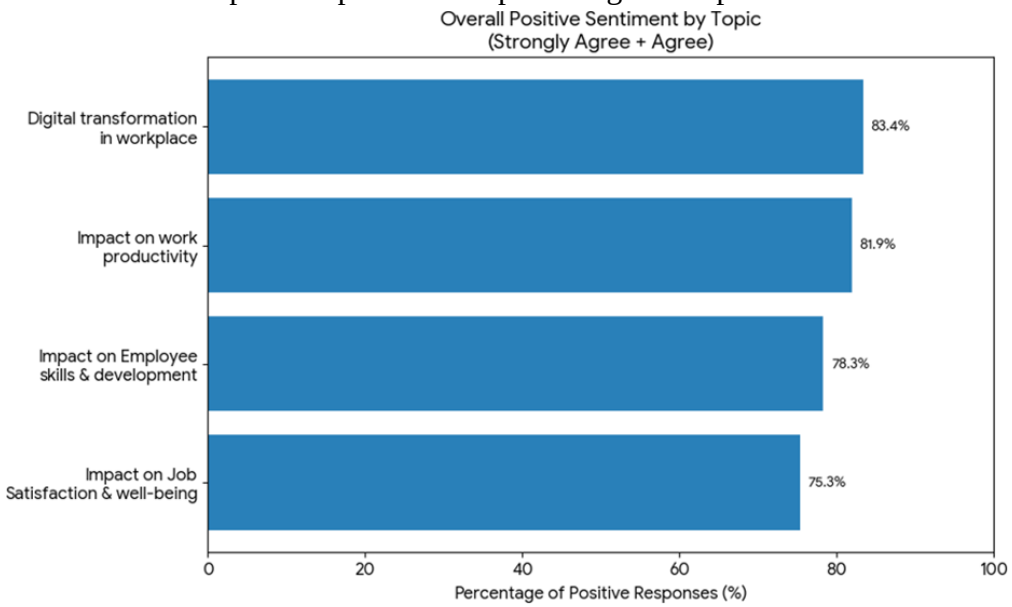
Skill Development: Approximately 78% of respondents feel digital transformation has positively impacted their skills, suggesting a successful transition to new technical requirements.

Job Satisfaction

This area saw the highest "Neutral" sentiment and the lowest. "Strongly Agree" count (166). While 75% still feel a positive impact on well-being, the larger neutral block (164) indicates that for a portion of the workforce, digital change does not automatically translate to increased happiness or reduced stress.




Graph 1: Represents the percentage of respondents




Graph 2: Represents the percentage of positive responses

## Conclusion and Policy Recommendations

Conclusion

The research confirms that the IT sector is currently operating in a state of high Ethical Debt. While the "move fast and break things" mantra accelerated innovation in the previous decade, the maturation of the digital economy now demands a "move fast with foresight" approach. This paper has demonstrated that leadership is the primary variable in determining whether digital transformation results in long-term value or significant moral liability. By shifting from a purely technical-efficiency mindset to one of Ethical Stewardship, leaders can ensure that the "interest" on their digital shifts remains manageable, preventing the catastrophic "bankruptcy" of public and stakeholder trust.

Policy Recommendations for IT Leaders

To mitigate the risks identified in this study, the following policy framework is recommended:

- Implement "Ethical Circuit Breakers": Organisations should adopt policies that allow for the temporary halting of a product launch if an "Ethical Audit" reveals high-risk debt (e.g., significant bias in a training set).
- Establish a Permanent Ethics-as-Code Policy: Governance should not be a separate document but integrated into the DevOps pipeline. Automated testing for bias and privacy leakage should be as mandatory as security and performance testing.
- Adopt "Radical Transparency" in AI Disclosure: Policy should mandate that any automated decision-making system affecting human livelihoods must be accompanied by an "Explainability Statement" accessible to non-technical stakeholders.
- Mandatory Ethics Training for Mid-Level Management: Since ethical debt is often incurred at the project-management level, policy must move beyond C-suite rhetoric and provide mid-level leaders with the tools to prioritise values over immediate sprint deadlines.

## Limitations

This study is limited by the fast-moving nature of the IT sector; today's ethical "best practices" may be obsolete tomorrow as quantum computing and advanced robotics emerge. Future research should focus on the transnational policy implications of ethical debt, specifically how leadership can manage these liabilities when operating across different regulatory environments, such as the EU's AI Act versus more laissez-faire markets.

While the findings provide valuable insights into the perception of digital transformation, several limitations must be acknowledged:

- Self-Report Bias: The data is based on self-reported perceptions rather than objective performance metrics. Respondents may overestimate their productivity or skill development due to social desirability bias or a desire to appear competent in a digital environment.

- Cross-Sectional Nature: This study captures a "snapshot" in time. Because it is not longitudinal, it cannot account for "digital fatigue" that might set in after the initial novelty of new tools wears off, nor can it track the long-term career progression resulting from these skill changes.
- Homogeneity of the Sample: The data represent a broad workforce, but does not segment by industry or job level (e.g., entry-level vs. executive). Digital transformation may be perceived very differently in manual labour sectors compared to knowledge- based industries.
- Measurement Constraints: Using a 5-point Likert scale limits the nuance of the responses. "Neutral" responses, in particular, may hide a variety of underlying sentiments, from a lack of experience with the tools to an equal balance of pros and cons.

## Future Research

Building on the results of this study, several avenues for future inquiry are recommended:

- Impact of Specific Technologies: Future studies should categorise "digital transformation" into specific tools (e.g., Generative AI, cloud collaboration, or automation) to identify which technologies drive productivity versus those that contribute to technostress.
- Longitudinal Well-being Analysis: Researchers should conduct long-term studies to determine if the "Neutral" sentiment regarding job satisfaction evolves into positive or negative outcomes over 12–24 months of consistent technology use.
- Mediation and Moderation Roles: Investigating how factors like age, previous technical literacy, and organisational culture moderate the relationship between digital tools and employee well-being would provide more granular guidance for HR managers.
- Qualitative Depth: Complementing this quantitative data with semi-structured interviews would help clarify the high "Neutral" response in the well-being category, revealing the specific "pain points" that current digital tools fail to address.

Many studies reveal the concept of "Digital friction". More studies and deep analysis are required to understand if Digital transformation is able to deliver the primary promises to observe the Productivity Paradox vs. Reality. Change Management is a key concept in Digital transformation, and a study of whether digital transformation is replacing humans or augmenting them. while digital tools make work faster (productivity), they don't necessarily make work better for the individual at the same rate. focus more on the psychological impacts of technology, not just the technical ones. There is more work of research that could help to also understand the ethical accomplishments and failures of Digital Transformation.

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