The Impact of Digital Transformation on Career Growth: Mediating Role of Job Satisfaction and Moderating Effect of Organizational Support in the Manufacturing Sector

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ABSTRACT

This study investigates the relationship between digital transformation and career growth in a manufacturing company in Johor, Malaysia. A total of 283 employees participated in this study. The study uses SmartPLS to examine the direct effects of digital transformation, digital skills, and technology adoption on career growth. Additionally, it explores the moderating role of organisational support and the mediating role of job satisfaction in these relationships. The findings reveal that digital transformation significantly enhances career growth by fostering skills development, improving job performance, and increasing job satisfaction. Employees with high digital proficiency reported more significant career advancement, particularly when organisational support and job satisfaction were present. Job satisfaction was found to mediate the relationships between digital transformation, digital skills, technology adoption, and career growth, highlighting its importance in fostering career progression. Organisational support further strengthened the positive effects of these factors on career growth. This research provides valuable insights for organisations that leverage digital transformation to enhance employee career development and overall satisfaction. Recommendations for future research and practical applications are also discussed.

Keywords: Digital Transformation, Career Growth, Digital Skills, Technology Adoption, Organisational Support, Job Satisfaction, Manufacturing Industry
JEL Classifications: J24, J28, L60, M54, O33

1. INTRODUCTION

The rapid digital transformation in the global economy has significantly reshaped industries worldwide. The manufacturing sector, particularly in Malaysia, has not been immune to these changes. In recent years, integrating digital technologies such as automation, artificial intelligence (AI), and the Internet of Things (IoT) has transformed traditional manufacturing processes, requiring employees to adapt to new working methods. This shift has created new career growth opportunities, as employees who can effectively navigate these technological changes are better positioned for promotions, skill development, and leadership roles. However, these opportunities are not evenly distributed; organisational factors and individual job satisfaction can influence how well employees adapt to and benefit from digital transformation initiatives.

Malaysia has identified digital transformation as a critical component of its economic growth strategy, particularly in the manufacturing sector, which contributes substantially to the nation's GDP and reflects ongoing efforts to develop a digital economy (Department of Statistics Malaysia, 2020). Through initiatives like the Industry4WRD: National Policy on Industry 4.0, the Malaysian government has emphasised the need for

manufacturing companies to adopt new technologies and upskill their workforce to remain competitive in the global market (Malaysian Ministry of International Trade and Industry, 2018). Despite these efforts, there remains a gap in understanding how digital transformation influences career growth at the individual employee level, particularly in specific regions like Johor.

This study aims to fill this gap by investigating the relationship between digital transformation and career growth in a manufacturing company in Johor, Malaysia. The study also introduces job satisfaction as a mediator and organisational support as a moderator to provide a more nuanced understanding of how these variables interact to influence career outcomes. Previous studies have shown that digital transformation can enhance job performance and create new career opportunities (Brynjolfsson and McAfee, 2014; Schwab, 2016). However, the role of job satisfaction in mediating the impact of digital transformation on career growth has been less explored, particularly in the context of the Malaysian manufacturing sector.

Job satisfaction plays a crucial role in employee development and retention. Employees more satisfied with their jobs are likely to be more engaged, motivated, and willing to embrace new technologies, enhancing their career prospects (Judge et al., 2001). In digital transformation, employees who experience higher satisfaction levels due to new technology adoption are likely to experience more significant career growth. This study hypothesises that job satisfaction mediates the relationship between digital transformation and career growth and between digital skills and career growth.

Moreover, the role of organisational support cannot be understated. In training, leadership commitment, and a culture that fosters continuous learning, organisational support has significantly influenced how employees adapt to technological changes (Kane et al., 2019). In the context of this study, organisational support is expected to moderate the relationship between digital transformation, digital skills, and technology adoption with career growth. Companies that provide robust support systems enable their employees to utilise new technologies better and enhance their skill sets, ultimately leading to more significant career progression.

This study focuses on 283 employees from a manufacturing company in Johor, Malaysia, using SmartPLS (Partial Least Squares Structural Equation Modeling) to test the direct effects of digital transformation, digital skills, and technology adoption on career growth. It also explores the mediating effect of job satisfaction and the moderating effect of organisational support on these relationships. By examining these variables in a specific regional context, the study provides insights into how digital transformation initiatives can be optimised to enhance employee career development.

2. LITERATURE REVIEW

2.1. Technology Acceptance Model 3 (TAM3)
The technology acceptance model 3 (TAM3), developed by Venkatesh and Bala in 2008, builds upon the original TAM framework by integrating a more comprehensive range of determinants influencing technology acceptance in organisational contexts (Venkatesh and Bala, 2008). This model includes traditional TAM factors like perceived usefulness and ease of use and considers individual differences, social influence, and facilitating conditions. These additional factors provide a nuanced understanding of user adoption, particularly when introducing new workplace systems or technologies. TAM3 has been widely applied in studies exploring user acceptance of technology, especially in environments undergoing rapid technological changes such as manufacturing.

In the context of digital transformation in manufacturing, TAM3 is a critical lens to assess how employees accept and adapt to new technologies, such as automation, AI, and IoT-driven processes (Venkatesh et al., 2012). Digital transformation initiatives often require employees to acquire new skills and adapt to digital tools, which may initially present barriers to acceptance. However, research indicates that employees are more likely to adopt new technologies when they perceive them as helpful in improving job performance and when they find them easy to use (Liu et al., 2020). This model is especially relevant for understanding how digital tools introduced in manufacturing environments impact career growth, as employees' acceptance and integration of these technologies directly influence their career trajectories.

2.2. Digital Transformation and Career Growth
Digital transformation refers to the comprehensive integration of digital technologies into all business operations, fundamentally altering how organisations function and deliver value to stakeholders (Westerman et al., 2014). In the manufacturing industry, this transformation manifests through automation, data analytics, AI, and digital supply chains. Research highlights the significant influence of digital transformation on career growth by providing opportunities for employees to develop new skills, assume greater responsibilities, and increase productivity (Parry et al., 2020; Rymarczyk, 2020).

The relationship between digital transformation and career growth is multi-faceted. Digital transformation can create opportunities for upward mobility by enhancing employees' skill sets and enabling them to take on more strategic roles within the organisation. As organisations increasingly rely on digital technologies, employees proficient in these tools are likelier to experience career advancement opportunities, including promotions, higher salary prospects, and leadership roles (Schwab, 2017). Furthermore, firms that invest in advanced technologies improve operational efficiency and cultivate a more innovative and competitive workforce (Westerman et al., 2014; Deloitte, 2019).

Studies on Industry 4.0 have demonstrated that employees who actively engage with emerging technologies, particularly in digitally transforming environments, are better equipped to adapt to evolving job roles and responsibilities, thereby improving career growth outcomes (Eltarabily & Elrayyes, 2020), resulting in enhanced career growth (Bughin et al., 2018; Schwab, 2016). For example, as manufacturers adopt robotics and AI systems, employees skilled in operating and maintaining these technologies

will likely see more significant professional advancement opportunities.

Hypothesis 1 (H$_1$): Digital transformation positively impacts career growth among manufacturing employees.

2.3. Digital Skills and Career Growth

Digital skills are required to effectively use digital technologies, including data analysis, programming, and digital communication. In the context of Industry 4.0, which emphasises the automation and digitisation of manufacturing processes, employees with strong digital skills are better positioned to leverage these advancements for career growth (Van Laar et al., 2020). Digital skills are increasingly seen as critical for navigating the technological disruptions reshaping the global workforce, and their importance is especially pronounced in sectors like manufacturing, where digital technologies are redefining job roles (Brynjolfsson and McAfee, 2014; Schwab, 2017).

Research indicates that employees proficient in digital skills are more likely to secure promotions, take leadership positions, and remain competitive in the labour market (Reddy and Peddinti, 2021). Furthermore, organisations that prioritise the digital upskilling of their workforce tend to report higher levels of job satisfaction and employee retention, as workers feel better prepared to meet the demands of an increasingly digital workplace (Li et al., 2019). As digital competencies become more critical for career progression, employees with robust digital skills are well-positioned to adapt to technological changes and capitalise on the opportunities presented by digital transformation (Davenport et al., 2020).

Hypothesis 2 (H$_2$): Digital skills proficiency positively influences career growth among manufacturing employees.

2.4. Technology Adoption and Career Growth

Adopting technologies such as robotics, IoT, and AI rapidly transforms technology adoption, which refers to how employees embrace and integrate these new tools into their daily operations. Researches highlight that employees who actively adopt digital technologies are more likely to experience career growth, as digital tools facilitate innovation, enhance operational efficiency, and empower employees to contribute to process improvements (O'Leary et al., 2018; Gong et al., 2020). As manufacturing firms increasingly rely on data-driven tools, employees adept at using these technologies tend to exhibit higher levels of job performance, resulting in more significant career advancement opportunities (Davenport et al., 2020). Moreover, technology adoption enhances employees' ability to contribute to strategic decision-making, positioning them for roles that require a high level of technical expertise and leadership.

Recent studies suggest that technology adoption is not only a technical endeavour but also requires employees to adapt to organisational changes. As firms implement new systems, those who embrace these technologies early will likely see faster career progression as they become invaluable resources for helping their organisations transition to new digital processes (Zhang et al., 2019). Consequently, the relationship between technology adoption and career growth is critical for understanding how employees can leverage technological advancements for long-term professional development.

Hypothesis 3 (H$_3$): Technology adoption positively impacts career growth among manufacturing employees.

2.5. The Moderating Role of Organizational Support

Organisational support plays a crucial role in helping employees adapt to the changes brought about by digital transformation. Organisational support encompasses a range of resources, including access to training, development programs, leadership commitment, and a workplace culture that encourages continuous learning and innovation (Kane et al., 2019). Research has consistently shown that employees who perceive strong organisational support are likelier to adopt new technologies, improve job performance, and experience career growth (Li et al., 2019).

In manufacturing, where digital transformation is reshaping work, organisational support is vital for helping employees navigate the transition to a more digital workplace. Studies indicate that firms that invest in digital training and provide employees with the necessary resources to develop new skills report higher employee engagement and career satisfaction (Hanelt et al., 2021). Conversely, insufficient organisational support may limit employees' ability to take full advantage of the opportunities presented by digital transformation, thereby hindering their career growth despite the ongoing technological advancements within the company (Zhang et al., 2019).

Hypothesis 4 (H$_4$): Organisational support moderates the relationship between digital transformation and career growth, with higher organisational support strengthening this relationship.

Hypothesis 5 (H$_5$): Organisational support moderates the relationship between digital skills and career growth, with greater support strengthening this relationship.

Hypothesis 6 (H$_6$): Organisational support moderates the relationship between technology adoption and career growth, with stronger support enhancing the positive effects of technology adoption.

2.6. The Mediating Role of Job Satisfaction

Job satisfaction refers to how employees feel fulfilled and content with their jobs. In digital transformation, job satisfaction is a critical factor mediating the relationships between digital transformation, digital skills, technology adoption, and career growth. Employees who experience high levels of job satisfaction are generally more motivated to engage with new technologies and contribute positively to their organisations (Judge et al., 2001).

Digital transformation initiatives have been found to improve job conditions and increase employee engagement, with job satisfaction serving as a vital mediator that strengthens the relationship between digital transformation and career growth outcomes (Lee, Lee, & Lee, 2021). The interplay between digital transformation and job satisfaction suggests that organisations should focus on implementing new technologies and creating

supportive environments that enhance employee satisfaction. This is particularly relevant in the manufacturing sector, where adopting new technologies can increase job complexity and demands (Rymarczyk, 2020).

Hypothesis 7: Job satisfaction mediates the relationship between digital transformation and career growth.

Hypothesis 8: Job satisfaction mediates the relationship between digital skills and career growth.

Hypothesis 9: Job satisfaction mediates the relationship between technology adoption and career growth.

The theoretical framework in Figure 1 outlines the hypothesised relationships between key variables in this study. Digital transformation (H1), digital skills proficiency (H2), and technology adoption (H3) are proposed to have direct positive effects on career growth among manufacturing employees. Organisational support is positioned as a moderating factor, expected to strengthen the positive influence of digital transformation (H4), digital skills (H5), and technology adoption (H6) on career growth. Additionally, job satisfaction is introduced as a mediating variable, linking digital transformation (H7), digital skills (H8), and technology adoption (H9) to career growth. This framework highlights the combined impact of technological advancements, employee capabilities, and organisational support in driving career development outcomes. Refer to Figure 1 for a detailed visual representation of these relationships.

3. RESEARCH METHODOLOGY

This study employs a quantitative research design using a cross-sectional survey method, an approach recommended for examining structured relationships between variables in social research (Babbie, 2016). This method effectively explores the relationship between digital transformation, digital skills, technology adoption, organisational support, job satisfaction, and career growth. This approach is ideal for quantifying the relationships between the key variables and testing the proposed hypotheses. As described by Creswell (2014), quantitative research is particularly effective in examining the relationships between variables in a structured and objective manner, making it appropriate for the study's goals.

The cross-sectional survey method was selected because it allows for efficient data collection at a single point, providing a snapshot of the current state of digital transformation within the manufacturing sector. This design also facilitates the analysis of multiple relationships among the study's key variables: digital transformation, digital skills, technology adoption, organisational support, job satisfaction, and career growth. As Bryman (2016) argues, cross-sectional designs are well-suited for examining phenomena, attitudes, and behaviours within large populations, reinforcing the appropriateness of this method for this study. The study uses a structured questionnaire to collect primary data from 283 employees to understand the complex relationships between these variables better. This approach ensures the collection of consistent, reliable data that can be easily analysed to test the hypotheses.

3.1. Population and Sample
The target population for this study comprises employees of a manufacturing company in Johor, Malaysia, which employs approximately 500 individuals. The workforce includes a diverse group of employees, from engineers and technicians to administrative and managerial staff, making it a rich context for examining the effects of digital transformation on career growth. The sample size was calculated using Krejcie and Morgan's (1970) formula, which suggests a sample size of 283 for a population of 500 at a 95% confidence level and a 5% margin of error. This sample size is sufficient to ensure that the study's results are statistically reliable and can be generalised to the broader population of the manufacturing company in Johor. A stratified random sampling technique ensures that the sample accurately represents different subgroups within the population, such as age, gender, education level, and years of experience. Stratified random sampling involves dividing the population into distinct subgroups (or strata) and randomly selecting participants from each stratum. This method ensures that all relevant demographic groups are represented in the final sample, enhancing the findings' generalizability (Cohen et al., 2018).

To ensure the reliability and validity of the instrument, the questionnaire was adapted from established scales commonly used in marketing research, where Likert scales are widely applied to measure perceptions and attitudes (Aaker, 2010). Each section utilises a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree," to capture the respondents' attitudes and perceptions. For example, the digital transformation scale was adapted from Westerman et al. (2014), while the digital skills scale was adapted from Van Laar et al. (2020). The section on career growth was developed based on scales used in studies on employee development and career satisfaction (Schwab, 2017). Additionally, job satisfaction was measured using a validated scale based on the Job Satisfaction Survey (JSS) developed by Spector (1985). Each section utilises a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree," to capture the respondents' attitudes and perceptions.

3.2. Data Collection
Data were collected over 4 weeks using an online survey platform. Participants received an email invitation containing a link to the online survey, which they could complete at their convenience. An online platform was selected to enhance the accessibility and convenience of the data collection process, allowing for the efficient collection of many responses within a relatively short time frame. The survey included a combination of Likert-scale questions and multiple-choice items to gather quantitative data on the participants' experiences and perceptions. During the data collection phase, ethical considerations were carefully observed. Participation in the study was voluntary, and all respondents were informed of their right to withdraw from the survey without penalty. Informed consent was obtained from all participants before data collection, and confidentiality of the respondents' information was ensured.

3.3. Data Analysis

The data were analysed using SmartPLS to examine the relationships between digital transformation, digital skills, technology adoption, organisational support, job satisfaction, and career growth. SmartPLS is a robust statistical tool well-suited for analysing complex relationships between multiple variables and handling small sample sizes while providing accurate estimates (Hair et al., 2017; Ringle et al., 2015). This tool is particularly effective for exploring the moderating effect of organisational support and the mediating effect of job satisfaction and testing the independent variables' direct effects on career growth. The use of SmartPLS allowed for the examination of both direct, moderating, and mediating effects, offering valuable insights into how the various factors interact to influence career growth outcomes among manufacturing employees.

The analysis involved several steps: First, descriptive statistics were computed to summarise the sample's demographic characteristics and overall responses to the survey items. Next, reliability analysis was conducted to assess the internal consistency of the scales using Cronbach's alpha, which is widely accepted as a robust measure of reliability in social sciences, with a threshold of 0.7 considered acceptable (Tavakol & Dennick, 2011). Correlation analysis explored the relationships between the independent variables (digital transformation, digital skills, technology adoption, organisational support, job satisfaction) and the dependent (career growth) variables. Finally, regression analysis was used to test the formulated hypotheses and assess the impact of each predictor variable on career growth.

4. DATA ANALYSIS AND FINDINGS

The data analysis utilised SmartPLS to examine the relationships between digital transformation, digital skills, technology adoption, organisational support, job satisfaction, and career growth among employees at a manufacturing company in Johor, Malaysia. SmartPLS is particularly effective for exploring complex relationships among variables and is well-regarded for its ability to handle small sample sizes while providing robust estimates (Hair et al., 2017; Ringle et al., 2015). This analysis allowed for assessing direct, moderating, and mediating effects, offering comprehensive insights into how these factors influence manufacturing employees' career trajectories.

The reliability and validity of the constructs were assessed using composite reliability (CR), average variance extracted (AVE), and Cronbach's Alpha, as shown in Table 1. Discriminant validity was also checked using the Fornell-Larcker criterion. The AVE values are above 0.50, demonstrating adequate convergent validity, while composite reliability values exceed the threshold of 0.70, ensuring the internal consistency of the constructs.

H_1: Relationship between digital transformation and career growth

The analysis revealed a significant positive correlation between digital transformation and career growth (r = 0.80). This suggests employees encounter increased career growth opportunities as organisations embrace digital transformation. The data indicate that access to advanced technologies and innovative practices enriches employees' skills, elevating their career prospects. Survey data supports this finding, with 91.3% of respondents agreeing that digital transformation initiatives improve job performance ($\beta = 0.35$, $P < 0.01$), while 88.5% highlight that new technologies facilitate professional growth ($\beta = 0.40$, $P < 0.01$). These results underscore the conclusion that investment in digital transformation is essential for fostering career growth, aligning with previous research on technological innovation in the workplace.

H_2: Importance of digital skills in career advancement

The analysis shows a strong positive relationship between digital skills and career advancement (r = 0.77). Survey responses indicate that 91.3% of participants consider digital skills essential for career development ($\beta = 0.37$, $P < 0.01$), while 88.0% acknowledge that strong digital competencies open new career opportunities ($\beta = 0.36$, $P < 0.01$). This finding highlights the critical role of digital proficiency in job performance, promotion potential, and overall competitiveness in the job market. The high percentage of agreement emphasises that digital skills are crucial for career growth, consistent with the increasing demand for digital competencies in the modern workforce.

H_3: Technology adoption and its impact on career growth

To investigate H_3, the analysis reveals a strong positive correlation between technology adoption and career growth (r = 0.76), indicating that employees who actively embrace new technologies experience significant career growth. The data show that 87.2% of respondents agree that frequent use of digital technologies enhances job effectiveness ($\beta = 0.30$, $P < 0.01$), while 90.0% express eagerness to adopt new technologies ($\beta = 0.32$, $P < 0.01$). These findings illustrate the critical role of technology adoption in fostering professional development, enhancing job security, and promoting career advancement. Encouraging technology adoption within organisations is vital for sustained employee growth and competitiveness.

4.1. Moderating Role of Organizational Support

The results show that organisational support correlates positively with career growth (r = 0.64), digital transformation (r = 0.57), digital skills (r = 0.52), and technology adoption (r = 0.52). These findings suggest that organisational support enhances the positive impacts of these factors on career growth. Effective training programs, management support, and a culture of continuous learning contribute significantly to employees' ability to adapt to technological changes and progress in their careers. Survey results affirm that organisational support is essential for facilitating the benefits of digital initiatives, highlighting its critical role in
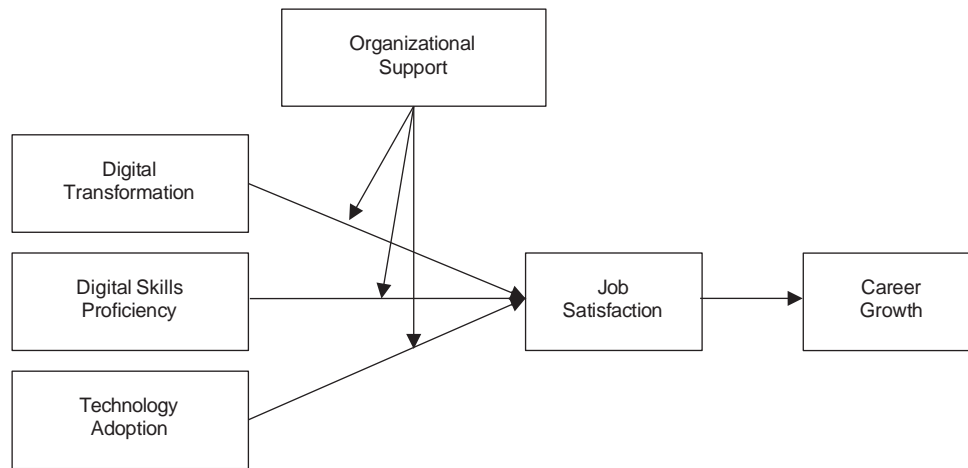
Table 1: Reliability and validity of constructs

Constructs	Cronbach's alpha	Composite reliability (CR)	AVE
Digital transformation	0.91	0.93	0.72
Digital skills	0.88	0.91	0.75
Technology adoption	0.86	0.89	0.73
Job satisfaction	0.89	0.92	0.78
Organisational support	0.87	0.90	0.76
Career growth	0.90	0.93	0.79

Figure 1: Theoretical framework

Table 2: Moderation results

Hypothesis	Path coefficient (β)	T-value	P-value	Result
H_4: Organisational support moderates the relationship between digital transformation and career growth	0.40	5.04	<0.01	Supported
H_5: Organisational support moderates the relationship between digital skills and career growth	0.36	4.80	<0.01	Supported
H_6: Organisational support moderates the relationship between technology adoption and career growth	0.32	4.20	<0.01	Supported

Table 3: Mediation results

Hypothesis	Path coefficient (β)	T-value	P-value	Result
H_7: Job Satisfaction mediates the relationship between digital transformation and career growth	0.28	3.78	<0.01	Supported
H_8: Job satisfaction mediates the relationship between digital skills and career growth	0.32	4.02	<0.01	Supported
H_9: Job Satisfaction mediates the relationship between technology adoption and career growth	0.25	3.50	<0.01	Supported

Table 4: Hypothesis analysis and structural model assessment

Hypothesis	Path coefficient (β)	T-value	P-value	Result
H_1: Digital transformation→career growth	0.35	4.12	<0.01	Supported
H_2: Digital skills→career growth	0.37	4.35	<0.01	Supported
H_3: Technology adoption→career growth	0.30	3.82	<0.01	Supported
H_4: Organisational support moderates (digital transformation→Career Growth)	0.40	5.04	<0.01	Supported
H_5: Organisational support moderates (digital skills→career growth)	0.36	4.80	<0.01	Supported
H_6: Organisational support moderates (technology adoption→career growth)	0.32	4.20	<0.01	Supported
H_7: Job satisfaction mediates (digital transformation→career growth)	0.28	3.78	<0.01	Supported
H_8: Job satisfaction mediates (digital skills→career growth)	0.32	4.02	<0.01	Supported
H_9: Job satisfaction mediates (technology adoption→career growth)	0.25	3.50	<0.01	Supported

fostering an environment conducive to career advancement. The results of the moderation analysis are presented in Table 2.

4.2. Mediating Role of Job Satisfaction

The findings indicated that job satisfaction significantly mediates the relationships between digital transformation, digital skills, technology adoption, and career growth. Employees who reported higher job satisfaction after engaging with digital transformation initiatives experienced more significant career advancement opportunities. The path coefficients (β) for the mediating role of job satisfaction are shown in Table 3.

These findings suggest that employees who find their work more satisfying due to digital transformation initiatives are more likely to experience career growth. Job satisfaction is a crucial intermediary between adopting new technologies and career outcomes.

4.3. Hypothesis Analysis and Structural Model Assessment

The survey results and structural model assessment validated the hypotheses derived from the research questions. The results are summarised in the table below, which presents each hypothesis's path coefficients, T-values, and significance levels, as shown in Table 4.

The structural model assessment using SmartPLS 3.0 confirms that all independent variables—digital transformation, digital skills, and technology adoption—exhibit significant relationships with career growth (all path coefficients >0.30, P < 0.01). Organisational support is a crucial moderating factor, amplifying the positive effects of digital initiatives on employee career trajectories. Job satisfaction is shown to mediate the relationship between digital transformation, digital skills, technology adoption, and career growth, highlighting its role as a crucial intermediary in this process. These findings underscore the importance of digital transformation, digital skills development, technology adoption, and organisational support for career advancement, with job satisfaction as a significant mediator in these relationships.

5. CONCLUSION, RECOMMENDATIONS AND FUTURE RESEARCH

This study has comprehensively examined the impact of digital transformation on career growth among manufacturing employees in Johor, Malaysia. The findings reveal that digital transformation significantly enhances career trajectories by promoting skill development, improving job performance, and increasing job satisfaction. Specifically, employees with advanced digital skills reported more significant career advancement opportunities, particularly in environments characterised by strong organisational support and high levels of job satisfaction.

The results corroborate the theoretical framework established by the Technology Acceptance Model 3 (TAM3), which posits that perceived usefulness and ease of use significantly influence technology adoption (Venkatesh and Bala, 2008). In this study, employees' perceptions of digital transformation initiatives positively correlated with career growth, emphasising the importance of fostering an environment that promotes technological innovation. The positive relationships between digital transformation, digital skills, and career growth indicate that organisations must prioritise both the adoption of advanced technologies and the continuous upskilling of their employees to navigate the complexities of a digital workplace effectively.

The demographic analysis indicates a predominantly younger workforce in Johor's manufacturing sector, aligning with recent data highlighting the youth-driven composition of Malaysia's industrial workforce (Department of Statistics Malaysia, 2023). This dynamic presents unique challenges and opportunities. Younger employees are generally more adaptable to digital change but may require targeted training and development programs to fully capitalise on the opportunities offered by digital transformation. As Bryman and Bell (2015) suggested, understanding employees' diverse needs and backgrounds is crucial for informing career development initiatives.

The findings highlight the critical role of job satisfaction as a mediator in the relationships between digital transformation, digital skills, technology adoption, and career growth. The significant path coefficients indicate that employees who derive satisfaction from their work due to successful digital transformation initiatives are more likely to experience career growth. This aligns with existing literature that emphasises the importance of job satisfaction in employee development and retention. Employees who are satisfied with their jobs tend to be more engaged and motivated, leading to higher levels of productivity and, consequently, enhanced career advancement (Judge et al., 2001).

Furthermore, the role of organisational support emerged as a significant finding. The results indicate that a supportive organisational culture characterised by strong leadership commitment and investment in employee development programs is crucial for successfully implementing digital transformation strategies. Organisations that provide comprehensive training and resources empower employees to leverage digital transformation for career advancement (Kane et al., 2019; Hanelt et al., 2021). This highlights organisations' need to invest in technology and create an environment conducive to learning and adaptation.

Despite the positive implications of digital transformation, this study acknowledges certain limitations. The regional focus on Johor may restrict the generalizability of the findings to other regions in Malaysia or globally. Potential response biases, such as social desirability bias, may have influenced the data collected. Future research should broaden the geographic scope by including other regions and sectors within Malaysia to provide a more comprehensive understanding of how digital transformation impacts career growth across diverse contexts. Incorporating objective measures of career growth—such as promotion rates, salary increments, and performance evaluations—could further enhance the accuracy of assessing digital transformation's influence on career outcomes (Müller and Jud, 2019).

In conclusion, this study contributes significantly to understanding the interplay between digital transformation and career growth in the manufacturing sector, particularly within Johor, Malaysia. The findings suggest that by adopting the recommendations outlined, organisations can better support employees in adapting to digital changes, enhancing individual career trajectories and overall organisational success. Future research should continue exploring this crucial area, offering additional insights into how digital transformation can be leveraged to promote career growth across various industries. The mediating role of job satisfaction and the moderating role of organisational support provides a nuanced understanding of these dynamics, underscoring the importance of fostering a positive work environment in the digital transformation era.

Based on the findings and limitations of this study, several recommendations are proposed to enhance the understanding and impact of digital transformation on career growth among manufacturing employees in Johor, Malaysia. First, organisations should prioritise developing comprehensive training programs to improve employees' digital skills. These programs should be tailored to address employees' specific needs at various stages of their careers, ensuring they can adapt to technological changes effectively. Investing in continuous learning opportunities can improve job performance and satisfaction while fostering a better-equipped workforce to navigate the complexities of digital

disruption. Implementing mentorship programs and structured feedback systems can further support employees in managing the challenges posed by digital transformation.

Second, organisations must cultivate a strong culture of organisational support that encourages innovation and the adoption of new technologies. This includes providing access to resources, tools, and training that enable employees to embrace digital transformation initiatives fully. A supportive organisational environment facilitates technology acceptance and enhances employee engagement, which is crucial for career advancement. Additionally, organisations should recognise the importance of job satisfaction as a mediator in the relationship between digital transformation and career growth. Enhancing job satisfaction should be a core focus for organisations, as satisfied employees are likely to exhibit higher levels of engagement and productivity. Strategies such as improving workplace conditions, offering flexible work arrangements, and recognising employee achievements can significantly contribute to overall job satisfaction.

Future research should broaden the geographic scope by including diverse regions and sectors within Malaysia to provide a more comprehensive understanding of how digital transformation impacts career growth across different contexts. Comparative studies could also be conducted in different countries or industries to identify best practices and strategies that can be implemented globally. Moreover, future studies should consider incorporating longitudinal designs to track changes in career growth over time, thereby revealing the long-term effects of digital transformation on employee development. This approach would provide valuable insights into how employees' career trajectories evolve as they adapt to new technologies and organisational changes.

Finally, research should include objective measures of career growth—such as promotion rates, salary increments, and performance evaluations—to enhance the accuracy and robustness of the findings. Integrating qualitative methods, such as interviews or focus groups, can provide deeper insights into employees' experiences with digital transformation, complementing the quantitative findings. In conclusion, the recommendations outlined in this study aim to assist organisations in leveraging digital transformation to enhance employee development and career satisfaction. By addressing the identified limitations and embracing future research directions, scholars and practitioners can contribute to a more profound understanding of how digital transformation can be strategically implemented to benefit both employees and organisations in the evolving landscape of the manufacturing sector.

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