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Impact of Digitalisation on Employee Efficiency in the Banking Sector: A Study with Reference to Saurashtra and Gujarat Region

*** Mr. Naimishkumar Parmar, ** Dr. Mayuri Dhameliya**

*Research Scholar,

*Dr. Subhash University, Junagadh,

** Assistant Professor,

** Dr. Subhash University, Junagadh.

Abstract

The digital revolution will transform banking activities through the incorporation of digital channels such as online services, mobile apps, analytics tools, and automation software. Not only will it improve the customer experience, but it will also change how bank staff works and collaborates. The purpose of this study is to determine the influence of digitalization on the efficiency of the employees in the banking industry in relation to the Saurashtra and Gujarat region. This research used quantitative approach by collecting primary data with the use of structured Likert scale questionnaires distributed among 251 employees in the banking organizations ranging from the clerical to the managerial positions. The variables that were studied include digitalization, utilization of digital tools, organizational support, efficiency of the employees and employee productivity. The analysis of data involved structural equation modelling and tests such as reliability and validity using Cronbach's alpha, AVE, CR, KMO, and Bartlett. The findings reveal that digitalisation has a strong positive effect on employee efficiency ($\beta=0.710$, $p<0.001$). The utilization of digital tools increases employee productivity ($\beta=0.395$, $p<0.001$), thus partly mediating the effect of digitalization on efficiency. Organizational support also significantly moderates the effect, making its positive effect more evident with the higher presence of the latter. This research shows that an effective digitalization process, assisted by proper digital tools and organization, increases employees' efficiency.

Keywords: Digitalization, Employee efficiency, Digital tools usage, Organizational support, Employee productivity, Banking sector, SEM

1. Introduction

Computerized banking or web banking is an evolution of banking into a format that can be accessed online or on a mobile device. This innovation allows people to engage in various banking operations at any time, regardless of the location, without the necessity of physically accessing the bank itself. The digitization of the banking sector is a worldwide phenomenon, and banks allocate a huge number of resources to improve customer satisfaction and compete effectively. It promotes the use of data analytics, which in turn enhances customer interaction. The Indian banking industry has come a long way since the nationalization of banks in 1969 and 1980. The Indian banking sector is estimated to be among the top five in the world by 2020 and number three by 2025 [1]. Technology helps Indian banks to generate revenues, improve customer experience, reduce cost, and mitigate risks. The development of digital banking systems started back in the late 1990s, when online banking was invented, providing customers basic means of accessing their accounts through the internet [2]. The use of online banking was then used as a foundation for future advancements. The rise of mobile banking changed everything for good since customers were now able to perform different kinds of actions using the banking application on their phones [3]. The rise of fintech companies and challenger banks, who offer innovative customer-friendly solutions, like customized budgets or automatic saving tools, forced regular banks to evolve in the digital space. In India, the expansion of digital banking has brought about a paradigm shift in the operating and financial structures. There has been a notable rise in customer interactions starting from 2015. There was a massive growth in digital banking platforms,

mainly due to policy support, technology advancement, and widespread internet connectivity by 2018 [4]. Policies such as Digital India and the introduction of the Unified Payments Interface (UPI) have revolutionized the payment process by making online payments convenient, safe, and cost-effective. Financial inclusion through the Pradhan Mantri Jan Dhan Yojana has led to an increased number of people becoming part of formal banking institutions.

E-banking plays an essential role as an important medium to facilitate banking activities through the use of digital platforms, which is now becoming popular in urbanized and digitally knowledgeable regions like Saurashtra, Gujarat. The usage of these facilities is not restricted only to the execution of routine banking activities; rather, customers can carry out various activities through their online bank accounts. There are some factors that may influence the usage behavior of e-banking facilities [5]. Efficiency of employees refers to their capacity to perform their duties with the least amount of time, effort, and waste. Efficiency can be measured by speed and accuracy and not just productivity. Some of the ways of enhancing employee efficiency include communication, tools, training, and load balance.

There has been new way for innovation in the financial sector in recent years as banks realise the need of digital technologies such as mobile, analytics and telepresence to meet fast changing demands from customers [6].The new innovations in the banking sector are biometrics technology, facial recognition technology, in-car apps, smart watches, google glass technology, robotics, beacon technology.

There are some challenges in digitalization in banking sectors involved in it are legacy to existing models and practices, high cost of implementation, lack of technology expertise, skilled work force, dealing with humongous, pervasive data, complying with legislation and regulation, lack of clear strategy and vision and connecting different data pools. There are some recent trends in banking sector are ATM, Tele banking, electronic clearing service, electronic funds transfer, real time gross settlement, point of sale terminal.

The remaining sections are organized as follows: Section 2 provides an overview of existing work on this study. Section3 elaborates on the research methodology. Section 4 details the data analysis and discussion also presented. In the end, Section 5 provides a conclusion.

- Introduce the legal problem or entrepreneurial issue addressed
- Explain why the topic is timely and significant
- Identify gaps in existing scholarship
- State the thesis clearly
- Briefly outline the structure of the paper

2. Literature Review

[7] investigated how female workers in the Saurashtra district in Gujarat, India, view and adopt digital banking through various determinants, including utility, usability, trust, and risk. In this case, data was collected from 250 respondents using a structured survey, utilizing a non-probability convenience sample approach, with the use of factor analysis, correlation, and ANOVA for statistical analysis. In light of this research finding, although there is the perception of being more convenient and efficient, various challenges, such as the fear of risks, lack of human interaction, and technical problems, prevent complete adoption. However, it was revealed that the major themes associated with adopting digital banking include positive factors that encourage adoption and negative factors that discourage adoption.

[8] analysed the influence of digitalization on the productivity of employees in commercial banks in relation to four dimensions of digital transformation, namely the customer experience, internal processes, business models, and employee activities. With the help of a questionnaire and using SPSS for analysis, this research conducted an analysis among 46 bank employees in 2024. It was noted that although Algerian banks have made efforts in digital transformation, all four dimensions influence employee productivity in a positive way, except customer experience that has a negative correlation. Moreover, there is a difference in performance based on ownership of the bank.

[9] discussed that in the era of digitalization, banking organizations are engaged in transforming their operations through digital culture, competence, and leadership, which can play an important role in improving the performance of the employees. In this study, the effect of these three variables on the banking employees working in state-owned banks is assessed by conducting a questionnaire survey among 100 respondents and analysing data using PLS-SEM. The findings of the study revealed that digital culture, competence, and leadership have significant effects on improving the performance of the employees ($p < 0.05$). On the other hand, self-efficacy does not serve as a significant mediator of the relationship between digital culture/competence and employee performance, but acts as a mediator for the digital leadership ($p < 0.05$).

[10] provided a bibliometric review of bank efficiency from 2000 to 2024 and its evolution against the backdrop of the digital revolution in the context of Industry 4.0. Based on scientific databases such as Web of Science and Scopus, eight clusters of themes are defined: "risk," "performance," and "corporate governance." Notable scholars like Berger and Sufian are presented, as well as important organizations, for example, the World Bank. It is found that the field of bank efficiency is characterized by dynamism and changeability and can be considered an excellent foundation for further research.

[11] examined the effect of digitalization on job satisfaction for employees working at participation banks, especially during the pandemic, where there was an increase in contactless banking operations. Participation banks have been quick in adopting the digitalization trend like all other banks, providing digitalized financial services that adhere to Islamic laws, allowing the consumers to perform their banking operations online. This research used the survey method in measuring the level of job satisfaction of the participants, considering their demographic information, using regression analysis in measuring the effects of digitalization on their job satisfaction. The results revealed a positive relationship between internal and external satisfaction related to digitalization and the job satisfaction of the employees.

[12] illustrated the impact of digital transformation is highly productive for companies. This research evaluated the effect of various technologies such as artificial intelligence (AI), cloud computing, and collaboration technologies on the productivity of workers through quantitative analysis based on the data obtained from 200 employees and qualitative analysis based on feedback from 20 stakeholders. The main conclusions are that while digital tools increase efficiency and collaboration, issues related to cybersecurity and digital exhaustion persist.

[13] highlighted the impact of innovation technology on job-related stress and performance among Indian bank workers. The data gathered from surveys among Indian bank workers have been analyzed using statistical techniques such as ANOVA, multiple regression analysis, and Pearson correlation. The findings showed that although there are technologies that lessen repetitive work and increase efficiency, there are new problems created by these technologies due to lack of skills, greater monitoring, and higher expectations.

This study evaluates the impact of digitalization on employment within Indian scheduled commercial banks, focusing on the operational profitability contributions of various employee types: officers, clerks, and sub-staff. Through Ordinary Least Squares regression analysis, it finds that both officers and clerks positively influence profitability, with clerks making a more significant contribution. Notably, banks are increasing the number of officers while reducing clerks, indicating a strategic shift towards optimizing profitability with fewer clerks. Overall, the findings underscore that digitalization is transforming employment dynamics within the Indian banking sector, posing critical implications for bank personnel.

[14] analysed the effect of digitalization on the workforce of scheduled commercial banks of India, taking into account the contributions to operational profit through different categories of employees, i.e., officers, clerks, and sub-staff. Using the OLS regression model, it concludes that officers and clerks contribute positively to operational profit, with clerks contributing significantly more than officers. The interesting aspect to be noted is that banks are hiring more officers but less clerks, which suggests a conscious move toward increasing profits with fewer clerks.

[15] explored the importance of digital transformation in digital accounting in improving business performance in the banking industry, considering the current revolution of digital transformation. This research was conducted

on a sample of 190 individuals working in Jordanian banks through Partial Least Squares Structural Equation Modeling (PLS-SEM). The important results obtained included the effect of digital accounting, financial technology innovations, and technology competition as key variables in improving business performance. The uniqueness of this study was that it develops a model to understand the relationship between the proposed variables in banks.

1.1 Research gap

Although there have been several studies conducted regarding the digitalization of the banking industry, there appears to be a noticeable lack of studies on the efficiency of employees from a regional perspective, especially concerning the Saurashtra and Gujarat region. In most cases, the main focus of studies has been on the adoption or productivity of technology or employee satisfaction but rarely does it provide insight into the relationship between digitalization and employee efficiency. Moreover, little attention has been paid to the factors that act as barriers to the process of digitalization in banks in India, including skill development and digital stress.

3. Methodology

3.1 Research design

The present study adopts a quantitative research design to shows the impact of digitalisation on employee efficiency in the banking sector: a study with reference to Saurashtra and Gujarat region. A structured method is employed for collecting and analysing data from a representative sample of 251 respondents to ensure statistical reliability and validity. Primary data was gathered through the survey using a standardized questionnaire based on five-point Likert-scale. The study measures key variables, including Organizational support, digitalization, employee efficiency, digital tools usage and employee productivity. Data analysis was performed using AMOS software to perform Structural Equation Modelling (SEM). Techniques such as descriptive statistics, reliability analysis, Composite reliability (CR), Average variance extracted (AVE) and Cronbach alpha were used to test the proposed hypotheses and examine the correlations between the primary variables.

3.2 Conceptual framework

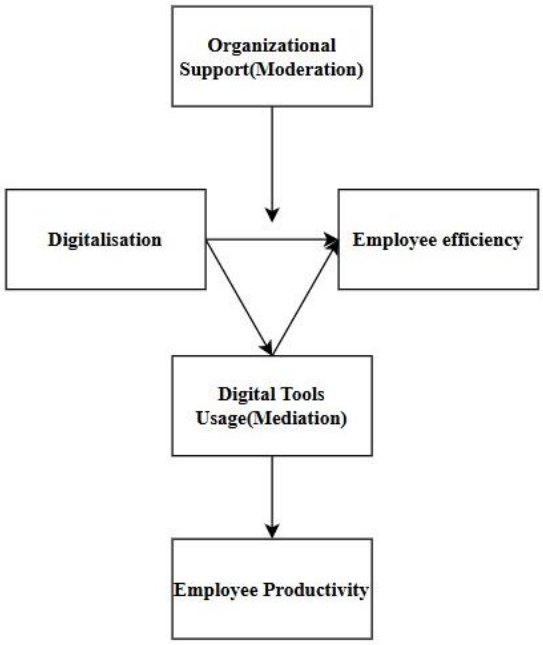

Figure 1 Conceptual Frame work

3.3 Research objectives

- To examine the impact of digitalization on employee efficiency in the banking sector.
- To analyse how digital tools and technologies influence employees work productivity and performance.
- To evaluate the role of digital tools usage and training in enhancing employee efficiency.
- To assess the effect of organizational support for digitalization on employee efficiency.

3.4 Research hypothesis

- **H1:** Digitalization has a significant positive effect on Employee Efficiency.
- **H2:** Digital tools usage has a significant positive effect on Employee Productivity.
- **H3:** Digital tools usage mediates the relationship between digitalisation and employee efficiency.
- **H4:** Organizational support moderates the relationship between digitalization and Employee efficiency.

3.5 Sample selection and Data collection

The selection of sample involved the adoption of a systematic sampling procedure to include employees working in different positions within the banks in order to evaluate the effect of digitalisation on employee efficiency. In this case, a total of 251 individuals were selected based on their different ranks ranging from clerical workers, officers, assistant managers, managers, and senior management personnel, implying that there was an inclusion of entry and top-ranking level employees. From the demographic profile, it is evident that the selected population consisted of both males and females of different ages, work experiences, and salary ranges, indicating that the sample included a moderately experienced and diverse population. As for data collection, the use of primary data was applied by developing a set of questions aimed at measuring variables including Organizational support, digitalization, employee efficiency, digital tools usage and employee productivity. This was done using Likert scale to quantify responses. It means that the survey helped to systematically collect data from bank employees, which had been reliable and valid as reflected in Cronbach's alpha, AVE, and CR values.

3.6 Measures

A systematic questionnaire was used as the main tool for data collection. The questionnaire consisted of closed-ended questions design to collect relevant information on the selected study variables. The constructs and number of items that used in the study are presented below.

Table 1 Measures

S.no	Variables	Number of statements
1	Digitalisation	5
2	Employee Efficiency	5
3	Digital Tools Usage	6
4	Employee Productivity	5
5	Organizational Support	5

- **Digitalization:** Digitalization is the process of adopting digital technologies to convert conventional practices and systems into more efficient and automated systems that rely on data. Some of the tools that are used in this process include computers, the internet, mobile apps, cloud computing, and artificial intelligence. The banking industry has various digital products such as online and mobile banking, digital payments, and automated customer support. Digitalization simplifies operational processes and enables them to be completed faster, hence enhancing efficiency and productivity [16].

- **Employee Efficiency:** The efficiency of employees means that workers can create quality work without much waste of energy or time. This involves being quick and accurate, as opposed to simply completing a large amount of work. Efficient workers need good communication, right equipment, and a suitable workload [17].
- **Digital Tools Usage:** The digital tools used in the banking industry have become extremely significant when it comes to increasing efficiency, serving the customers, and taking decisions. Various tools, including core banking tools, mobile and online banking, ATM machines, CRM software, and data analytics software are commonly employed by banks in order to make their services more efficient. Moreover, some advanced technologies, like AI, chatbots, RPA, and cloud computing, help banks minimize the burden of manual work, eliminate errors, and facilitate transactions quickly. By making their work simpler and more manageable, these tools make employees more productive while also giving customers a comfortable experience in using banking facilities [18].
- **Employee Productivity:** A term that describes the productivity terminology of 20th century enterprises, which primarily rely on the efficiency of manual labor, can be termed as the ratio of goods or services that a worker produces compared to the time taken. By definition, this productivity is entirely different from knowledge worker productivity, as the latter term is described as productivity measures for non-routine production, as well as the abstract input of employees working in knowledge-intensive companies. Nevertheless, knowledge worker productivity can be determined precisely using subjective productivity measurement (SPM), in which productivity information is obtained by means of interviews or questionnaires directed to an interest group [19].
- **Organizational Support:** Organizational support means a process of perceptions and belief in favor of the employee, in which one believes that the organization is deeply concerned about the welfare of its employees. Organizational support acts as a facilitator for instrumental, social, and emotional support. There have been many studies done on organizational support in conjunction with several other factors, but all these studies have shown that organizational support decreases stress and burnout among workers. Consequently, informal support is more beneficial than formal support by a superior authority [20].
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4. Results

The results section details the empirical findings of a study on digitalisation's impact on employee efficiency in the banking sector of Saurashtra and Gujarat. It starts with a demographic analysis of respondents, followed by descriptive statistics for key variables. The measurement model is evaluated through reliability and validity tests, including KMO and Bartlett's test. The structural model is assessed using SEM, and hypotheses regarding the relationships among digitalisation, tool usage, organizational support, employee efficiency, and productivity are tested through regression analysis.

Table 2 Demographic variables

		Frequency	Percent
Gender	Male	141	56.2
	Female	110	43.8
	Total	251	100.0
Age	Below 25	96	38.2
	25–35	75	29.9
	36–45	45	17.9
	46–55	32	12.7
	Above 55	3	1.2

	Total	251	100.0
Working Experience	Less than 2 years	46	18.3
	2–5 years	79	31.5
	6–10 years	98	39.0
	11–15 years	13	5.2
	Above 15 years	15	6.0
	Total	251	100.0
Job Role	Clerical Staff	84	33.5
	Officer Level	16	6.4
	Assistant Manager	20	8.0
	Manager	72	28.7
	Senior Management	59	23.5
	Total	251	100.0
Income	Below 25,000	82	32.7
	25,000–50,000	56	22.3
	50,000–75,000	50	19.9
	75,000–1,00,000	41	16.3
	Above 1,00,000	22	8.8
	Total	251	100.0

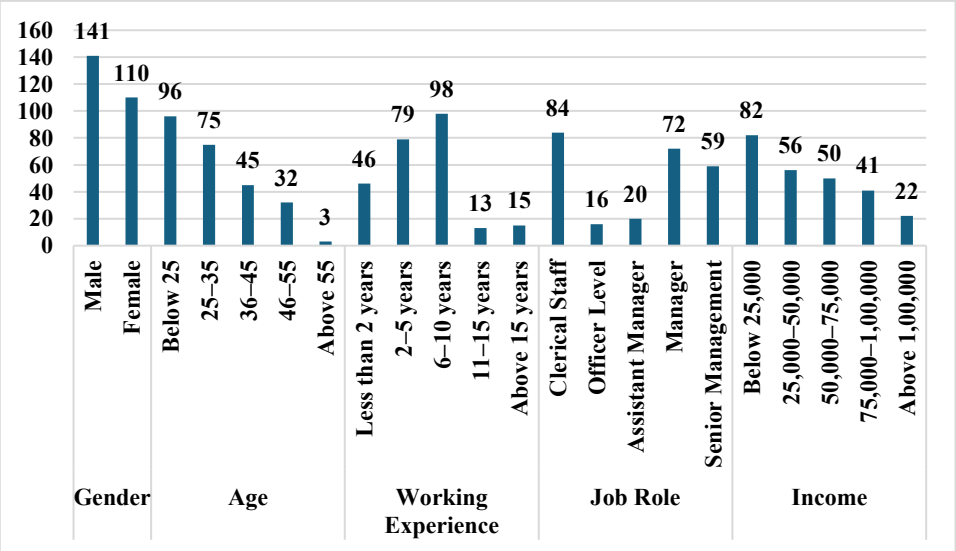

Figure 2 Demographic profile of respondents

The demographic profile of respondents shows that the majority are male (56.2%), with females comprising 43.8%, indicating a relatively balanced gender distribution. Most participants fall within the below 25 years

(38.2%) and 25–35 years (29.9%) age groups, suggesting a younger workforce in the banking sector. In terms of experience, a large proportion have 6–10 years (39.0%) and 2–5 years (31.5%) of work experience, reflecting moderately experienced employees. Regarding job roles, clerical staff (33.5%) and managers (28.7%) form the majority, while income levels are concentrated in the below ₹25,000 (32.7%) and ₹25,000–₹50,000 (22.3%) categories, indicating a mix of entry- to mid-level employees in the sample.

Table 3 Descriptive Statistics

	Digitalisation	Employee Efficiency	Organizational Support	Digital Tools Usage	Employee Productivity
N	251	251	251	251	251
Mean	3.8072	3.8984	3.8446	3.8293	3.5227
Median	3.8000	4.0000	3.8333	4.0000	3.6000
Std. Deviation	.61040	.61353	.64960	.68830	.66061
Skewness	-.517	-.615	-.941	-.868	-.118
Kurtosis	.836	1.544	2.023	1.841	-.047

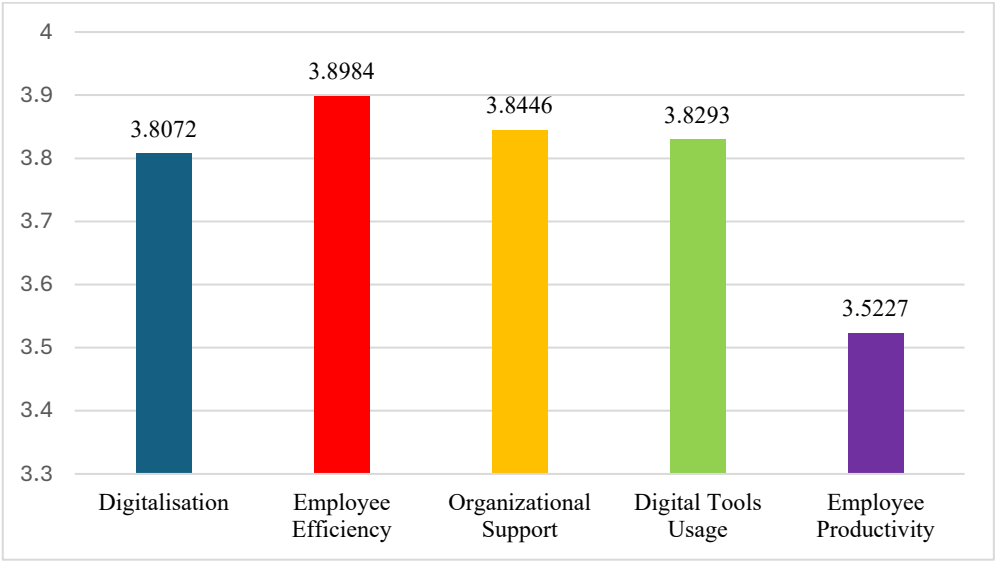

Figure 3 Descriptive statistics

The descriptive statistics indicate that all constructs Digitalisation, Employee Efficiency, Organizational Support, Digital Tools Usage, and Employee Productivity have mean values above 3.5, reflecting generally positive perceptions among respondents. Median values are close to the means, suggesting a consistent response distribution across variables. The standard deviation values (around 0.6–0.68) indicate moderate variability in responses. Negative skewness across most variables shows a tendency toward higher agreement levels, while kurtosis values suggest a relatively normal to moderately peaked distribution, supporting suitability for further SEM analysis.

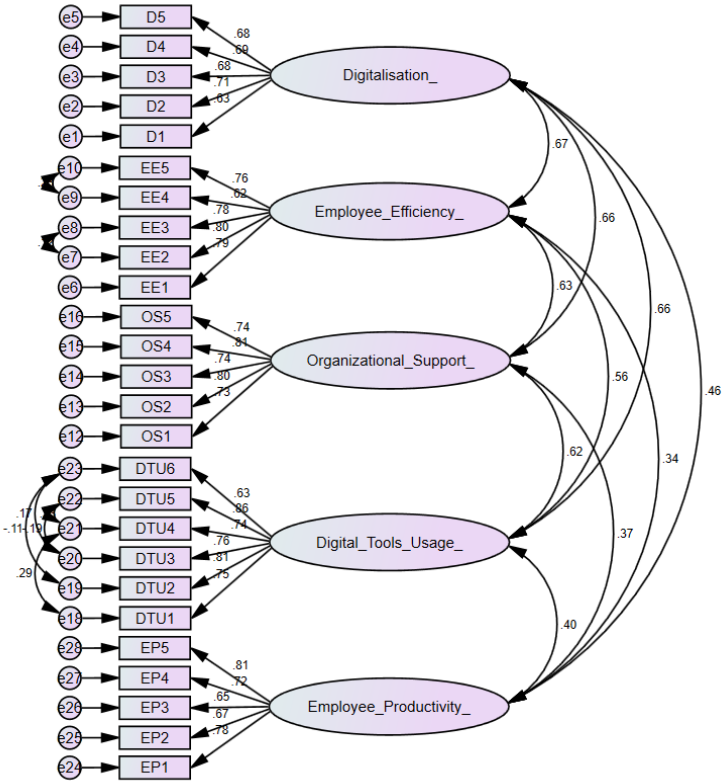

Figure 4 CFA Model

Table 4 Model fit indices

CMIN/DF	2.041
CMIN/DF	575.429
TLI	0.903
CFI	0.916
RMSEA	0.065
RMR	0.038

The model fit indices indicate that the proposed SEM model has an acceptable and satisfactory fit with the data. The CMIN/DF value of 2.041 is within the recommended threshold, showing a good level of model parsimony. The TLI (0.903) and CFI (0.916) values are above 0.90, confirming an acceptable comparative fit of the model. Additionally, the RMSEA value of 0.065 and RMR value of 0.038 are within acceptable limits, suggesting that the model errors are reasonably low. Overall, these fit statistics demonstrate that the structural model is appropriate for examining the relationships among the study variables.

Table 5 Reliability and validity test

Variables	AVE	CR	Cronbach alpha
Digitalisation	0.678	0.828	0.806
Employee Efficiency	0.748	0.854	0.87
Organizational Support	0.764	0.859	0.874
Digital Tools Usage	0.758	0.881	0.894
Employee Productivity	0.726	0.847	0.874

The reliability and validity results show that all constructs meet the recommended thresholds for measurement quality. The AVE values for Digitalisation, Employee Efficiency, Organizational Support, Digital Tools Usage, and Employee Productivity are all above 0.50, confirming good convergent validity. Similarly, Composite Reliability values are above 0.80 and Cronbach's alpha values exceed 0.70 for all variables, indicating strong internal consistency and reliability. Overall, the measurement model is reliable and valid, making it suitable for further SEM analysis.

Table 6 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.899
Bartlett's Test of Sphericity	Approx. Chi-Square	3664.059
	df	325
	Sig.	.000

The KMO and Bartlett's test results confirm the adequacy of the data for factor analysis. The KMO value of 0.899 indicates excellent sampling adequacy, suggesting that the data is highly suitable for structure detection. Bartlett's Test of Sphericity is significant ($\chi^2 = 3664.059$, $p < 0.001$), confirming that the variables are sufficiently correlated to proceed with factor analysis. Overall, these results support the appropriateness of conducting SEM for the study.

4.1 Hypothesis Implementation

H1: Digitalisation has a significant positive effect on Employee Efficiency.

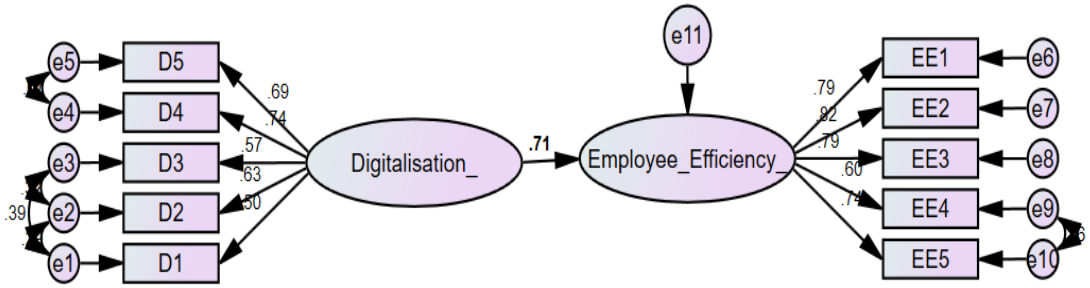

Figure 5 Regression Weights: (Group number 1 - Default model)

Table 7 Regression Weights: (Group number 1 - Default model)

Path	Estimate	S.E.	C.R.	P
Employee Efficiency_ <--- Digitalisation_	.710	.164	6.106	***

The regression results support H1, showing that digitalisation has a significant positive effect on employee efficiency. The standardized estimate of 0.710 indicates a strong positive relationship, meaning that higher levels of digitalisation are associated with improved employee efficiency in the banking sector. The critical ratio of 6.106 is well above the acceptable threshold, and the p-value is less than 0.001, confirming that the effect is statistically significant. This suggests that digitalisation plays an important role in enhancing employees' efficiency at work. Therefore, the Hypothesis is accepted.

H2: Digital Tools Usage has a significant positive effect on Employee Productivity.

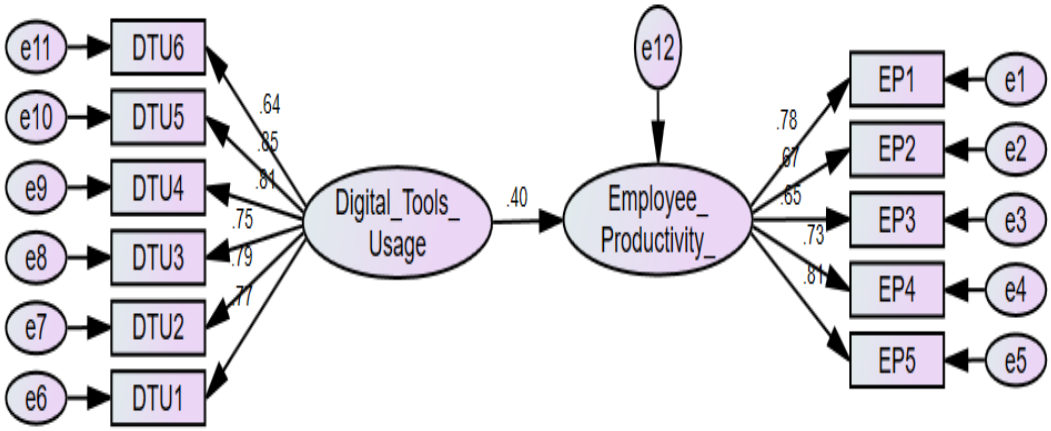

Figure 6 Regression Weights: (Group number 1 - Default model)

Table 8 Regression Weights: (Group number 1 - Default model)

Path	Estimate	S.E.	C.R.	P
Employee Productivity <--- Digital Tools Usage	.395	.079	5.404	***

The regression results support H2, indicating that digital tools usage has a significant positive effect on employee productivity. The standardized estimate of 0.395 shows a moderate positive relationship, meaning that increased use of digital tools contributes to improved productivity among employees. The critical ratio of 5.404 exceeds the recommended threshold, and the p-value is less than 0.001, confirming statistical significance. Thus, effective utilization of digital tools enhances employee productivity in the banking sector. Therefore, the Hypothesis is accepted.

H3: Digital Tools Usage mediate the relationship between Digitalisation and Employee Efficiency.

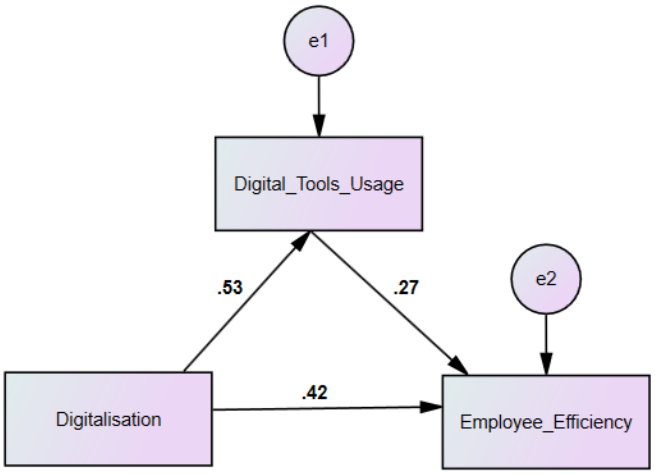

Figure 7 Regression Weights: (Group number 1 - Default model)

Table 9 Regression Weights: (Group number 1 - Default model)

Path			Estimate	S.E.	C.R.	P
Digital Tools Usage	<---	Digitalisation	.530	.060	9.875	***
Employee Efficiency	<---	Digital Tools Usage	.273	.053	4.627	***
Employee Efficiency	<---	Digitalisation	.420	.059	7.113	***

The regression results support H3, indicating that digital tools usage mediates the relationship between digitalisation and employee efficiency. Digitalisation has a significant positive effect on digital tools usage ($\beta = 0.530$, $p < 0.001$), and digital tools usage in turn has a significant positive effect on employee efficiency ($\beta = 0.273$, $p < 0.001$). At the same time, digitalisation still has a direct significant effect on employee efficiency ($\beta = 0.420$, $p < 0.001$). Since both the direct and indirect paths are significant, this suggests partial mediation, meaning that digitalisation improves employee efficiency both directly and through increased use of digital tools. Therefore, the Hypothesis is accepted.

H4: Organizational Support moderates the relationship between Digitalisation and Employee Efficiency.

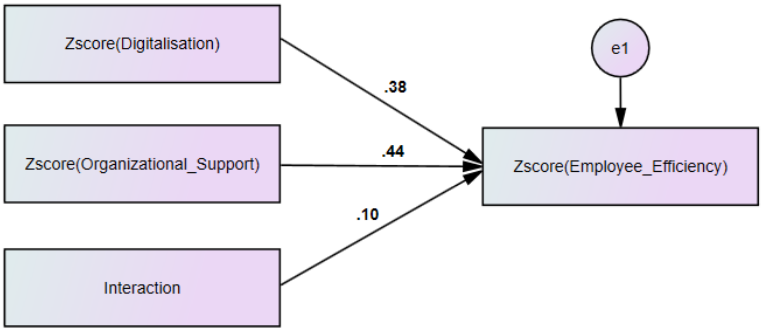

Figure 8 Regression Weights: (Group number 1 - Default model)

Table 10 Regression Weights: (Group number 1 - Default model)

Path			Estimate	S.E.	C.R.	P
ZScore (Employee Efficiency)	<---	Zscore (Digitalisation)	.349	.048	7.332	***
ZScore (Employee Efficiency)	<---	Zscore (Organizational Support)	.409	.048	8.589	***
ZScore (Employee Efficiency)	<---	Interaction (Zscore (Digitalisation) * Zscore (Organizational Support))	.076	.037	2.038	.042

The regression results support H4, showing that organizational support significantly moderates the relationship between digitalisation and employee efficiency. Both digitalisation ($\beta = 0.349$, $p < 0.001$) and organizational support ($\beta = 0.409$, $p < 0.001$) have significant positive effects on employee efficiency. Importantly, the interaction term between digitalisation and organizational support is also positive and significant ($\beta = 0.076$, $p = 0.042$), confirming the moderating effect. This means that the positive impact of digitalisation on employee efficiency becomes stronger when organizational support is higher. Therefore, the Hypothesis is accepted.

4.2 Discussion

The findings of the present study strongly support all four hypotheses and are consistent with earlier research in the banking sector. The result of H1 confirms that digitalisation significantly improves employee efficiency, which aligns with prior studies showing that adoption of digital technologies enhances employee performance by reducing workload and improving accuracy (1). Similarly, H2 indicates that digital tools usage positively influences employee productivity, supporting earlier evidence that digital platforms and tools increase operational efficiency and service delivery in banks [9]. The mediation effect observed in H3 further strengthens this relationship, suggesting that digitalisation enhances efficiency indirectly through increased use of digital tools, which is consistent with studies highlighting the role of technological adoption in improving employee skills and performance outcomes [21]. Finally, H4 confirms the moderating role of organizational support, indicating that supportive organizational environments strengthen the impact of digitalisation on efficiency; this is in line with previous research emphasizing that training, support, and organizational culture are crucial for successful digital transformation in banking [22]. Overall, the results validate existing literature and demonstrate that digitalisation, supported by effective tools and organizational backing, significantly enhances employee efficiency and productivity.

5. Conclusion

The study concludes that digitalisation plays a significant role in enhancing employee efficiency and productivity in the banking sector. The results support H1, where digitalisation has a strong positive impact on employee efficiency ($\beta = 0.710$, $p < 0.001$). Similarly, H2 confirms that digital tools usage significantly improves employee productivity ($\beta = 0.395$, $p < 0.001$). The findings of H3 reveal a partial mediating effect, as digitalisation significantly influences digital tools usage ($\beta = 0.530$, $p < 0.001$), which in turn enhances employee efficiency ($\beta = 0.273$, $p < 0.001$), while also maintaining a direct effect ($\beta = 0.420$, $p < 0.001$). Furthermore, H4 demonstrates a significant moderating role of organizational support, with the interaction effect ($\beta = 0.076$, $p = 0.042$) indicating that the impact of digitalisation on efficiency is stronger when organizational support is higher. Overall, the study highlights that effective digitalisation, supported by proper tools and organizational backing, significantly improves employee performance outcomes in the banking sector.

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