

The Impact of Digital Transformation on Staffing Strategy in Banking Sector: A Case Study of Egypt

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Abstract

Purpose: The Egyptian banking sector adopts an expansion strategy in the field of digital transformation to face the competition resulting from the entry of ICT companies, the repercussions of the Corona virus and the spread of financial technology companies in the banking services market. This trend offers multiple benefits to banks and customers, including ease of conducting transactions, reducing operating expenses, and meeting the needs of customers who prefer banking transactions via the Internet and smart phones. On the other hand, it introduces wide changes to the size and quality of banking jobs in the future, and threatens the disappearance of some of them, therefore this study analyses empirical evidence of the impact of the digital transformation on staffing strategy in the Egyptian banking sector.

Design/Methodology/Approach: This study depends on the analysis of secondary data obtained from the reports of the Central Bank of Egypt on the indicators of digital transformation and the number and quality of banking staffs during the period from 2016-2021, using the analysis of correlation and regression coefficients.

Findings: The results of the study indicate that there is no negative impact of digital transformation on new staffing operations in the short term, because the rate of bank penetration into the banking services market is still low and therefore Egyptian banks are expanding their traditional branch network alongside digital banking services channels. This transformation has also created a new type of job that keeps pace with banking digitalization, while in the long term digital transformation threatens the disappearance of some jobs to be replaced by artificial intelligence, internet banking, mobile banking and electronic wallets.

Originality/Value: The novelty of this study is to examine the relationship between digital transformation indicators and the size and quality of staffing in the Egyptian banking sector.

Practical Implications: The importance of this study is to provide recommendations to the HR management in Egyptian banks to deal proactively to deal with the potential impacts of digital transformation in the banking sector.

Limitations/implications: There are limitations to the results of this study represented in the insufficiency of the study period, and there are many factors affecting the size and quality of employees in the banking sector other than digital transformation. In addition, the study relied on the method of quantitative analysis of the study variables. Hence further studies can be carried out with different methodologies such as surveys, case studies and qualitative analysis methods

Keywords: Digital transformation-staffing strategies-Banking sector-Egypt case

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1. Introduction

Egyptian banks have made a boom in digital banking services provided during the last five years, especially in light of the repercussions of the Corona pandemic, which imposed new patterns in banking operations, reducing the number of working hours and closing some branches; due to physical distancing requirements.

Where banks have launched online banking applications, mobile banking and electronic wallets, which enable customers to conduct their transactions at anytime and anywhere easily and efficiently, and include a greater number of banking services that can be implemented via digital platforms in several areas of account opening service, financing request, Issuing a bank card, completing payments and purchases, paying bills, transferring money online, updating customer data, and other banking services.

Some banks have also launched fully electronic branches, in addition to using artificial intelligence applications, big data and other digital technologies in operational processes and instantaneous completion of transactions, with the aim of achieving banking efficiency and meeting the needs of customers, especially the category of customers interested in integrating digital technologies with all the services provided to them.

On the other hand, this trend introduces broad changes to the shape of banking jobs in the future, and threatens to disappear some of them, to be replaced by artificial intelligence applications and digital banking services channels, in return for the emergence of new jobs with new skills that keep pace with digital technologies, which imposes on the human resources management to build and implement new staffing strategies, And taking the necessary steps to deal proactively with the impacts of that digital revolution on employees in the banking sector, so this study aims to examine the impact of digital transformation on staffing strategy in the Egyptian banking sector. The focus of analysis is on key components of the staffing strategy (Recruitment, Selection: and Placement) that influence its role orientation, namely the structure of the HR function and the skill-set of HR personnel in the Egyptian banking sector

2. Literature review

Over the last few years, many studies have been conducted on the impacts of digital transformation in the banking sector from multiple aspects and different environments. Some of them dealt with the benefits and challenges of digital transformation in the banking sector, given the disruptive potential and nature of digital technologies. another dealt with the impact of digital transformation on the financial performance of banks, and some of them dealt with the impact of digital transformation on the performance, participation and welfare of employees in banking services, Some of them dealt with the impact of digital transformation on the work environment in the banking sector, some of them dealt with the impact of

digital transformation on human resource management in general in the banking sector. And there are also numerous studies on the economic impacts of digital transformation on the employment market in general

According to a 2017 PWC report, 32% of jobs in the banking sector could become obsolete due to digitization and financial technology, as employees are replaced by self-service technology while exploiting them to provide a more personalized service, and act as an advisor to their clients. Among the job opportunities in the new licenses in the banking sector, digital technologies also offer some new roles in the banking sector which include cyber-security specialist, credit analyst, robot programmer, blockchain engineer and operations model expert.

Another study published by McKinsey (2018) on the future of work in Switzerland in light of the digital transformation from 2018 to 2030. The study used data from 800 different professions in 2,000 activities. The study showed that current digital technologies can automate 50% of all work tasks in Switzerland until 2030. However, the study estimated that 20-25% of activities would actually be automated by 2030, with an approximately equal number of new tasks being created at the same time. This will increase the demand for social and emotional skills such as leadership and management and technological skills such as digital skills by about 20% - 50%, the demand will be higher for higher cognitive skills such as critical thinking skills, and lower for physical and manual skills or basic cognitive skills (such as data entry and processing) by about 20%. From a skills point of view, then there will be major shifts in the labor market, there is a great need to address the skills gap and then education must shift more towards teaching digital and emotional skills, lifelong learning and re-skilling on a large scale in corporations (Jacques B., et al., 2018)

Inese & Tatjana (2019) discussed the challenges facing developing competencies in the financial sector most affected by developments in the information and communication technology sector, and other knowledge-intensive technological solutions, which require different competencies from managers and specialists, such as big data analysis, predictive analytics, and cyber-security, As well as creativity, and working with virtual assistants, and the study concluded that digital transformation has a significant impact on competencies, as digital transformation leads to rapidly changing current competencies, in addition to the need to develop new competencies related specifically to the use of information and communications technology, artificial intelligence and robotics in business operations, Developing new services and updating existing ones.

Nicoleta C., et al (2019) highlighted the effects of digital transformation on employees in the Romanian financial services sector, using a qualitative analysis method for data collected from two groups: managers of companies specialized in the financial services sector and managers of financial services clients companies. Digital brings many advantages to both the financial services sector and its customers, and has led to many changes in work procedures in the financial services sector. (Nicoleta C., et al :2019)

Shinta W., et al (2020) discussed the work stress arising from uncertainty due to digital transformation in the Indonesian banking industry, which directly

affects employee participation, which leads to endangering organizational performance, and this study was conducted on a sample of 448 Employees from a private bank in Jakarta, and the study concluded that digital transformation has significant effects on all managerial practices in the bank, including the work environment and the psychological state of employees, and work stress have a negative impact on employee participation, and as a result, digital transformation should be dealt with Correctly through the participation of employees in the digital transformation processes, so that the work stress arising from digital transformation do not lead to the failure of the transformation process itself.

Meena & Parimalarani (2020) examined the impact of digitization on employment in the Indian banking sector based on the descriptive analytical approach and secondary data, and the results of the study indicated that digital transformation will provide great opportunities in digital technology-related jobs such as cyber-security specialist, robot programmer, blockchain engineer and analyst Big data, thus digital transformation will enhance the quality of human resources in the Indian banking sector through various digital skill sets.

Bannikov.& Abzeldinova (2020) dealt with the impact of usage digital technologies in human resource management in Russian financial services companies in the context of the development of the digital economy. Which will make it able to manage human capabilities efficiently and effectively, and focus on strategic tasks, so Russian companies must take decisions regarding the appropriate equipping of administrative departments with equipment and software that allow them to respond quickly in the external environment and digital technologies.

Aswin R., (2021) examined the impact of digital banking technology on bank efficiency, employee recruitment and also studied the impact of foreign shareholders' equity on bank adoption in Indonesia. For digital technologies, the study used the Data Envelope Method (DEA) to measure the efficiency of the bank and used the ratio of information technology costs to the total operating cost of the bank to express digital technology. A regression analysis model was used for the data collected from 29 banks during the study period 2010-2020. The study concluded that the use of digital banking technology leads to increased efficiency and reduced demand for hiring new employees. The study also found that an increase in foreign ownership rights leads to an increase in banks' adoption of digital banking technology.

Fotis K., et al (2021) examined the employee acceptance rate for digital transformation in the Greek banking sector using the qualitative analysis method through the responses of a sample of (151) employees in Greek banks. The study used a multivariate regression analysis model to analyze the elements of the technology acceptance model, and the study concluded That there are many doubts about employees' acceptance of digital technologies for fear that they will replace them, so the study presented a vision for executives with targeted training programs for employees to facilitate the transition to the digital age

Asser A.(2021) aimed to know the impact of digital transformation on the job performance of workers in Egyptian commercial banks, and to achieve this goal,

the descriptive analytical approach was used to test the relationships between the independent variable represented in the four main areas of digital transformation, they are (customer service experience-internal process transformation-business models The employee's experience) and between the dependent variable represented by three dimensions of job performance, namely (task performance, contextual performance, and adverse behavior). The researcher used a questionnaire list that was prepared for the purpose of collecting data on the study variables. The study population consisted of workers in Egyptian commercial banks, and the field study was conducted on a sample of (280) employees in commercial banks who were randomly selected from the supervisory departments of commercial banks in Cairo.

Asser A., & Alaa F., (2021) examined the impact of banking digitization indicators on the systematic risk of banks listed on the Egyptian Stock Exchange, by studying the relationship between digital transformation indicators. In the banking sector (represented by the growth rate in the number of ATMs, the growth rate of electronic payment cards, the growth rate of electronic branches, the growth rate of banking Internet transactions, the growth rate of phone banking transactions and the growth rate of e-wallet transactions) and among the systematic risks Represented in the beta coefficients for the shares of banks listed on the stock exchange, and the study sample was represented in the (11) banks listed on the Egyptian stock exchange during the period from January 2019 until the end of March 2021.

3. Conceptual framework

3.1 Overview of the digital transformation in Egyptian banking sector

Digital transformation in banking sector is a cultural, organizational and operational change through digital technologies. In its most basic sense, digital transformation is the transition to digital customer services via the internet. In a broader sense, digital transformation means improvements in a wide range of areas related to offerings, process automation, customer experience, data integration, organizational flexibility and sales. (Vladimir L.: 2021)

In general, the concept of digital transformation in the banking sector refers to banks taking advantage of digital technologies in building new digital banking business models, improving customer and employee experience, automating operational processes, and innovating digital banking services with the aim of meeting customer needs, increasing operational efficiency, improving financial and non-financial performance, and contributing to Achieving financial inclusion.

In view of the importance of digital transformation, Egypt has been interested in preparing the technological infrastructure, and the legislative and regulatory frameworks necessary to achieve the goals of Egypt's Digital Strategy 2030. The Supreme Council for the Digital Society was established by Republican Decree No. (501) of 2017, and Law No. (18) of 2019 was issued regulating the use of digital means Non-cash payment, and the issuance of the Central Bank and the Banking System Law No. (194) of 2020, which for the first time included rules for

regulating digital payment services and systems and financial technology with the aim of supporting digital transformation and adopting financial technology innovations in the Egyptian banking sector

In addition to the initiatives launched by the Central Bank of Egypt with the aim of activating digital transformation, including publishing and activating of sale of points (POS), developing the government payments system (Meeza), and launching the instant settlement system for retail payments within 60 days, and applying it to all Egyptian banks, to enable customers to conduct Easier and faster instant transfers using the mobile application. The Know Your Customer Electronic system, the establishment of a computer emergency response center for the banking sector, the establishment of a financial technology center, and the Workforce Digital Transformation initiative for bank employees.

The Central Bank of Egypt also issued the rules regulating the provision of digital banking services, such as the rules regulating the provision of payment services using a mobile phone, the rules regulating payment services using prepaid cards within the Arab Republic of Egypt, the rules regulating the use of rapid response technology, and the criteria for issuing and accepting contactless electronic payments within Egypt.

Egyptian banks have achieved tangible steps and results in digital transformation, especially in light of the repercussions of the Corona virus, and this is evidenced by the development of digital banking services indicators, as the number of electronic payment cards issued by banks of various types (credit, debit, and prepaid) increased from 25.3 million Cards in 2016 reached 42.06 million cards by the end of 2021, with a growth rate of 66.24%, while the points of sale number increased from 64,349 points in 2016 to 104560 in 2021, with a growth rate of 62.49%, and the number of ATMs jumped to 14,760 machines in 2021, after it was 9031 in 2016 with a growth rate 63.44%.

The volume of transactions executed through the corporate Internet banking service increased by 93% on an annual basis, with an increase in the number of subscribers that reached 45% until December 2021. And an increase of more than a doubling by up to 118% in the number of digital banking transactions via mobile phone on an annual basis until December 2021 and an increase of 35% on an annual basis in the number of subscribers to the Internet banking service for individuals until the end of December 2021, while the number of subscribers to the application increased The electronic wallet increased by 34% during the same period, doubling the value of the transactions executed through it, with an increase of 107%, while maintaining an activity rate of 20%. Banks have also succeeded in expanding the customer base for the electronic payment service for government payments for companies, as there has been an increase in the electronic payment service for government payments for companies among all operating banks in terms of transaction volume, achieving an increase of 70% in the number of transactions on an annual basis until December 2021

In addition to the development of new channels such as QR technology and other contactless payment methods, some banks have also launched “Chat boot” and

“WhatsApp” services for business as electronic channels for customer service 24 hours a day, based on artificial intelligence technology. In addition to launching a platform for integrated banking solutions for electronic payment and collection, and providing B2B financing to merchants on the platform to purchase goods and collect their dues electronically, enabling them to grow their business and increase their profits. (Central Bank, Payment Systems & Information Technology Sector, statistics for the period from 2016-2021).

Bank Misr also launched the "BM Learning" initiative in order to support employees in their professional lives and help them in self-development with the aim of enhancing employee satisfaction and participation and improving annual business results. The bank also launched Talent Hub Management with the aim of identifying, developing and retaining emerging talent, allowing them to become the long-term leaders of Bank Misr through fully customized development paths within the center (Bank Misr, Annual Report 2017/2018).

3.2 Banking staffing strategy in the digital age

The HR management plays an important role in the continuity and growth of banks in light of the competition challenges arising from the financial technology revolution. The HR management is concerned with the workforce, which is the main driver in the implementation of all banking operations. This negatively affects the success of its business, and a number of strategies and jobs emerge from this axis that are linked and integrated among themselves, and staffing strategy is one of the most important, most dangerous and influential of these jobs in the digital age, which created many fears among the workforce in all economic sectors, including the banking sector

Automation and reliance on digital technology are making clear changes in the tasks, jobs and skills required in the global labor market, and then on employment strategies in all economic sectors, as the future jobs survey report conducted by the World Economic Forum in 2020 indicated that 43.2% of companies that she was surveyed and reported that she will reduce her workforce due to the reliance on digital technology, and about 41.8% of the companies surveyed indicated that they will expand their use of human resources to perform specialized services, while about 34.5% of the companies surveyed said that they will It is expanding its workforce due to technological integration. The report also expects that 38.3% of the companies surveyed will take measures to change their work locations, and 55.1% of the companies surveyed will modify their value-added chains for reasons not related to the increase in dependence on digital technology, In addition, this report indicates that more jobs will be created than will be destroyed. The duplicate will decrease by 9% to 15.4% of the total labor force, while emerging occupations will grow by 7.8% to 13.5% of the total labor force, and in this regard, the report expects to replace 85 million jobs as a result of the shift to the use of digital technology, while Instead, 97 million new opportunities are more adapted to technology and AI algorithms. (World Economic Forum, 2020)

A study conducted by (Laura Noonan: 2018) that published by Financial Times and included 30 among the largest banks in the world towards artificial intelligence. The results of the study showed major banks revealed the banking industry's interest in what artificial intelligence can offer it to reduce banking costs and boost revenues. Rather, the German Bank, Deutsche Bank, plans to replace half of its 98,000 employees with robots. And the Mizuho Financial Group in Japan plans to use AI to replace 19,000 employees, or 50% of its workforce by 2027, and Citigroup Banking Group expected to dispense 30% of banking jobs as a result of AI techniques by 2023. The results of the study also indicated that 17 banks from the sample use artificial intelligence technology in their front offices for everything from chat bots at Citibank to Amazon's virtual assistant (Alexa) to serve customers at UBS. 8 banks use this technology in their front offices middle, background and in data analysis. And one of the banks revealed The European who participated in the study said that it has between 500 and 800 employees working in the field of artificial intelligence. Nordea Bank of Sweden revealed that it employs only 25 personal. Six of them stated that their proportion would be less than 20%. There are directors of 5 banks directly responsible for the AI effort. Eight of the 18 banks are participating in joint investments, while 4 banks have invested in companies related to artificial intelligence technology.

The threat to banking sector employees grows with the ability of AI technology to enable bots to be as effective - and empathetic - as human resources in many essential transactions. The Asian Development Bank predicts that artificial intelligence and similar digital technologies could replace 286,000 employees in the banking sector in the Philippines by 2030, although the bank reports that the gains of digital transformation may create other jobs.

Therefore, digital transformation plays a vital role in reshaping the strategies and functions of human resource management in the banking sector from three dimensions. The first is that this department needs to digitize its functions and tasks to keep pace with these technological developments, and the second is to build and implement employment strategies necessary for the success of digital transformation, while the third dimension focuses on setting policies and presenting the necessary proposals to deal proactively with the negative effects of digital transformation on banking professions

The first dimension is based on the use of digital technologies to automate HR management practices, reduce the time it takes to complete repetitive tasks, improve employee experience and replace old HR management systems with integrated HR platforms based on artificial intelligence technology, machine learning, cloud computing, big data analytics and blockchain and others. Where the digital technologies has brought about a complete revolution in recruitment strategies and has simplified many processes and shortened the long procedures to reach suitable candidates for vacant jobs, as electronic applications, social networking sites, software to search for job candidates and videos on smart-phones, have replaced traditional methods of recruitment. The use of artificial intelligence,

for example, will enable what is known as “relevancy,” whereby a candidate’s personal account is automatically matched to the requirements of the job.

The second dimension focuses on the role of HR management in employing the digital capabilities and competencies needed to manage the digital transformation and the banks’ orientation to the remote work system, such as employees specialized in cyber- security and technology governance, mobile banking Internet application developers, electronic wallets, and financial technology pioneers, on the one hand, and on the other hand. Dealing with the negative effects of digital transformation on the workforce in banks, which are represented in the following:

1. Banking Jobs loss risk: Due to the use of digital technologies banking services such as transferring funds, opening an account, paying bills, getting an account statement, getting ATM card, debit card, credit card, check book, loan details, etc. can be done, without visiting bank branches. Thus, the digital transformation in the banking sector is expected to reduce human intervention, which leads to the bank’s workforce being afraid of threatening their job.

The (Meena & Parimalarani 2020) study concluded that the digital transformation of the Indian banking sector has replaced 70% of front office jobs with artificial intelligence, replacing 4,85000 tellers, 174,000 lending employees, and 219,000 business representatives. Customer service with chat-bots, voice assistants, automated authentication, biometrics technology, and 96,000 CFOs and compliance officers due to AI based on anti-money laundering and anti-fraud, creating 1.46 million jobs, thus with the rapid growth of digital transformation in the banking sector, an increase of 15 percent is expected. At least 20% are in employment, while 20-25% of jobs are at risk due to their routine nature that needs low skills, such as data entry, data processing, cashier, and cashier, which means that employees in those disciplines lose their jobs,

2. Impact on the size and quality of job opportunities available in the banking sector: Digital technology may also result in a decrease in the size of job opportunities available in the banking sector, and bring about a qualitative change in the available opportunities, as the demand for routine and low-skilled jobs decreases, while the demand for Jobs that require high skill such as jobs related to dealing with big data, digital platforms, digital banking channels, financial technology innovations, technical problem solving, and those that require interpersonal skills and are difficult to automate,

3. Banks’ orientation to the remote work system: There are three axes when talking about the banks’ tendency to work remotely. The first axis is the provision of digital infrastructure services in which the banks operate, that is, the availability of broadband services that establish the provision of more banking services. As for the second axis, it is represented in the extent to which human resources are able to adapt to the remote work system. The third axis concerns the digital culture of customers.

Many banks in the world have announced their plan to continue to adopt remote work even after the Corona virus recedes, as JPMorgan and UBS Group stated that a large part of their workforce may continue to work away from offices.

Barclays has indicated that it may not bring thousands of employees together in offices. While Hong Kong-based banking giant HSCB told its 30,000 employees via an administrative memo that they can work up to four days a week from home. (Hazarika:2020)

There are many factors that accelerated the application of this system in Egyptian banks, on top of which is the Corona virus, which prompted the banks to close physical branches and go to enhance and strengthen digital services more towards customers. In addition to the high percentage of Egyptians dealing with the Internet, there are 61 million Egyptians who use the Internet, and 47% of those who use social media, most of them young people, and the volume of electronic commerce reached nearly 65 billion pounds in 2021.

4. Study methodology

The researcher depend on the quantitative analysis method, which is suitable for such studies that are concerned with quantitatively measuring the impact of independent variables on the dependent variable, with the aim of examining the impact of digital transformation on staffing strategies in the Egyptian banking sector.

4.1 Study Population

The study population is represented by the (38) commercial banks working in the Egyptian market in the end of December 2021, including 11 public sector banks, (15) private sector banks, in addition to (12) foreign banks.

4.2 Study hypothesis

Relying on the results of previous studies and in light of the problem of the study, the researcher formulated the following hypotheses:

H1: There's vital impact of digital transformation on the size of banking staff on Egyptian banking sector

H2: There's vital impact of digital transformation on the Quality of banking staff on Egyptian banking sector

4.3 Study variables

A) Independent variable: digital transformation in the Egyptian banking sector

The study depends on the trend in digital banking services channels as indicators of digital transformation in the Egyptian banking sector, and the growth rate in the number of electronic the growth rate in (QR) technology because it is still new in the year 2021, and therefore the independent variables of the applied study are represented in the following indicators: ATM, Banking card, Point of sale ,

Electronic branches ,Internet banking transaction – Mobile banking transaction, Electronic wallet transactions

B) Dependent variable: Staffing strategies in Egyptian commercial banks

The study depends on the trend of the size and quality of employees as indicators of staffing strategies in Egyptian commercial banks during the study period, therefore the dependent variables Size of and Quality of employees.

4.4 Data analysis method

The data needed to calculate the indicators of digital transformation and staffing strategies in the banking sector were collected on annual reports, statistical bulletins issued by the Central Bank of Egypt, financial reports and sustainability reports published by commercial banks, in addition to the data available on the banks' website: for the study period 2016-2021.

The researcher used computer software (SPSS) to process the data using the following statistical methods: Correlation analysis to show the relationship between the study variables by calculating the correlation coefficients between variables of the study and multiple regression analysis, to determine the impact of the independent variables on the dependent variables, and thus build a regression model as follows:

$$Y = F (X1, X2, X3, X4, X5, X6, X7)$$

The Linear Formulation of the Function Becomes

$$Y = \alpha + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \beta_3 X4 + \beta_3 X5 + \beta_3 X6 + \beta_3 X7 + U.$$

Where in first model, the growth rate of banking staff number is considered as dependent variable (Y1) and under probable explanatory factors quantifiable explanatory variables are growth rate of ATM (X1), growth rate of banking cards (X2), growth rate of point of sales(X3), growth rate of Internet banking transaction value (X4), growth rate of Mobile banking transaction(X6), growth rate of Electronic wallet transactions (X6) and growth rate of Electronic branches (X7)

While in second model, the banking technology staff / total banking staff ratio is considered as dependent variable (Y2) and under the same explanatory variables

For the estimation of this general linear regression model, ordinary least square (OLS) method is used because the model satisfies all the assumptions about the random term (U) the statistical analyses are descriptions of standard error and within are descriptions of significance level (P) ≤ 0.05 level of significance is considered at 95% confidence interval.

5. Results & Discussion

5.1 Descriptive Test Results

A) Digital transformation indicators in Egyptian banking sector

Table (1) below shows the growth rate of Digital transformation indicators in Egyptian banking sector during 2016-2021

Table 1. Trend of Digital transformation indicators in Egyptian banking sector during 2016-2021

Indicators	2016	2017	2018	2019	2020	2021	Mean
Growth rate on ATM (X1)	7.5%	8.3%	9%	12.3%	14.6%	16.5%	9.5%
Growth rate on banking cards (X2)	8%	8.7%	9.5%	11.3%	13.6%	18%	9.8%
Growth rate on POS (X3)	6%	7.5%	8.9%	9.5%	11.8%	13.7%	9.5%
Growth rate on Internet banking transaction value (X4)	2%	4%	5.3%	6.7%	36%	45%	16.5%
Growth rate on Mobile banking transaction (X5)	1.5%	3.5%	6.2%	7.7%	35%	48%	17%
Growth rate on Electronic wallet transactions (X6)	4%	5.4%	7.2%	9.7%	48%	52%	21%
Growth rate on Electronic branches (X7)	2%	3%	6.5%	8%	9.8%	10%	6%

Source: Calculated depending on data of Annual reports by the Central Bank of Egypt, 2016-2021

From the table (1), it is seen that there is an increasing trend of Digital transformation indicators in Egyptian banking sector from the year 2016 to the year 2021. In addition, the increase in internet banking, mobile banking and electronic wallets applications was higher than the increase in electronic branches, ATMs, bank cards and points of sale, this indicates that customers are heading towards new digital banking channels, and it is also noted that the rates of increase in the years 2020 and 2021 were higher than previous years, this indicates the repercussions of the Corona virus on the digital transformation in the Egyptian banking sector.

B) Banking staffing in Egyptian banking sector

The structure of banking staffs in banks is divided into three main groups, the first is represented by the front office employees, whose work face to face with customers, such as Teller, Customer Service, Count Overture and Operation, and the second group is represented by the back office employees whose not facing customer such as administrative and support services employees, while the third group is middle office employees that link between front offices and back offices such as risk management, credit analysis, investment and internal audit

It is worth noting that the headquarter of the back offices are located in the main center of the bank away from the places of the branches, or remote recruitment

and outsourcing of the tasks of these offices to reduce costs and reduce administrative burdens on the branches.

For the objective of this study, banking staffs will be divided into three groups. The first group is represented by employees in technical departments, which are the departments through which the bank performs its work and daily activities for customers, such as treasury, banking operations, customer service and credit, and the second group is employees in managerial departments, which are The departments responsible for regulating the workflow within the bank, such as human resources, accounting, legal affairs, auditing, external relations, public relations and branch affairs,

While the third group is represented by employees in the Information Technology and Digital Transformation departments, which is responsible for managing digital transformation technologies and applications, building and managing databases, cyber security, following up on the integrity of devices and networks to maintain work safety, following up the workflow of systems in other departments of the bank, finding appropriate solutions to problems. That may occur in information technology and digital banking services applications and provide future plans to keep abreast of developments in financial technology and follow-up to update programs in line with the latest technologies and developments. , provide solutions to any problem that may face the workflow in the bank, facilitate communication between branches and departments, speed up access to information and governance of information technology. Preparing training and qualification courses for employees to increase their expertise in the field of digital technology. Table (2) below shows the size and quality of banking staffs in Egyptian banking sector during 2016-2021

Table 2. Trend of the size and quality of banking staffs in Egyptian banking sector during 2016-2021

Banking Staffs	2016	2017	2018	2019	2020	2021
Technical departments staffs	66230	68159	70524	74980	75812	77632
Managerial departments staffs	41849	42601	42714	43135	43930	44145
Banking technology staffs	2207	2840	3526	4802	6302	7442
Total banking staffs	110386	113600	117540	122917	126044	129220
Growth rate on Technical departments staffs	2.4%	2.9%	3.47%	6.3%	1.1%	2.4%
Growth rate on Managerial departments staffs	1.9%	1.8%	0.26%	0.98%	1.48%	1.4%
Growth rate on Banking technology staffs	18.5%	23.1%	24.2%	36%	31.2%	18.9%
Growth rate on Total banking staffs	2.95%	2.9%	3.4%	4.57%	2.54%	2.52%

Banking technology staffs/ Total banking staffs	2%	2.5%	4.5%	4.6%	5%	5.8%
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Source: Calculated depending on data of annual reports issued by the Central Bank of Egypt 2016-2021

From the table (2), it is seen that there is an increasing in numbers of banking staffs in Egyptian banking sector during 2016-2021 at average ratio 0.031% but the an increasing in Banking technology staffs / Total banking staffs during 2016-2021 at average ratio 0.04%

From table (1), table (2) it is seen that the increasing in Digital transformation indicators during 2016-2016 is bigger than the increasing banking staffs in Egyptian banking sector during the same period.

5.2 Hypothesis Test Results

Table (3) below shows the correlations between digital transformation indicators and banking staffs in Egyptian banking sector during 2016-2021

Table 3. Correlations matrix

Variables	X1	X2	X3	X4	X5	X6	X7	Y1	Y2
X1	1	.989**	.663	.834*	.822*	.826*	.443	-.885*	.450
		.000	.152	.039	.045	.043	.379	.019	.370
X2	.989**	1	.649	.813*	.809	.791	.400	-.876*	.436
	.000		.163	.049	.051	.061	.432	.022	.387
X3	.663	.649	1	.931**	.944**	.919**	.923**	-.256-	.934**
	.152	.163		.007	.005	.009	.009	.624	.006
X4	.834*	.813*	.931**	1	.998**	.995**	.854*	-.537-	.763
	.039	.049	.007		.000	.000	.030	.272	.078
X5	.822*	.809	.944**	.998**	1	.987**	.856*	-.510-	.785
	.045	.051	.005	.000		.000	.030	.302	.064
X6	.826*	.791	.919**	.995**	.987**	1	.865*	-.533-	.755
	.043	.061	.009	.000	.000		.026	.276	.083
X7	.443	.400	.923**	.854*	.856*	.865*	1	-.048-	.869*
	.379	.432	.009	.030	.030	.026		.929	.025
Y1	-.885*	-.876*	-.256-	-.537-	-.510-	-.533-	-.048-	1	.017
	.019	.022	.624	.272	.302	.276	.929		.975
Y2	.450	.436	.934**	.763	.785	.755	.869*	.017	1
	.370	.387	.006	.078	.064	.083	.025	.975	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: outputs of statistical analysis

It is evident from Table No. (3) That:

1-There is an insignificant inverse relationship between all growth rates in the digital transformation indicators in the Egyptian banking sector and the growth rate in the total number of banking staffs, except for this significant relationship at the 5% level between each of the growth rate in ATMs and the growth rate in bank cards from on the one hand, and the growth rate in the total number of staffs on the other hand.

2-There is a positive, non-significant relationship between all growth rates in the indicators of digital transformation in the Egyptian banking sector and the growth rate in the ratio of technology staffs / total number of staffs, except for this significant relationship at the level of 1% with the growth rate in points of sale and significant at level 5 % with the growth rate of electronic branches.

To do a multiple regression analysis, it must be verified that there is no self-correlation between the independent variables of the study, so the Variance Inflation Factor (VIF) and Tolerance were calculated for all the independent variables, where the problem of an overlapping linear relationship between the study variables appears in the event that coefficient values appear the Variance Inflation Factor (VIF) is greater than the number (10) and Tolerance values are less than (1%), (Smith, 2018). .

The results of the statistical analysis indicated that the values of the data inflation factor for the independent variables are greater than (10) Also, the values of Tolerance was less than (1%), and therefore the independent variables that lead to the problem of statistical interference between the study variables must be excluded when building a multiple regression model.

Table (4) Result of Regression analysis for impact of digital transformation indicators on the growth rate of banking staff number in Egyptian banking sector

Table 4. Result of Regression analysis for impact of digital transformation indicators on the growth rate of banking staff number in Egyptian banking sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.992 ^a	.983	.959	.00169934

a. Predictors: (Constant), X7, X1, X3

Source: outputs of statistical analysis

The estimated linear regression model is

$$Y_1 = 0.030 - 0.0207 X_1 - 0.265X_3 - 0.062X_7$$

In this case, linear model is adopted for the purpose of analysis because R2 (.983) of linear model is higher than R2 (.992) of log linear model. From the analysis it is found that digital transformation indicators are negative impact on banking staffs size in Egyptian banking sector is not significant at level 5% that means the first hypothesis is is rejected

The researcher explains the absence of a significant negative impact of digital transformation on new employment operations in the Egyptian banking sector during the study period, for four reasons, the first of which is that the rate of bank penetration into the local market is still low compared to global rates. , and this matter may continue for a period ranging from two to five years, at which time it will reach the peak point in the opening of physical branches, at that time, banks will stop launching such branches, followed by banks closing traditional branches, and moving towards enhancing and strengthening digital services more towards customers, and the second reason is the Central Bank of Egypt's orientation towards achieving financial inclusion, which led to an increase in banking services customers, Then increase the number of employees in banks to serve these customers.

The third reason is that artificial intelligence and digital banking services channels have created a new type of employee in the banking sector that is suitable for digital transformation, and the fourth reason is that banking jobs are groups of tasks and are not a simple reflection of one type of tasks, and some tasks can be replaced by digital technology, but This does not mean that the entire functionality will disappear; Some jobs require human intervention; Especially those that require intellectual and social skills, as well as professions that require face-to-face interaction. Hence, the impact of digital transformation on employment in Egyptian banks will occur gradually.

Table (5) Result of regression analysis for impact of digital transformation indicators on the growth rate on banking technology staff / total banking staff ratio in Egyptian banking sector

Table (5) Result of regression analysis for impact of digital transformation indicators on the growth rate on banking technology staff / total banking staff ratio in Egyptian banking sector

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.873 ^a	.761	.403	.01149486

a. Predictors: (Constant), X5, X1, X7

Source: outputs of statistical analysis

The estimated linear regression model is

$$Y_2 = 0.021 + 0.011 X_1 + 0.017 X_5 + 0.287 X_7$$

In this case, linear model is adopted for the purpose of analysis because R² (.761) of linear model is higher than R² (.873) of log linear model. From the analysis it is found that digital transformation indicators are positive impact on the growth rate on banking technology staff / total banking staff ratio in Egyptian banking sector is significant that means the second hypothesis is accepted

6. Conclusions & recommendations

6.1 Conclusions

The digital transformation in the Egyptian banking sector is no longer an option, as the expansion of adoption of digital technologies has become one of the features of the Fourth Industrial Revolution, which requires not only its use but also the possession of the skills and capabilities necessary to implement it and benefit from the advantages it provides in the ease of conducting transactions, reducing operating expenses, and meet the needs of customers, who prefer banking transactions via the Internet and smart phones,

Taking into account the importance of facing the negative repercussions of those innovations on banking jobs, because digital technologies can perform banking work without relying on employees in the physical branch, and thus the demand for manpower in the banking sector will decrease. At the same time, digital transformation will provide many jobs related to digital technology such as cyber security specialist, artificial intelligence and machine learning specialist, digital credit and digital asset investment analysts, Robot programmer, block chain engineer and digital application developers.

Therefore, this study aimed at the expected effects of digital transformation techniques on the size and quality of staffs in the Egyptian banking sector. The study relied on a quantitative analysis of the relationship between digital transformation indicators and indicators of size and quality of staffs in Egyptian banks during the period from 2016-2021.

The results of the study indicated that:

1-The digital transformation will lead to a significant loss of routine, repetitive jobs in the banking industry

2-The digital transformation enhances the quality of human resources through a different digital skill in the next few years.

3-It was not clear that there was a significant negative impact of digital transformation on new employment operations in the Egyptian banking sector during the study period, because the rate of bank penetration into the local market is still low compared to international rates, so Egyptian banks worked to open new physical branches and hire new workers in them. This may continue in a period ranging from two to five years, to reach the peak point in the opening of physical branches, and banks stop launching such branches, followed by banks closing traditional branches, and moving towards enhancing and strengthening digital services more towards customers, and the second reason It is the orientation of the Central Bank of Egypt towards achieving financial inclusion, which led to an increase in banking services clients, and then an increase in the number of employees in banks to serve these clients,

4-Egyptian banks are expected to continue to focus on artificial intelligence and robotic process automation (RPA), resulting in minimal human intervention. In front-office jobs, banks leverage AI algorithms to improve customer experience and

deepen partnerships with stakeholders through chat-bots and voice assistants to deliver personalized insights and recommendations. Many AI strategies are implemented across banking lines of business within the middle office functions to assess risk, detect and prevent payment fraud, improve Anti-Money Laundering (AML) processes, and perform KYC (Know-You-Customer) regulatory checks. Back office operations may benefit most from process automation, in areas such as transaction processing, wire transfers, account openings, and fund transfers.

5-Egyptian banks are also expected to accelerate their adoption of RPA technologies to conduct HR functions and tasks such as recruitment, development, talent acquisition, and performance management. So HR staff may be able to engage in the most satisfying aspects of their jobs

6-The Digital transformation requires a greater focus on human resources, not just digital technology, as it requires people: creative, complex problem solvers, thinkers in broad ways outside the public sphere, agility and driving collaboration across an integrated enterprise system.

The results of this study will help in estimating the changes that digital banking technology will bring to the strategies of human resource management in employment in Egyptian banks by identifying the set of digital banking skills necessary for the banking services industry in the future. The results will also help the HR department to prepare for the upcoming change to the current staff structure by updating the capabilities and skills of the staff to cope with the new digital technology.

6.2 Recommendations

Based on the findings of the study, the researcher presents the following recommendations for HR management in Egyptian banking:

1- Developing the employee experience provided by the HR management in Egyptian banking sector by relying on social networking sites, video technologies, digital platforms and RPA technologies to perform HR functions and tasks.

2- Empowering employees to drive digital transformation through lifelong training and learning: where the human resource department must take care of continuous training of employees during their work period, and provide them with the basic digital skills necessary for the effective use of digital devices and online applications and advanced digital skills such as artificial intelligence (AI).machine learning, and big data analytics. Cyber has built the ability to create, publish, and manage unique digital content. The ability to create, control and manage an effective digital service. And the ability to market digital services creatively and usefully.

3-Attracting and retaining digital talent and building a talent system that aligns with the strategic goals of digital transformation in the banking sector, and this requires human resource managers to understand employees' attitudes towards new technologies and equipment and also clarify their behavioral patterns and psychological states when learning and accepting new production methods, and linking performance management And compensation with digital transformation

indicators, in order to effectively improve the work method, work efficiency and job satisfaction in the new work environment arising from digital transformation.

4-Orientation towards Liquid Workforce, which means the ability of workers to modernize themselves, and adapt to the needs of digital transformation by acquiring the necessary skills, as well as establishing a culture of flexibility in movement and rotation from one department to another and working remotely according to the skills and needs of banking work

5-Redefining job roles and skill requirements to focus primarily on value-added tasks such as leveraging data science, algorithmic optimization, and big data analytics, while also focusing on modern digital banking solutions backed by the latest technologies such as Blockchain, Artificial Intelligence , Machine Learning , Cloud Computing and Robotic Process Automation.

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