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IMPACT OF DIGITAL TRANSFORMATION ON REDUCING MONEY LAUNDERING

Kadhim H. Hamad * and Oday L. Mahmood

Al-Musayyab Technical College, Al-Furat Al-Awsat Technical University, Kufa, Iraq.

* Corresponding Author

ORCID Details

Kadhim H. Hamad: <https://orcid.org/0009-0004-9709-2825>

Oday L. Mahmood: <https://orcid.org/0009-0006-6563-0603>

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ABSTRACT

Digital transformation becomes vital role in the effectiveness of money laundering particularly in financial organizations. This study aimed to identify the impact of digital transformation on reducing money laundering in government and private banks at Babylon Governorate. This study relies on a sample of (100) employees. The data were then analyzed using the SPSS statistical analysis program. The results showed that the adoption level of digital transformation was relatively high (Mean = 72.46), while, the money laundering level was moderate (Mean = 37.0). In addition, there was found a very significant positive correlation between digital transformation and reducing money laundering in the banks studied ($r = 0.794$, $p < 0.05$).

Keywords: Digital Transformation; Money Laundering; Government Banks; Private Banks.

1 INTRODUCTION

The past two decades have witnessed rapid development in the use of digital technology, extending to all aspects of life. Most international indicators have shown an increasing trend among countries towards digital transformation, because of it offers many benefits to governments, individuals, and companies [1]. Therefore, the world is rapidly moving toward the Fourth Industrial Revolution and the so-called digital age, as data and technology permeate every aspect of life. Digital transformation has become the process of adopting and integrating digital technologies into business models, thereby creating new models that reshape markets faster than ever before [2].

Technological development in the financial sector has transformed traditional financing methods and the financial services offered. Digital technology has opened new and innovative horizons for financial services and brought about a qualitative shift in the financial sector by facilitating transactions and accelerating their access for individuals and institutions. This development has positively impacted the way financial institutions operate, where this allowed them to develop their operations, diversify their services, and provide innovative mechanisms targeting individual needs [3]. In parallel with this development, the problem of money laundering emerged as a serious challenge facing financial systems. Money laundering is a financial crime with a profound negative impact on national and global economies,

leading to financial instability, increased crime rates, and reduced effectiveness of monetary and economic policies. With the increasing use of modern technology, it has become essential to study the impact of digital transformation on combating money laundering. Therefore, this study aims to clarify the impact of digital transformation on reducing money laundering in government and private banks in Babylon Governorate throughout considering the current level of digital transformation adoption, the level of money laundering in the organization and statistical impact digital transformation adoption on money laundering.

1.1 Study Objectives

The objectives of this study are to identify:

- The current level of digital transformation implementation in government and private banks in Babylon Governorate.
- The current level of money laundering in government and private banks in Babylon Governorate.
- Statistical Significance of the Correlation Between digital transformation and reducing money laundering in Public and Private Banks in Babylon Governorate.

2 LITERATURE REVIEW

2.1 Digital Transformation

Digital transformation is an urgent necessity and a fundamental requirement in light of current developments and their challenges. It is generating significant interest, particularly given the global trend towards a digital economy and increasing demand for digital financial services, expanding accessibility, and accelerating their availability. This positively impacts both service providers and beneficiaries. Adopting digital transformation to develop financial services contributes to meeting customer demands. Digital transformation has been defined in various ways depending on its application. One definition state that it "encompasses all the consequences of the integration of computer technology, wired and wireless technology, nanoelectronics, and multimedia, resulting in new forms of technology with superior capabilities for producing, collecting, storing, processing, disseminating, and retrieving information in a novel manner" [4]. It also involves "understanding the behavior and interests of the digital customer, relying on the diverse skills of specialized staff and often requiring the outsourcing of efficient services" [5]. It also encompasses the application of information and communication technologies (ICTs) within governmental and private institutions and organizations, such as the internet, wide area networks (WANs), and mobile communication methods. These technologies have the potential to transform relationships between different institutions, and between an institution and its employees and customers, with the aim of improving institutional performance through enhanced services, increased operational efficiency, and higher productivity, thereby saving time and effort [6].

Based on the preceding definitions, the researcher concludes that digital transformation is the mechanism through which the tremendous advancements in information technology are harnessed to improve performance and reduce costs across various economic sectors in other words, the transition from a traditional economy to a digital economy.

2.1.1 Advantages of Digital Transformation:

Digital transformation has positive impacts on company productivity and performance. At the macro level, digital transformation offers numerous advantages, including [7]:

- Replacing traditional workflows with digital processes.
- Increasing the time spent developing new strategies instead of clinging to past achievements.
- Changing the modern, professional work model and continuously improving employee well-being.
- Increasing workflow efficiency and reducing technical errors.
- Improving work quality and performance.
- Increasing work productivity and improving product quality and appearance.

2.1.2 Dimensions of Digital Transformation

Digital transformation is a multidimensional, technology-driven phenomenon that significantly impacts society, its institutions, policies, and economy. Some consider the use of technology, organizational structure changes, and financial costs as dimensions of digital transformation, while others view capacity building and value creation through digital systems as dimensions. Here, we will address the following dimensions [8]:

- Operations: This encompasses a set of interconnected and purposeful digital practices aimed at producing exceptional customer service. The organization is responsible for equipping itself with a robust infrastructure

that aligns with these operations to maximize their benefits and for adopting creatively and effectively implementable procedures.

- **Innovation:** This refers to the ability to think outside the box creatively and originally to find solutions to problems and obstacles, as an alternative to traditional and familiar ideas.
- **Information Technology Infrastructure:** This includes a set of technical tools and resources containing a database that encompasses all internet-connected devices and systems, such as mobile phones.
- **Employees' digital capabilities:** This refers to the ability of qualified employees to use digital technology to perform job tasks during the digital transformation.

2.2 Money laundering

Money laundering is an economic scourge stemming from criminal schemes planned by outlaws. Until recently, money laundering was limited to operations and activities involving the disguise and concealment of the legitimacy of funds derived from illegal criminal activities, primarily drug trafficking. However, money launderers have quickly shifted their focus from drug and psychotropic substance trafficking to other activities used to conceal illicit funds, such as prostitution, human trafficking (women and children), trafficking in migrant currency, counterfeiting, abuse of power, administrative and commercial corruption, smuggling, tax evasion, credit card fraud, terrorism, and other emerging activities like human organ trafficking and the forgery of magnetic credit cards. Money laundering is defined as any behavior involving the acquisition, possession, disposal, management, safekeeping, exchange, creation, guarantee, investment, transfer, conversion, or manipulation of the value of funds obtained through a money laundering crime [9]. It also encompasses the procedures undertaken to conceal the sources of illegally obtained funds and integrate them into the legitimate economy through a series of financial and monetary transactions [10]. Furthermore, it is defined as a set of financial and in-kind transactions involving illicit funds, aimed at altering their illegal nature within the legal system and giving them a veneer of legitimacy. The goal is to conceal the origins of criminal funds and subsequently transform them into legitimate investments [11]. It is also known as money laundering, purification, or whitewashing, meaning the concealment of the true nature of proceeds from illicit activities, making them appear legitimate to the law and regulatory authorities, thus paving the way for their use in legitimate activities [12]. Based on the above definitions, the researcher can define money laundering as an attempt to legitimize funds obtained through various illegal means.

2.2.1 Dimensions of Money Laundering

Money laundering is an illicit method by which funds generated from illegal activities are transformed into seemingly legitimate funds, thus concealing their true source and enabling their use without raising suspicion. Researchers who have addressed the topic of money laundering have differed considerably regarding the dimensions of this concept. However, most authors and researchers agree on the following dimensions:

Banking Regulations and Legislation: These are the regulatory and professional rules aimed at organizing the banking sector. They are issued by the central banks, which possesses supervisory and regulatory powers. In addition, these regulations include rules issued by the central bank's management. These decisions and publications cover the regulation of contracts and relationships with clients. These regulations are binding on bank employees and also on clients, provided they agree to and accept them at the time of contracting. This consent is implicitly assumed through ongoing transactions [13].

Compliance Officer: The role of the compliance officer in banks is fundamental to their success, as it plays a pivotal role in maintaining the bank's reputation and credibility and protecting the interests of shareholders and depositors. The responsibilities of the compliance officer include [14]:

- Reducing the risks of non-compliance, particularly systemic risks, reputational risks, and the risk of financial penalties.
- Strengthening the relationship with regulatory bodies.
- Promoting the principles of good governance in banks.
- Establishing mechanisms and frameworks to ensure the prevention of crimes, especially money laundering and terrorist financing.
- Upholding professional values and practices in the banking sector.

Banking Competition: This capability is defined as enabling a bank to provide its services more effectively than its competitors, constituting a competitive advantage that is not easily imitated. It is thus a strength that distinguishes the bank from its competitors in one aspect of its banking activity, whether production, marketing, or financing [15]. On the other hand, the weak focus on combating money laundering is partly due to the ongoing competition among private commercial banks to attract high-net-worth clients because of their high profitability. Furthermore, competitive pressures and the desire for expansion hinder private banks from imposing strict anti-money laundering controls, as these controls may restrict new business or lead to existing clients switching to competing financial institutions,

especially given the importance of speed in banking operations. In addition to these factors, the products and services offered by banks contribute to facilitating money laundering opportunities [16].

Control Risks: These are risks that may arise as a result of money laundering and cannot be prevented or detected in a timely manner by the institution's internal control structure. Control risks are identified through factors with a local approach to the institution and can be managed by the bank itself [17].

2.2.2 Anti-Money Laundering (AML) Standards

These are the set of rules, regulations, and procedures established to prevent the use of the financial system for money laundering and terrorist financing. These standards require financial institutions and businesses to accurately identify their employees, assess risks, report suspicious transactions, and maintain records containing detailed information about each financial transaction. AML standards encompass several key aspects [18]:

- **Know Your Customer (KYC):** This refers to identifying and verifying the identity of customers dealing with financial institutions, specifically banks, confirming their basic information, and understanding the nature of their expected transactions.
- **Customer Due Diligence (CDD):** This involves conducting a risk assessment for each customer, identifying the true beneficiaries of monitoring financial transactions, and monitoring transactions for any suspicious activity.
- **Reporting Suspicious Transactions:** These standards require all financial institutions to report any suspicious financial transaction that is suspected of being related to money laundering or terrorist financing and to refer it directly to the anti-money laundering authorities.
- **Record Keeping:** This step is essential; therefore, anti-money laundering standards require institutions to maintain detailed records of all transactions, investigations, and reports related to anti-money laundering.
- **Training:** Financial institutions must provide regular training and development courses for their employees and keep them informed of all necessary updates regarding anti-money laundering standards.
- **International Cooperation:** Financial institutions cooperate with local and international authorities in investigations related to money laundering.

3 MATERIALS AND METHODS

This section includes a presentation of the study procedures, starting with the methodology used to define the study population, select a representative sample, develop and construct two valid and reliable scales, and the procedures for applying them to the current study sample. It also includes identifying the statistical methods used to process the data, as well as the results obtained and their discussion, as follows:

3.1 Study Methodology

The researcher adopted the descriptive-analytical method as a foundation for achieving its defined objectives. This method is one of the most widely used in studying social and human phenomena and is well-suited to this study. It is defined as a method that relies on studying reality or the phenomenon. The descriptive method is used to present the data, while the analytical method is used to analyze the results.

3.2 Study Population and Sample

The population of this study consisted of employees in government and private banks in Babylon Governorate. The study sample was randomly selected from the study population and comprised (100) employees, all of whom were department heads.

3.3 Study Tools

Conducting research and studies requires a set of necessary tools and resources used to collect data and information for theoretical grounding, as well as for its practical application and to verify the study objectives. Therefore, the study tools can be presented within two main categories:

3.3.1 Digital Transformation Scale

After reviewing the available literature related to the digital transformation variable, the researcher adopted the digital transformation scale [8], which is characterized by validity and reliability and consists of (20) items.

3.3.1.1 Scale Validity

To ensure the questionnaire's suitability for measuring the study variables, it underwent face validity testing by presenting it to a group of (10) expert reviewers. Their opinions were sought regarding its ability to measure the study

variables and to ensure the clarity and scientific accuracy of its items. All items of the scale received the approval of the reviewers with a 100% agreement rate. Therefore, all items of the scale were retained without any modification, as shown in Table (1).

Table 1: Reviewer Agreement Rate and Chi-Mark for the digital transformation Scale Items.

Items	Agree	%	Disagree	%	Chi-Squared Value		Significance Level
					Computed	Tabular	
1-20	10	100	0	0	10	0.8	0.05

3.3.1.2 Scale Reliability

The split-half method was adopted to ensure the scale's reliability. According to this method, the scale whose reliability coefficient is to be determined is divided into two equal halves after being administered to a single sample. The division may be random, or odd-numbered items may form one half and even-numbered items the other [19]. Since the resulting value of this coefficient indicates reliability for only half of the test and not the entire test, the Spearman-Brown correlation coefficient is used to correct for the overall reliability of the test. To verify the digital transformation scale, the correlation coefficient between even and odd-numbered items was calculated. Pearson's coefficient was (0.673), and to correct for the correlation and determine the test's reliability, the Spearman-Brown correlation coefficient was used, yielding a reliability coefficient of (0.785).

3.3.2 Money Laundering Reduction Scale

After reviewing the available literature on the variable of reducing money laundering, the researcher formulated the scale items, which are characterized by validity and reliability, totaling (10) items.

3.3.2.1 Scale Validity

To ensure the questionnaire's suitability for measuring the study variables, it underwent face validity testing by presenting it to a group of (10) expert reviewers. Their opinions were sought regarding its ability to measure the study variables and to ensure the clarity and scientific accuracy of its items. All scale items received the approval of the reviewers with a (100%) agreement rate. Therefore, all scale items were retained without any modification, as shown in Table 2.

Table 2: Reviewer Agreement Rate and Chi-Mark for money laundering Scale Items.

Items	Agree	%	Disagree	%	Chi-Squared Value		Significance Level
					Computed	Tabular	
1-10	10	100	0	0	10	0.8	0.05

3.3.2.2 Scale Reliability

The split-half method was adopted to ensure the scale's reliability. According to this method, the scale whose reliability coefficient is to be determined is split into two equal halves after being administered to a single sample. The division may be random, or odd-numbered items may form one half and even-numbered items the other [19]. Since the resulting value of this coefficient indicates reliability for only half of the test and not the entire test, the Spearman-Brown correlation coefficient is used to correct the correlation coefficient for complete test reliability. To verify the anti-money laundering scale, the correlation coefficient between even and odd-numbered items was calculated, yielding a Pearson coefficient of (0.649). To correct the correlation and determine the test's reliability, the Spearman-Brown correlation coefficient was used, resulting in a reliability coefficient of (0.769).

3.3.3 Final Scale Version

After completing the validity and reliability procedures, the final version of the scale was prepared, consisting of (20) items for the digital transformation scale and (10) items for the money laundering scale. The researcher provided five alternatives for each item according to the Likert scale, as shown in Table 3. The highest score for the Digital Transformation scale was 100, the lowest score was 20, the range between the highest and lowest scores was 80, and the hypothetical mean for the scale was 60. For the Money Laundering scale, the highest score was 50, the lowest score was 10, the range between the two scores was 40, and the hypothetical mean for the scale was 30.

Table 3: Likert Scale.

Rating	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Degree	5	4	3	2	1

3.4 Statistical Methods

To analyze the data collected from the questionnaire, several statistical methods were employed. The data was processed using SPSS software to obtain the desired results.

4 RESULTS AND DISCUSSION

This section presents and interprets the results according to its objectives, as follows:

4.1 Digital Transformation

To achieve the first objective of the study, which aims to reveal the reality of digital transformation implementation in government and private banks in Babylon Governorate, this variable was measured using (20) items to determine its availability and importance. Table 4 shows the results of the t-test for the digital transformation variable.

Table 4: Results of the T-test for the digital transformation variable according to the opinions of the research sample.

Sample	Arithmetic Mean	Standard Deviation	Hypothetical Mean	T-Value		Significance Level
				Computed	Tabular	
100	72.46	13.25	60	9.40	1.94	0.05

By observing the data shown in Table (4), we note that the computed t-value of (9.40) is greater than the tabular value of (1.94) at a significance level of (0.05) and with degrees of freedom of (99), which is statistically significant. The arithmetic means of the sample reached (72.46), which is greater than the hypothetical means of (60). This indicates that the implementation of digital transformation in government and private banks in Babylon Governorate is at a high level, and that the banks in the study sample are striving to employ information technology in their various operations as an effort to provide better services to clients and achieve a higher level of performance. This is being done through developing the necessary infrastructure, adopting the latest technologies and equipment, providing employees with advanced training courses to qualify them to use these technologies, and allocating the necessary financial resources to achieve all of this. Therefore, it can be said that the first objective, which states (identify the reality of the implementation of digital transformation in government and private banks in Babylon Governorate), has been achieved.

4.2 Money Laundering

To achieve the second objective of the study, which aims to identify the reality of reducing money laundering in government and private banks in Babylon Governorate, this variable was measured using (10) items to determine its availability. Table (5) shows the results of the statistical analysis related to the money laundering reduction variable.

Table 5: Results of the T-test for the money laundering variable according to the opinions of the research sample.

Sample	Arithmetic Mean	Standard Deviation	Hypothetical Mean	T-Value		Significance Level
				Computed	Tabular	
100	37	6.2	30	11.3	1.94	0.05

By observing the data shown in Table (5), we note that the computed t-value of (11.3) is greater than the tabular value of (1.94) at a significance level of (0.05) and with degrees of freedom of (99), which is statistically significant. The arithmetic means of the sample reached (37), which is greater than the hypothetical means of (30). This indicates a moderate level of reduction in money laundering operations in government and private banks in Babylon Governorate. This is attributed to work pressure and the limited knowledge of most employees regarding how to utilize modern technologies to perform their duties optimally. Therefore, decision-makers in the banks under study should strive, through various means, to train employees on all emerging technologies that can be employed within the department.

This will contribute developing their ability to identify the various methods used by fraudsters to carry out money laundering operations. Thus, it can be said that the second objective, which states (identify the reality of reducing the phenomenon of money laundering in government and private banks in Babylon Governorate), has been achieved.

4.3 Relationship between digital transformation and reducing money laundering

To achieve the third objective of the research, which aims to reveal the statistical significance of the correlation between digital transformation and the reduction of money laundering in government and private banks in Babylon Governorate, the data in Table (6) indicates a statistically significant positive correlation between digital transformation and the reduction of money laundering in the study area at the overall level, with a correlation coefficient of (0.794) at a significance level of (0.05). This indicates the fulfillment of the third research objective, which stipulates the statistical significance of the correlation between digital transformation and the reduction of money laundering in government and private banks in Babylon Governorate.

Table 6: Results of the Correlation Relationship between the study Variables.

Study Variables		Money Laundering
Digital Transformation	Pearson Correlation	0.794**
	sig. (2-tailed)	0.05
	N	100

**The relationship is significant at the 0.05 level.

5 CONCLUSIONS

Based on the research results, the researcher reached several conclusions, as follows:

- The banks studied are striving to achieve digital transformation.
- The banks studied are attempting, with the technologies and mechanisms available to them, to detect and reduce the various methods used by fraudsters seeking to carry out money laundering operations.
- The correlation between information technology and reducing money laundering is a positive, significant relationship.
- Officials in the banks studied are striving to provide all new technologies and techniques that can contribute to developing employees' capabilities to detect and reduce money laundering operations

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Disclosure of conflict of interest

The authors declare that they have no financial or non-financial conflicts of interest.

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