

## Analyzing the Relationship Between Digital Transformation and Financial Innovation: The Future Exchange Platform as an Innovative Model in a Learning Environment for Finance and Markets

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**Citation:** Marza, S. A., Salman, A. A. & Abdulridha, M. M. (2025). Analyzing the Relationship Between Digital Transformation and Financial Innovation: The Future Exchange Platform as an Innovative Model in a Learning Environment for Finance and Markets, *Journal of Cultural Analysis and Social Change*, 11(1), 160-167. <https://doi.org/10.64753/jcasc.v11i1.3432>

**Published:** December 18, 2025

### ABSTRACT

The present study aims to explore the interactive dynamics between financial innovation and digital transformation. This aim is achieved by utilizing the virtual Future Exchange platform as an internet-based learning environment that replicates real financial markets by applying digital technologies. The study adopts an analytical approach for examining the theoretical concepts of financial innovation and digital transformation, as well as a practical approach for employing the platform. The study consists of three main sections. Section one elucidates the theoretical framework of financial innovation and digital transformation and their relation to each other. Section two elaborates on the applicative practice of the Future Exchange platform as an exemplary model of interactive research between financial innovation and digital transformation, such as the creation of the platform, general structure, and operation mechanisms. Section three is where the initiative and approach of the platform in enabling financial inclusion, along with research findings and recommendations, are explored.

**Keywords:** Digital transformation, Financial Innovation, Virtual Future Exchange, Technologies, Operating mechanism, Financial inclusion

### INTRODUCTION

The contemporary era is experiencing its economic and financial system's core transformations due to the rapid rate of development in all fields of digital transformation technologies, particularly the financial sector. The sector currently requires new technical solutions to enhance market efficiency, increase financial inclusion, and fulfill investors' and participants in financial markets' expectations. Against this backdrop, innovation in digital finance has emerged as an important element for facilitating financial stability, deepening access to financial services, and increasing the standard of economic literacy, particularly among students in universities.

The present study is a response to the need for online training and educational content enabling individuals to understand trading procedures without immediate risk exposure. According to this perspective, the idea of the Future Exchange virtual platform emerged. It was designed as a virtual, functioning replica of an educational space for finance and markets showcasing the potential of digital transformation using the integration of education and simulation in financial market environments. The platform provides an interactive learning process that enhances the financial and investment capacities of users, enabling them to learn the behavior of markets and make investment decisions in a simulated real-world virtual setting that promotes financial inclusion in Iraq.

## The Significance of the Present Study

The present study is one of the attempts bridging digital transformation, innovation, and applied financial education. The study allows individuals to engage in virtual trade of financial products without suffering financial losses, which enhances investment culture and financial inclusion using advanced digital learning tools.

### The Research Hypothesis

The present study hypothesizes that the Future Exchange is an electronic virtual platform simulating trading using actual financial market data, which will assist in the development of financial consciousness and the enhancement of individuals' ability to make investment choices. Moreover, the platform innovation in design enhances the connection link in the study of the relationship between digital transformation and financial innovation.

## Problem Statement

Despite the global development of financial markets, there remains a gap in digital learning tools related to financial trading within the Iraqi environment. This gap limits the ability of students and novice investors to safely and systematically enter the world of financial markets. There is also a gap between digital transformation as a general framework and financial innovation as a practical content, which requires studying a practical model that links them. Hence, the idea of the Future Exchange platform emerged as an educational initiative that seeks to embody this relationship and achieve strategies and goals within the Iraqi Central Bank's initiatives to support and educate on financial inclusion and enhance investment skills.

## The Objectives

1. To analyze the relationship between digital transformation and financial innovation by designing and developing an interactive digital trading platform in a learning environment. This platform, called the Future Exchange virtual platform, relies on real data and serves as a practical model that embodies this relationship, as well as its role in promoting financial inclusion through specific strategies that align with the Central Bank's initiatives and goals.
2. To examine the platform's influence on improving users' financial understanding.
3. To support financial inclusion and digital transformation efforts in the Iraqi financial sector.
4. To present a local, scalable digital model that reflects the features of financial innovation in the university and professional environment.

## Section One

### The Theoretical Framework of Digital Transformation and Financial Innovation

First; The Concept and Characteristics of Digital Transformation

#### *The Concept of Digital Transformation*

The today's world is witnessing digital transformations that have affected all aspects of life, resulting in significant advantages in increasing productivity, achieving a competitive edge, enhancing customer experience, fostering innovation, reducing costs, and improving readiness for market changes. This is due to its role in reshaping sectors, which has, in turn, impacted the work and performance of macroeconomic policies. These transformations have been accompanied by various technologies, including artificial intelligence, big data analysis, blockchain, and other technologies (Mahab and Zaidan, 2021). The concept of digital transformation refers to the use of digital technology and the developments accompanying the Fourth Industrial Revolution in social media. This is done through the use of artificial intelligence, big data analysis, cloud computing, the Internet of Things, and electronic payment systems via communication media, the internet, and cryptocurrencies, relying on smart contracts. This has helped in the emergence of new business models, such as digital platforms, and has changed user behavior, as they now prefer using search tools and social media to obtain information.

Digital transformation is defined as the use of modern digital technologies, including social media, mobile devices, data analysis, or embedded devices that represent the Internet of Things, to improve business, enhance customer service, streamline operations, and create new business models (Packmohr, 2018). The Global Center for Digital Business Transformation also points out that organizational change is the basis of digital transformation, as it is a change in the nature of an institution's or organization's work, a change in work procedures, a creation of value for customers, and an increase in productivity and profits. It also involves a change in strategies, making them more effective, completing tasks in less time, and providing job opportunities (Salaimi and Boushi, 2019).

#### *Characteristics of Digital Transformation*

Based on the definitions of digital transformation, a set of characteristics can be identified that make it important not only for customers but also for companies and independent stakeholders. These characteristics include (Salih, 2025):

### ***Customer and User Participation in Creating Data Value***

1. Using digital platforms and providing interactive services with their customers by analyzing customer behavior related to buying and selling.
2. Using information as an economic resource to improve the quality of services provided.
3. Significant reliance on technological techniques and software that analyze big data with various programming languages, as this data is a result of commercial activities on internet platforms.
4. The production, processing, and marketing of information have become important economic sectors, and the creation of information systems contributes to the expansion of education and the spread of culture among different members of society.

## **Second; Strategies of Financial Innovation in Light of Digitization**

### ***The Concept of Financial Innovation***

Financial innovation is the adoption of new patterns of thinking that differ from the traditional context to address various issues and matters that led to the emergence of new products as a result of interaction between individuals and the acquisition of experience and skills. It also refers to a set of actions and measures that lead to meeting the needs of the financial community, either by qualifying existing products or by developing or designing innovative, implementable alternative financial products (Al-Ali and Abdulzahra, 2022). It is considered one of the influential and important forces in the banking environment and banking work due to its impact on banking activities and services provided to the public, which has led to increased competition and the acceleration of technological developments (Amin, 2013). The Financial Stability Board defines financial innovation as a type of technology that can create new business models, applications, or products that have an impact on financial markets and institutions. Financial innovation has thus become of great importance in managing and controlling the financial and economic movement of countries, which can only be achieved with specific strategies adopted by countries and have become a requirement in the free market economy due to the movement of global money and currencies through stock exchanges, electronic payment cards, and financial transfers through banking intermediaries.

The most prominent strategies that participants seek to achieve using financial innovation products include the speculation strategy, which refers to the process of trading securities with the aim of making a profit from future price expectations based on information collected and analyzed by the speculator. Speculation emerged when a class of financial market participants appeared, aiming to buy and sell securities to make a profit from the price difference (Abdulqadir, 2010). Another strategy is the hedging strategy, which aims to reduce the risks that can occur from price fluctuations, whether for raw materials, goods, securities, or exchange rates and currencies. This hedging is followed by using a short position, where the strategy allows an investor to sell a financial asset or a specific commodity through a contract to be executed in the future, thus avoiding the risks of price decrease by holding a short position in the futures market. The profit is the difference between the market price of the asset at the time of contract execution and the agreed-upon selling price in the contract, as in a short sale. Another type of hedging strategy is to hedge with a long position, which allows the investor to buy a financial asset or commodity according to a contract to be executed in the future, thereby avoiding the risks of price increase by holding a long position in the futures market. The profit is the difference between the high market price of the asset at the time of execution and the low selling price agreed upon in the contract.

Arbitrage strategy is a third strategy that enables some investors to make profits by buying a commodity at a low price in one market and selling it in another market where the price is high. This allows the investor to benefit from the price difference and make a profit without incurring risks due to their simultaneous entry into financial transactions in two or more markets (Muhammad, 2014).

### ***Determinants of Financial Innovation***

The most prominent factors determining financial innovation include (Marzouq and Asyan, 2023):

Market Capacity; This requires an effective market that allows banks to achieve a return through innovation because the business interest is in generating new ideas and financing research and development investments to achieve successful innovation.

Bank Size; This allows for the marketing of innovative products and the recovery of returns through investment in innovations. An increase in bank size allows for accommodating a wide range of activities and products that bring unexpected benefits from research and development.

Technological Development; Technological developments in computers and software have been an influential factor in financial innovation. The development of technology can stimulate financial innovation by reducing the cost of providing financial services that are carried out through computers and communication networks, which has been influential in the rapid flow of information.

Changes in the Bank's Regulatory Environment; Financial services in any banking system are the vital energy that feeds capital markets and works to activate financial markets, loans, and attract investors. However, these services and financial innovations are subject to laws imposed by central banks, in addition to supervision carried out by international authorities and organizations.

Changes in Financial Market Conditions; Financial innovations can support the banking operations market if they provide reductions in the cost of capital and financial services without incurring risks. This is done by lowering prices, reducing the cost of funds, providing liquidity, and improving the management of financial and credit risks and portfolio diversification.

### **Third; The Interactive Relationship Between Digital Transformation and Financial Innovation**

The financial and banking sectors are undergoing profound changes as a result of the accelerating pace of digital transformation, which has paved the way for the emergence of new forms of financial innovation. The relationship between the two concepts is as follows:

#### ***Digital Transformation as a Catalyst for Financial Innovation***

Digital transformation is a fundamental factor in creating innovation within the financial sector. It has contributed to the development of the technological infrastructure, instant data, and artificial intelligence, which provides an opportunity for the emergence of new financial products and services, such as digital wallets, payment applications, and financing platforms. It also provides a flexible environment for experimenting with innovative investment financing tools that are efficient and effective in meeting user needs, for example, the use of digital platforms to provide financial education solutions.

#### ***Financial Innovation as a Driver for Expanding Digital Transformation***

Financial innovation directly contributes to deepening digital transformation in terms of outcomes by introducing new business models that rely on technology. The use of big data, machine learning, and the Internet of Things can generate innovative solutions such as electronic trading platforms, open banking services, smart payment applications, and digital currencies and wallets. These innovations act as a driver for the digital change of institutions by strengthening the relationship between individuals and institutions with financial systems, which requires educational methods that enhance practical understanding of financial markets (Zhou and Almafra, 2023).

Based on this premise, it is clear that the relationship between digital transformation and financial innovation is interactive and reciprocal, where one cannot be separated from the other. With digital transformation, new and innovative financial products are created. These new and innovative financial products go on to accelerate and deepen digital transformation. This makes their interaction create a feedback loop that never creates the financial system through a combination of innovation and technological development. This facilitates an evolving digital financial system that responds to shifts in the economy and consumer spending patterns, and thus makes financial systems more effective and sustainable in the long run (Raja et al., 2024).

## **Section Two**

The Future Exchange Virtual Platform - A Practical Innovative Model for Analyzing the Interactive Relationship Between Digital Transformation and Financial Innovation

First; The Concept, General Structure, Functions, and Operating Mechanisms

### **The Platform Concept, Motives, and Objectives**

#### ***1. The Platform Core Idea***

The Future Exchange platform is a real-world expression of the interactive relationship between financial innovation and digital transformation. It is a direct result of the intersection of the two dimensions, showing how

digital technologies can be leveraged to create innovative financial education tools in the learning environment that translate theoretical knowledge into practical experience.

The platform is designed to be an educational simulation environment that reflects the reality of financial markets through a virtual trading experience that relies on live market data using APIs (Application Programming Interfaces). This allows students or any individual to make financial decisions regarding buying or selling, and to follow the impact of these decisions on their digital investment portfolios. This enhances their ability to perform technical and fundamental analysis in a safe and risk-free environment.

The digital aspect of this platform is the foundation for its innovative function, as modern web technologies are adopted. They contribute to building the platform. This includes instant linking of the platform via an API key to live market data, and an interactive user interface for simulating trading stocks and currencies. This highlights how digital transformation is not limited to digitizing traditional operations but forms a basic foundation for generating new models of financial innovation.

Conversely, financial innovation has given digital transformation a functional dimension. Digital technologies have been leveraged to deliver an investment and educational proposition, which is to inform students and other individuals of the markets' changes and teach them to make efficient financial decisions.

In this regard, the Future Exchange platform is a real-world example of the feeding of digital transformation and financial innovation by each other in a cycle of continuous development, where one feeds the other in an ongoing loop. It seeks to equip a digital generation capable of keeping up with the demands of today's economy.

## ***2. Motives and Objectives for Creating the Platform***

The concept of developing the Future Exchange platform considers the particular need within the academic setting for an interactive learning tool that assists in keeping up with digital change in tertiary education, particularly financial and economic disciplines. A gap exists between what is theoretically learned in financial markets, financial analysis, and investment classes and how students can use that knowledge in an actual or simulated setting. Objectives for creating the platform include:

1. To embody financial and investment concepts in an interactive environment.
2. To enhance students' ability to make investment decisions based on real data.
3. To integrate theory and practice in education using the method of simulation and experimentation.
4. To develop students' ideas and motivate them to innovate and invest in a dynamic financial environment.

## Second; The Platform's General Structure and Functions

### 1. *The Platform General Structure*

The platform consists of a multi-layered, interactive digital structure designed to simulate the financial market environment in a practical educational manner. The general structure of the platform contains several interconnected basic components as follows:

The front-end user interface; This is the part visible to the user and includes the main price monitoring panel, a trading and investment simulator interface for making buy, sell, or hold decisions, and a display of the investment portfolio, charts for making decisions, technical and fundamental analysis, and a display of data sources and financial inclusion.

The virtual portfolio system; Each user is allocated an experimental portfolio through which they can execute their investment decisions and track the results of those decisions using real market data.

The live data integration unit; This unit fetches real-time prices from an external source via an API key and continuously updates the data to provide a realistic experience.

The statistics and reports system; This provides a summary of the markets' and the user's performance over a period, The Platform Functions, Simulating real trading without real financial risks.

2. Enhancing the user's practical application of market concepts such as supply, demand, and price fluctuations.

3. Training students to make financial decisions and analyze their results.

4. Encouraging analytical interaction between the user and live data.

5. Providing a digital learning environment that simulates financial reality in a safe and risk-free manner.

## Third Requirement's; The Platform Operating Mechanisms

### *Fersit: Technical Infrastructure for Operation*

1. The platform relies on a web-based interactive platform using a web browser. It can be accessed by any internet-enabled device, and it can be centrally updated and altered by the developer without the need for user updating.

2. The platform relies on the use of programming interfaces to capture real-time financial data using APIs.

3. The website is based on HTML, a language used to design the interface and display text, tables, lists, and other presentational things. It also uses JavaScript, which is used for price change graphs, and Cascading Style Sheets (CSS), that is used to style and layout web pages such as color, font size, and table structure. It also uses Python, a language to process data and interact with the database and pull it back from the API.

### *Second. Connecting Data with Interactive Functions*

1. Each virtual traded company on the platform corresponds to a real market symbol.

2. Prices are updated at fixed periods of time—daily, hourly, or minute—via the API.

3. Trading decisions are linked to a real-time evaluation model that shows the impact of the decision on the investment portfolio.

4. Integration with educational platforms; The platform can be integrated with platforms like Moodle or Google Classroom to link academic performance with financial simulation.

Section Three

## The Role and Strategies of the Future Exchange Virtual Platform in Promoting Financial Inclusion

First; The Platform Role in Promoting Financial Inclusion in the Educational Environment

### 1. *The Concept of Financial Inclusion in the Educational Environment*

Financial inclusion is one of the essential pillars for achieving economic and social stability. It aims to enable individuals and institutions to access financial services effectively (Al-Jubouri, 2021). In an educational context, it means providing financial education opportunities to all students, which ensures a generation capable of managing its resources and making well-informed financial decisions that enable them to access the skills, knowledge, and tools to deal with the digital financial reality, especially in light of the increasing importance of digital transformation in educational institutions (Ali, 2020).

### 2. *The Platform's Role in Promoting Financial Inclusion*

Digital Accessibility and Equity; The platform is developed as a Web-based application, meaning it is available on the internet, which ensures the participation of a large number of users without the need for an advanced environment or material resources (Al-Rubaie, 2021).

Low-Risk Simulation; The platform provides an experimental environment that helps students learn virtual trading without facing risks or incurring real losses.

Progressive and Accessible Content for All; The platform offers simplified content and explanations in Arabic or English with a direct translation system, along with visual aids, which makes it easier for all users to understand the principles of finance and investment (Issa, 2022).

Second; The Platform's Strategies in Supporting Financial Inclusion within the Directions of the Iraqi Central Bank

The Future Exchange platform is one of the innovative educational models that seeks to build financial and investment awareness among students and those interested in financial markets. The platform is designed with strategies that are consistent with the Iraqi Central Bank's directions within the National Financial Inclusion Strategy. It focuses on developing flexible digital tools that support financial literacy and enhance individuals' ability to deal with financial products. In light of this context, the platform adopts three interconnected strategies to achieve financial inclusion goals (Iraqi Central Bank, 2020):

The First Strategy; Digital Financial Literacy; The platform contributes to spreading financial culture using an accessible interactive environment, especially among students and other segments of society. This is done by providing a virtual trading environment with actual prices and using interactive interfaces supported by specific programming languages, including Python. This direction of the platform is consistent with enhancing financial culture in the Central Bank's National Strategy, emphasizing the need to develop modern and flexible educational tools targeting financially vulnerable groups.

The Second Strategy; Building Innovative Financial Skills; This strategy focuses on achieving financial analysis and decision-making skills through users' interaction with virtual trading tools and real data. This requires training them on fundamental and technical analysis tools and understanding market dynamics, which reflects empowering targeted groups. The Central Bank has called for developing individuals' capabilities in the financial aspect before involving them in the banking system.

The Third Strategy; Paving the Way for Financial Integration; The platform seeks to gradually transition the user from the learning stage to the stage of financial readiness. This represents a necessary step towards opening bank accounts, using digital wallets, and entering the official market environment. This direction is in line with the Iraqi Central Bank's efforts in this area.

## **THIRD; CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

1. The Future Exchange virtual platform embodies a model of financial innovation by integrating real digital tools into a learning environment.
2. The platform demonstrates the interactive relationship between digital transformation and financial innovation by employing technologies within the platform, fetching real financial market data, and using simulation in trading.
3. It supports financial inclusion by improving users' access to financial concepts and the experience of trading in a virtual environment.
4. The platform's strategies are consistent with the Iraqi Central Bank's directions within the National Financial Inclusion Strategy, which enhances its role as a platform that supports financial inclusion and institutional digital transformation.

### **Recommendations**

1. The faculty should adopt the Future Exchange platform as a permanent training project within the Department of Financial and Banking Sciences and include it in practical activities as one of the tools of financial innovation in teaching.
2. The platform's rights should be registered as an intellectual property within the university and faculty scientific innovation projects to ensure its protection from imitation.
3. A digital laboratory should be established within the faculty under the title "Digital Financial Innovation Laboratory," with the Future Exchange platform as one of its applications.
4. The digital culture of employees and students should be enhanced through specialized training workshops and courses that help them adapt to the digital environment.
5. The importance of supporting innovative financial ideas should be emphasized through university technology incubators and entrepreneurship programs.
6. Applied research that links financial reality with digital technologies should be encouraged to generate new models for finance and financial innovation.

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