The convergence and future scope of these three technologies (cloud computing, AI, and blockchain) in driving transformations and innovations within the FinTech industry

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Abstract

Fundamentally, "cloud computing" refers to the internet-based instantaneous allocation of resources for computers, including servers, storage, databases, software, and others. Imagine having limitless access to digital resources at any moment and location, similar to water and electricity. This eliminates the requirement for large early investments in hardware and software because only pay for the part of use. The resources and new and innovative technology which includes cloud computing or CC increase the production rate and the economic validity of a business. In the present day, the event of CC in the finance and economic sector is increasing. "Artificial intelligence or AI" has produced a great deal of controversy and intrigue at the same time. We must look at all of its elements, including its potential future, uses, and capacity, in order to fully comprehend its importance. AI especially as a software includes intelligence efficiency for opposing intelligence in living beings. In the study, the impact and effect of the use of cloud computing and AI in different kinds of financial sectors are discussed properly. With the help of a proper methodological process, the current challenges and risks of using the two above technologies are also discussed in the research.

I. Introduction

The application of cloud computing or CC in the financial sector makes a radical transformation in order to implement new and advanced technologies. Financial technology also known as FinTech can be able to increase the adaptation capability of changes which helps to maintain the needs and demands of the customer and make a revolutionary change in the financial sectors [2]. The flexibility and structural integrity in the financial process can be adopted by implementing block chain technology in those sectors [13]. The application of AI technology in the financial department also increases the operation capability and makes it more capable in order to take the process of making a quick decision in a challenging situation.

The above figure indicates the stages of implementation of CC in the financial sector which include the public cloud, private cloud, hybrid cloud, and community cloud. In the year 2023, the total usage of cloud transformation in a different kind of financial sector is *91%* as per the "Capgemini Research Institute report" [12]. The application of cc has increased as compared to the year 2022 which indicates the growth of the profit of the financial department for the use of cloud computing process.
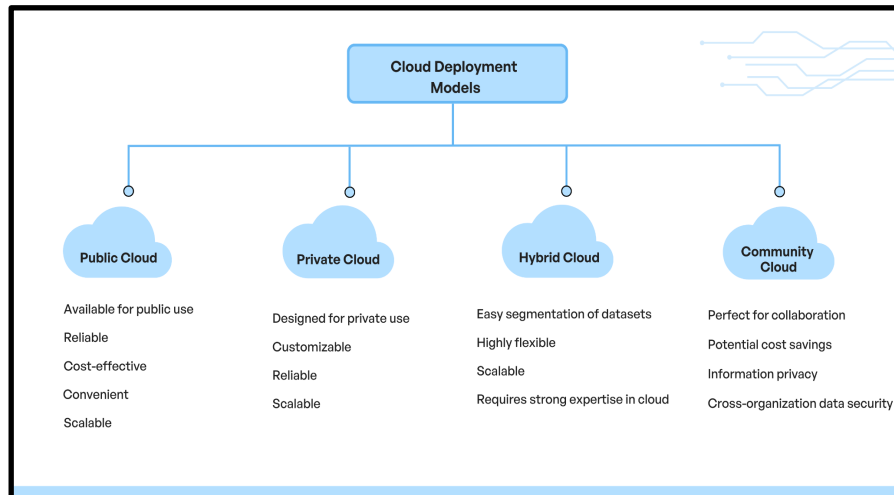
Figure 1: Application of Cloud computing in the banking sectors
(Source: 3)

II. OBJECTIVES

The objectives of the research are:

- To investigate the importance of AI Technology in order to the intelligent economic investment
- To assess the effectiveness of cloud computing or CC in the FinTech industry
- To determine the growth and development of financial sectors by applying blockchain Technology
- To estimate the future scope of the application of AI, CC, and blockchain technology in FinTech

III. METHODOLOGY

Financial technology, also known as FinTech, is evolving; blockchain technology, AI, and the use of cloud computing have become crucial components. The study in question looks at their convergence and how they are changing the financial services sector, focusing on the application of blockchain technology and cognitive finance investment [4]. A brief introduction to cloud computing and the way it aids in the scaling, flexibility, and cost-savings for financial entities opens the examination. Then, the implementation of AI in investment methods is investigated through implementations including statistical analysis, trading with computational methods, and robot advisors.
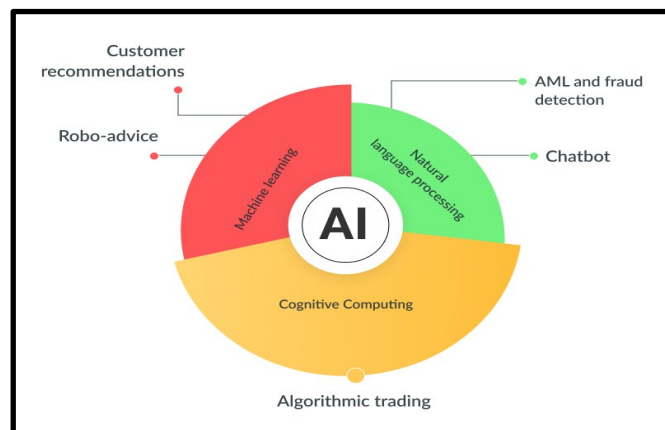

Figure 2: Importance of AI technology in the finance sectors
(Source: 6)

Figure 2 shows the impact of air Technology on the improvement of growth and development in the financial sectors. The use of data and information related to the application of AI technology and blocks and techniques in the financial industry helps to understand the future scope of FinTech.

IV. AI TECHNOLOGY IN THE INTELLIGENT ECONOMIC INVESTMENT

The combined use of computational intelligence and investments in finance has enormous potential for lowering risk and producing alpha, or extra profits. But with any novel technology, managing this area calls for thoughtfully considering its benefits and drawbacks [5]. Now, the potential benefits of AI to wise finances have been discussed in the study.

Automated Trading: The Automatic tracking system or AT is one of the most innovative and effective processes executed with the help of technology in the financial departments. With the help of AT technology, the process of algorithmic trading becomes easier which helps to improve the disciplined and systematic method of the trading process [8]. Therefore, the system helps to identify the efficiency of the traders better than a human being.

Forecasting Analytics: An approach for projecting future occurrences based on past information is called prediction analytics. Predicting future events entails examining patterns and occurrences from the recent past and present. It is additionally referred to as statistical evaluation and employs statistical techniques and instruments [9].
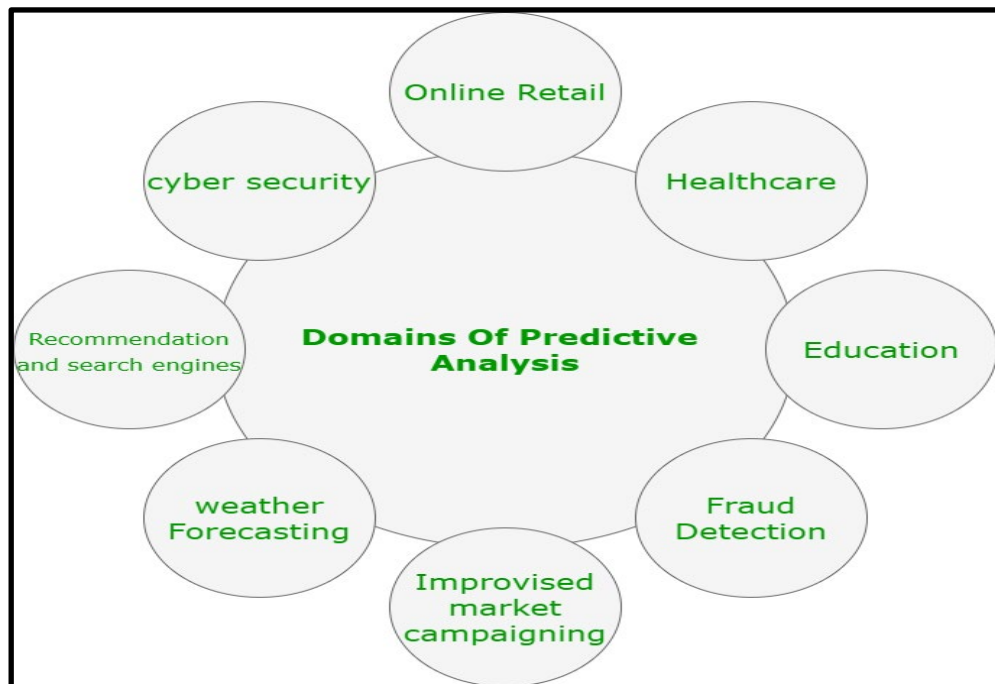

Figure 3: Stages of predictive analysis

(Source: 6)

The different stages by which the predictive analysis has been done are shown in the above figure. From the figure, it can be clearly concluded that online retailing, the reduction of cyber security issues, and weather forecasting and detection are for main stages of the predictive analysis in the financial sectors.

Robotic financial consultants: Robotic financial consultants are mainly used in the different kinds of online services to maintain the automated properties of the customers. With the help of this process, the financial department can be more effective and accurate in the factor of predicting the risk and issue and portfolio.

V. CLOUD COMPUTING OR CC IN THE FINTECH INDUSTRY

Nowadays, the application of cloud computing in the different kinds of financial sectors is undeniable for the growth and development of their profit rate. The process of CC has played a major role in the development of the FinTech industry with improved dance online banking process and the process of digital payment [7]. Implementation of cc in the banking industry increases the ability and the cost-effectiveness which is helpful to fulfillment of the demand of the customers. There is a Revolutionary effect of the implementation of cc in order to operate the financial cost for the whole year of an industry.
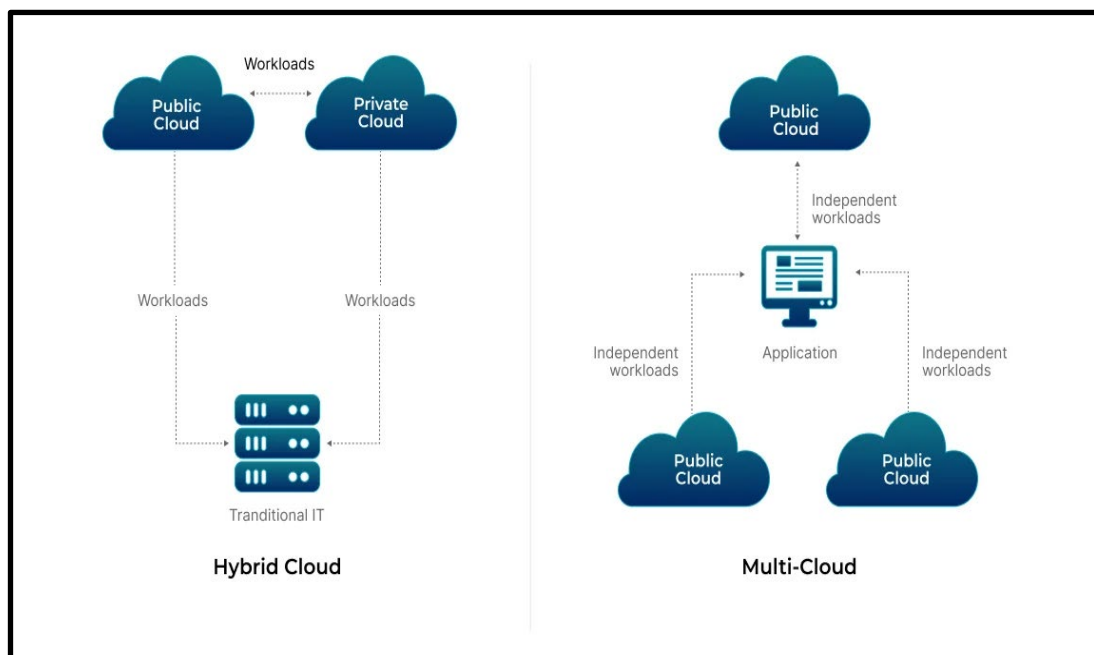
*Figure 4: Process of reshaping of CC in FinTech*

(Source: 10)

From the ever figure it can be discussed that there are two types of cc that are used in the financial industry which are hybrid cloud and multi-cloud. Two main sources of hybrid cloud are the public cloud and the other is private cloud. On the other hand, the independent source of the multi-cloud is the public cloud. Personalizing the financial services in the financial department can be done with the help of the process of CC [12]. Therefore, it is clear from the above analysis that the impact of the CC on several factors in the economic industry is undeniable.

VI. DEVELOPMENT OF FINANCIAL SECTORS BY APPLYING BLOCKCHAIN TECHNOLOGY

Blockchain technology or BT is commonly used in the financial sector to reduce the price and the cost of different kinds of products and enhance the rate of transparency of the products to the customers. Some of the uses of BT in the financial department have been discussed below:

Smart Contracts: Smart contracts or agreements are the process in which the provisions of an individual can be inscribed instantly by using the computer code. With the help of beating and process of simplification of the complex financial methods can be done which includes the settlements [12]. With the help of these techniques, the rate of malfunction and disputes decreased which increased customer satisfaction.
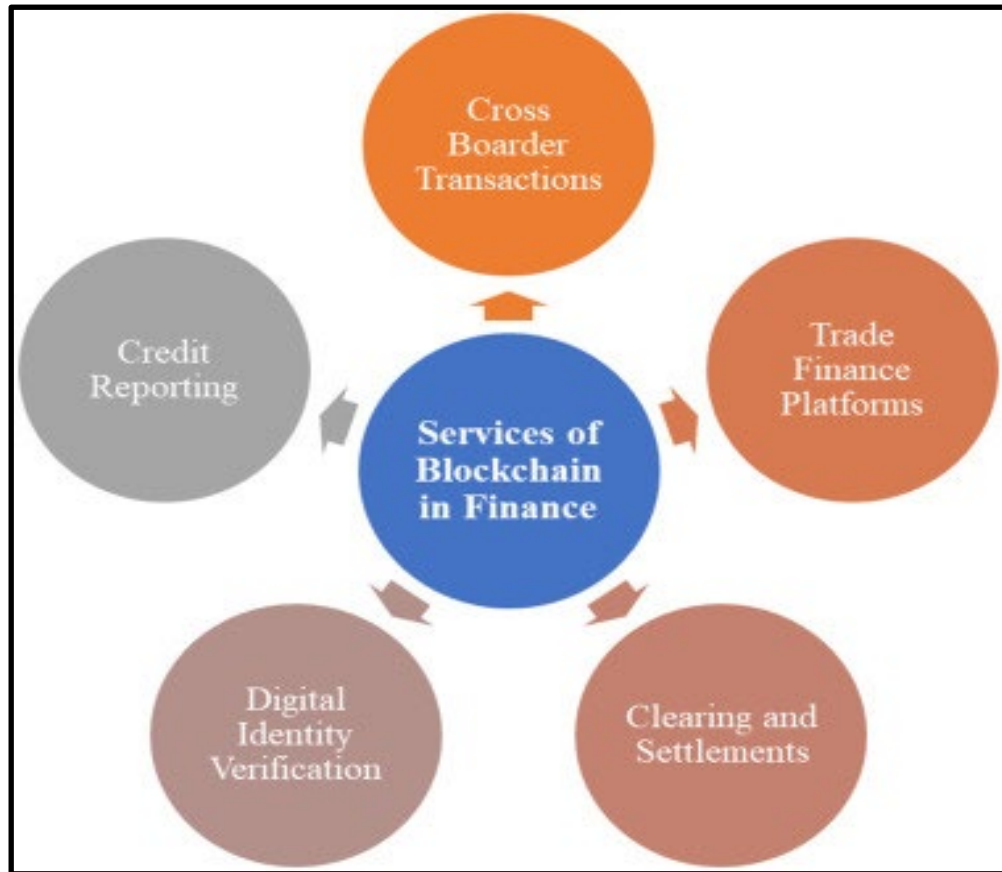
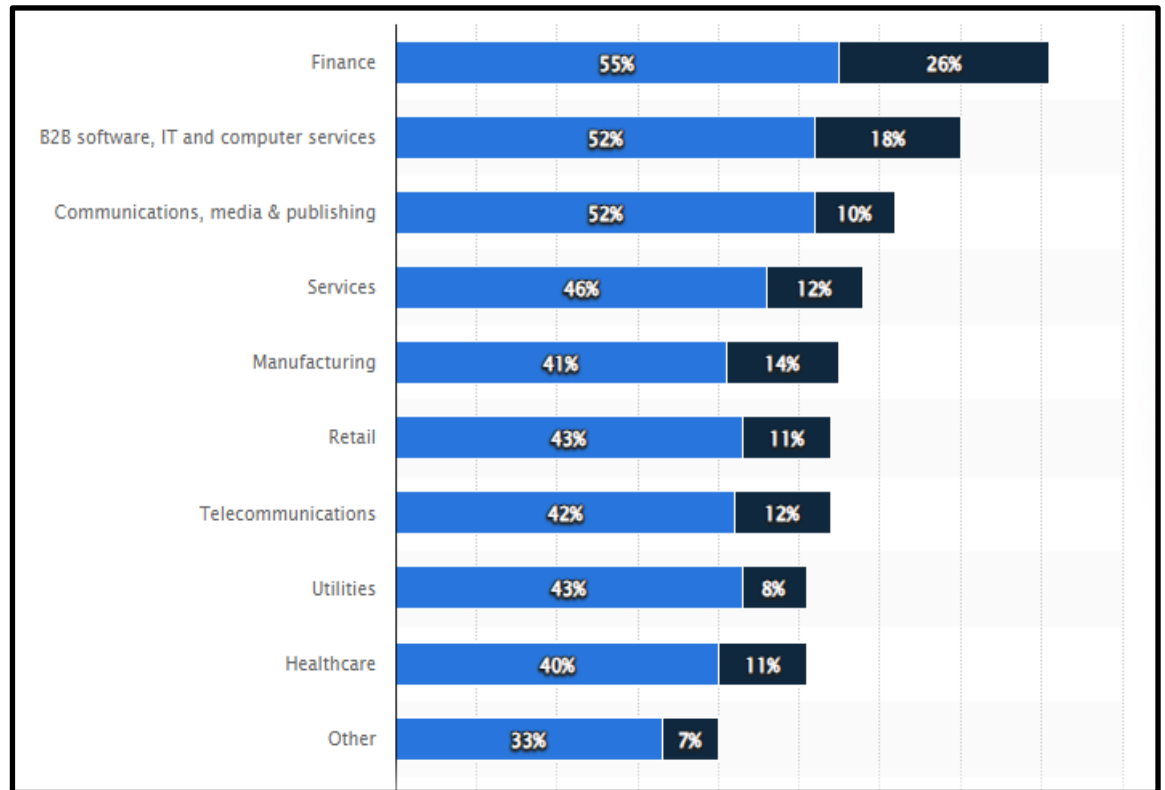*Figure 5: Blockchain technology in the financial sectors*

(Source: 1)

Enduring Record-Keeping: The methods of BT improve the immutability to keep the document of a person secured. For the financial sectors, the transaction process and the permanent financial transaction system have to be more defended which becomes easier by using the methods of BT [14].

Decentralization Financial: The movement of decentralized Finance or DeFi intends to use the technology of blockchain to restore existing financial systems [15]. These platforms provide a wide range of financial products and services, such as trading, borrowing funds, and borrowing, eliminating requiring traditional intermediaries like institutions [16].

VII. FUTURE SCOPE FOR AI, CC, AND BLOCKCHAIN TECHNOLOGY IN FINTECH

There are 3*00 million* people involved in the corruption of blockchain technology in the current age. Around 3.9% of the total Global population is corrupted by the application of blockchain technology in different financial sectors [4]. The application and process of AI technology are also more complex than

ordinary methods and at the same time, AI tools are also expensive. One of the most common issues for implementation of the technology in the FinTech industry is the risk of Cyber hacking which makes the techniques a negative sign for the betterment of the financial sectors. Therefore, without healthy economic resources, the implementation of air technology in the FinTech cannot be possible [11].

Figure 6: Application of blockchain technology in the different industries

(Source: 14)

The above statistical graphs show the application of blockchain Technology in the year 2020 to different sectors can be shown. It can be said that the implementation of the techniques technology is the highest in the financial department and the percentage of the application of blockchain technology in this sector is 55%. As per recent reports, it can be predicted that the application of AI in FinTech will extend by a percentage of 22.5% by the year 2031 [10]. Thus, it is a testimony to the quick progress AI is making in influencing the economic scene.

VIII. PROBLEM STATEMENT

The main problem of this research is the scarcity of current data and information about the improvement of financial profit for the application of the technologies in FinTech. One of the most common problems of using artificial technology or AI in the financial department is the lack of capabilities and explain ability among the employees of the financial sector. Also, the scarcity of awareness of the proper process for using the technical tools decreases the effectiveness of the system [5]. Hence, the study has some drawbacks in order to collect a set of pieces of information about AI and blockchain Technology for the financial industries.

CONCLUSION

In conclusion it can be said from the overall discussion of the above study that the application of BT, AI, and CC in the financial sectors has some advantages as well as disadvantages. Implementation of cloud computing in the economic sector makes the transaction process more reliable and the segmentation process becomes easier and flexible for the customers. In the current era, the use of BT is highest in the finance sector and the lowest use of BT is for the utility sector. Therefore from the study, it is clear that one example of the way this integration lessens fragility, fosters creative thinking, and disrupts long-standing economic frameworks is the rise of decentralized banking.

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