

المؤتمر العلمي الدولي السابع لكلية الأعمال بالتشارك مع عمادة البحث العلمي و الدراسات العليا

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عمادة البحث العلمي و الدراسات العليا

كلية الاعمال

The Mechanism of Financial Technologies Solutions in Achieving Banking Sustainability (Blockchain Technology as a Sample)

آلية الحلول المالية التكنولوجية في تحقيق الاستدامة المصرفية (تفنية سلسلة الكتل نموذجاً)

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الملخص:

تعتبر الاستدامة المالية الهدف الرئيسي لأي بنك أو مؤسسة مالية و غيرها من المؤسسات المتخصصة ، مما يدفع مقدمي الخدمات المالية إلى البحث عن تقنيات وحلول جديدة لتحقيق ذلك الهدف بسبب ارتفاع مستوى المنافسة بين اقتصاديات العالم . و سيتم التعامل مع تقنية سلسلة الكتل و الذي يعرف باسم blockchain BT كعينة في الورقة البحثية نظرا لخصائصها الفريدة في تعزيز الأمن والأصالة بالإضافة إلى إدارة المخاطر.و يبدو أن تقنية سلسلة الكتل BT هي أشبه بدفتر الأستاذ الذي يتضمن عددا كبيرا من السجلات والبيانات التي يمكن إدارتها بشكل أكثر كفاءة عما كانت عليه في السابق و بمستوى عال من الشفافية . كما و تهدف الورقة الحالية إلى إيضاح لتقنية BT في القطاع المصرفي ضمن مخطط بحثي ، مع التركيز على فوائد تبني هذه التكنولوجيا بالإضافة إلى قدرتها على توفير العديد من الفرص في تعزيز وتطوير الصناعة المصرفية . و يعود الفضل لتقنية سلسلة الكتل BT في تقديم العديد من الخدمات المالية خاصة في كشفها لعمليات تزوير الإيرادات وعمليات التشغيل الفعالة وتقليل مخاطر العمليات التجارية . و سيتم مراجعة اربع تجارب رئيسية هنا (الولايات المتحدة الأمريكية والصين والإمارات العربية المتحدة ، و البحري) لفهم وتفعيل هذا النوع من التكنولوجيا لتحقيق الاستدامة خاصة في منطقتنا العربية المشروطة بجوهر من التغييرات في القواعد والقوانين و توفير بيئة للأعمال الريادية وربط البنية التحتية للعديد من القطاعات ضمن مزودي الحلول التكنولوجية لتحقيق الاستدامة.

الكلمات الافتتاحية: الاستدامة المالية ، تقنية سلسلة الكتل، دفتر الأستاذ، المنطقة العربية ، جوهر التغييرات.

Abstract:

Financial sustainability considered as the main target to any bank, financial institute and so on, which leads financial service providers to look for new technologies and solutions to achieve that target due to the high level of competition among economies around the world. In this paper, blockchain technology BT will be handled as a sample due to its unique characteristics in enhancing the security, authenticity in addition to risk management. The technique of BT seems to be as *ledger* that includes huge number of records, data which can be managed more efficient than before with high level of transparency. Current paper aims to graph the scope of blockchain

technology BT in banking sector, focusing on the benefits of adopting this technology in addition to its ability to provide many opportunities in enhancing & developing banking industry. Financial industry acknowledges BT on many various services especially in forging revenue processes, efficient operation processes and reducing business operations' risks. Four main experiences are taken here (USA, China, UAE; Bahrain) to understand and activate this kind of technology to achieve sustainability especially in our Arabian Region conditioned by core of changes in rules, laws, business environment, and the linkage the infrastructure of many sectors within technological solution providers to achieve sustainability.

Key words; financial sustainability, blockchain technology, ledger, Arabian Region, core of changes.

Introduction:

Although banking services were known from a long time but since few decades many revolutionary developments took place i.e., in 17th & 18th centuries there was certain central banks in Amsterdam & London used by rich people only, then in 20th century New York involved in this financial era. Then, rapidly with the third quare of 20th the banking system increased around the world and became a source of strong economies. Within this sequence, providing secure, transparent and efficient technologies become a must for banking industry (USTA, 2017:6; Neama & Abbood, 2022). By reviewing literature, financial technologies solutions grown rapidly where there are two dimensions of expanding; vertical & horizontal, the first one includes the entry of novel huge financial companies to compete into providing financial services effectively and efficiently; while the second one refers to the diverse of services and goods that provides by banking system to clients, where in 2015 the adoption of financial technologies was around (16%) while in 2017; 2019 the adoption increased to (33%; 64%) respectively (Hwa, 2019: 6).

In this context, blockchain technology considered as a modern innovated technology when it firstly introduced in 2008 and it became as a main tool of any industrial supply chain (Sumi & Chandrasekar, 2022), it is defined as a distributed ledger technology (DLT) which is characterized as digital unchangeable technology to record various financial transactions with high secure where information can be stored and shared in an effective way (Ratka et. al., 2019:6-7; Neama et. al., 2023: 1579-1580), it characterized as decentralized system where users can update its network at any moment and/ or under any condition. Finance and global economies are grateful to this

financial revolutionary technology BT due to its ability to balance technology, user data and privacy (Javaid et. al., 2022). For these reasons, it seems that BT has a very close connection to banking industry.

The Paper's Problem:

Within the dynamic economical changes and after many financial crises globally in addition to what the world faced during the pandemic COVID-19, sustainability for financial sectors become as critical issue especially in banking industry, the digital transactions and novel financial solutions considered as the main target to any bank or financial institute; thus, R&D in these aspects become a must for any financial provider to ensure achieving sustainability. Here, the paper finds that it is the right time to expand in searching for adopting novel financial technologies whereas BT is one of these technologies, Arabian Region have to follow the updates of global experience in this filed rather than using the traditional usages of banking operation process.

The Paper's Importance:

Aligning financial operational process with novel technologies add many characteristics to banking transactions i.e., security, transparency, efficiency in addition to quick transactions who clients look for. In this context, both banking management and clients should know the importance of adopting BT to achieve banking sustainability & client's profits as well.

The Paper's Objectives:

The paper tries to achieve its objectives and illustrates if banking industry adopted the usages of financial technologies in an affective way; and how could these technologies affect the sustainability of banks or financial institutes through reviewing many studies and having the benefits of their experiences to translate it into our societies.

Methodology; Models of Success of Adopting BT in Banking Sector:

It seems valuable to survey many pervious studies to enrich the knowledge of adopting novel financial technologies solutions which aligned with certain adopted experiences in different regions. Although those experiences are different but they reflect the same aims as discussed later;

having three experiences from USA, China, UAE reflects the diversity of application & impact as well. Methodology here will handle the main ideas and thoughts that others looking for and then, illustrating the strengths & weaknesses which enrich the discussion.

USA, China Blockchain BT adoption:

A comparison between two big economies (USA & China) was done in a study in 2023; it deals with samples from both countries to cover (500) companies in both, and the duration time of examining those data was from 2012-2019; those companies are different in their interests, some of them were financial companies, other are logistic ones and some of retail, health care companies. The results show that adopting BT is rather complicated in China than USA due to the high level of interest by USA to search, and invest in R&D to achieve innovation and improving their businesses through BT adoption (Tseng et. al., 2023). Which is interesting here, is that adopting this technology could bring valuable advantages to SMEs or even startups ones, there is a positive correlation between company size and technological intensity; early adoption leads companies to survive and sustain (Marikyan et. al., 2022). While others as this study showed argue if company size could affect the decision to adopt the novel financial technologies BT or not (Janssen et. al., 2020). The conclusion of this study shows that a positive relationship between the size and the adoption of BT to achieve high level of performance which leads to sustainability as well.

UAE Blockchain BT adoption:

UAE early distinguished the importance of financial technologies and considered it as a source of diverse its economic resources through investing in many financial technological projects in Golf area (Neama'a & Aref, 2022), Abo Dubi classified as a concrete financial center with legal, political and environmental infrastructure to those entrepreneurial businesses in the MENA region and north of Africa (Chris, 2021). In addition, UAE government in 2018 launched for "*Blockchain Strategy 2021*", where they aimed to focus on the novel opportunities of the investment in financial technological solutions and the results show that BT helps them to uncover around (3.75/ million) deceitful transaction annually which means around (435/ US\$) of loss; UAE supports the usages of BT to reduce the operational transactions and avoiding risks in banks and recommended many sectors to follow the adoption of this technology to achieve the desired sustainability (Labbadi & Khelil, 2022). Although, it was not easy to overcome the use of traditional financial banking transaction but government in UAE supports as well all banks and financial institutes with many

facilities to address the adoption of BT to securing, transparent, and eliminating any suspicious transactions.

Bahrain Blockchain BT adoption:

The adoption in Bahrain started proximately in 2017 when three famous banks announced for establishing a company that interested in D& R in addition to developing the financial technological usages in Bahrain and they announced a financial union known as (ALGO- Bahrain), it aims to expand the use of financial technological solutions which aligned with Islamic requirements. The founders are, Bahrain Bank, Al Baraka Banking Group, and Kuwait Finance House; focusing on supporting the projects of adopting new technologies (BT) rather than Bahrain, and the announced for (Regulatory Sandbox) where they support new financial providers with all facilities to examine their experience with a period of time reached (9/ months), in addition to in participating them with auditing system, analyzing system for huge data and so on (Abdul Raheem et al., 2019).

Discussing the Results:

Although blockchain BT is still considered as a novel term in financial environment that handled recently by many researchers, but it is a good chance to discuss certain definitions, firstly to understand the whole concept of BT and secondly to combine knowledge with experiences mentioned above to enrich the current paper and enhance the opponents to think positively towards the adoption of BT as financial solution in banking industry to achieve sustainability.

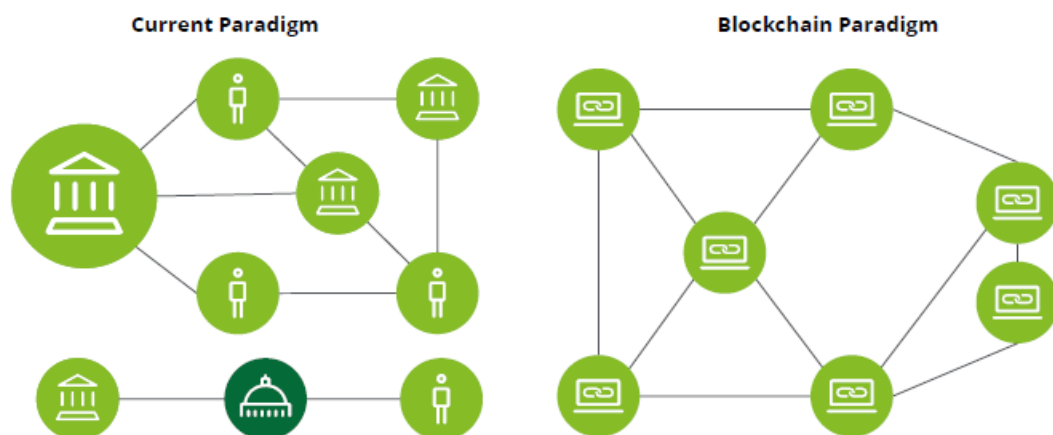
Yano et. al., in 2020 defined BT as “*a ledger that is put together on the internet in a decentralized manner by an indefinite number of contributors*”; and Patki & Vinod in 2020 define BT as “*a digital, immutable, distributed ledger that chronologically records transactions in near real time. The prerequisite for each subsequent transaction to be added to the ledger is the respective consensus of the network participants (called nodes), thereby creating a continuous mechanism of control regarding manipulation, errors, and data quality. Simply put, Blockchain is a protocol for exchanging value over the internet without an intermediary*”. In other words, BT considered as a database of all financial transactions that shared among users within network. Following paragraphs could illustrate deeply the scope of BT depending on those mentioned definitions:

Scope of Blockchain technology BT in Banking Sector:

A few years back, blockchain technology initially known as an electronic cash system for such digital currency i.e., Bitcoin; but later financial institutions and financial solution providers alike the capabilities of investing in this technology to achieve banking sustainability (Khatwani et. al., 2023), while; Sumi & Chandrasekar in (2022) they summarized their thoughts in a logical classification and illustrated BT services into three kinds according to users:

- A) **Public BT users and/ or financial organizations**; where it provides an open platform among users for adding sharing, transacting without any kind of restrictions which is called “*permission-less BT*”, there is no validator nodes among users; all users have the ability to write, read, audit & view the financial blockchain transactions.
- B) **Private BT users and / or limited organizations**; the system of this technology depends on what is called “*permission BT*” whereas; selected users can excess and work on it, each node is related to specific ledger; then, without special permission, transaction cannot be exist.
- C) **Consortium BT partially private & permissioned**; it refers to a group of pre-determined nodes who can enter network and search for data, it characterized as fully centralized process with specific exceptions. Thus, the main purpose of adopting BT is creating a decentralized environment where there is no third party as in traditional financial transactions. To demonstrate the differences between traditional database vs BT once, Labbadi & Khalil cited Deloitte point of view through figure (1)

Fig (1) Traditional Database VS BT



Source: Deloitte, 2017, p.10 cited by Labbadi & Khalil, 2022, p.5

Figure (1) shows that Blockchain technology is already extensive due to its features to help finance in general and bank in specific in achieving their transactions with high level of security, transparency and effectively; it also helps in optimizing the processes (Khatwan et. al., 2023); unlike the traditional model where central authority controlled every transaction and many intermediaries are present in any process; while on contract, BT works on reducing the operational chains and eliminates intermediaries in addition to its cheapness in costs which considered as a main target to any bank or financial institute.

Therefore; adopting BT in many other services rather than financial ones become common especially i.e., in government to control every illegal data (Rawat, 2020); another use for BT is the cybersecurity to save individuals, companies, organizations from any foreign threats that affect their competition in global market; not only that, BT has its impact on real estate marketing as well, which it paves the way to reduce the subsidiaries (*middle person*) and the deal will be (B2B) directly (Bambara et. al., 2018; Labbadi & Khalil, 2023).

The studies & other literature works forecasting for many developments in the future of financial technologies, where Pollari et. al., in (2019) explained further expansion i.e., novel deals with novel goods and/ or services, novel financial markets for instance southeast Asia or in Latin America rather than the traditional current financial markets, novel collaborate strategies among huge online marketing companies like Alibaba, Apple and so one, where these companies will focus on increasing their assets in developing countries directly and/ or indirectly to invest in financial technology solutions. Other banking services will expand as well through adopting the digital strategy of developing banking systems as happened is Singapore or Hong Kung & Australia. While; in fact, the development will be faster than expected especially after the Pandemic COVID-19, whereas many new financial technological companies established and starting their financial services especially for digital transactions, online buying & selling stocks and so on (Aref, 2023).

Challenges & Needs of adopting BT:

Nevertheless, adopting blockchain technology involves a lot of risks as any new other technologies; but current modern technology BT guarantees the security and transparency of data

and operational processes as well. These features are added values to BT especially in banking industry where BT addresses the major problems of traditional transactions and tries to overcome those problems in a logical way, that leads as well to lower the financial risks. BT paves the way for easier achievements through finalizing various financial activities locally and / or globally effectively and efficiently (Javaid et. al., 2022). Furthermore, some of interested writers argue that BT becomes a NEED for any organizations under the globalization conditions due to several difficulties related to rapid changes, rapid development and so on, where some of critical financial issues were solved due to tremendous technologies, but still what is the next could leads financial providers to be in doubt of adopting other alternative technologies, while; BT currently formed the best choice for any transaction either in trade or commerce (Karim et. al., 2022; Xu et. al., 2022).

Thus, for accepting the novel financial technology of adopting BT, three dimensions should be considered with high interest, BT enhancing security, reducing risk; and saving money in addition to understand its importance towards achieving sustainability of all financial transactions. In this sense, BT in financial industry gains the client's trustworthiness obviously and within near future, Blockchain technology will dominate most of managing, controlling various activities in banking industry as the main part of any financial system.

Conclusions & Recommendations:

Adopting novel financial technologies become a need for every business to compete and sustain under the dynamic movement; while for banking industry it is a must rather than any business due to its importance in balancing the economic life of any society.

There is a positive attitude towards financial technology BT usage especially for those learned and trained individuals who support technology. While others feel afraid of adopting BT due to their lack of knowledge and/ or they are afraid of any change in their financial transactions.

Arabian Region has successful entrepreneurial experiences especially in UAE & Bahrain and they could lead other Arabian economies into technological launches to share their experiences, and participate other for adopting new protocols of financial technological project to achieve sustainability.

Although, it seems that most of financial providers and users are alike in adopting BT in every business, but to balance between strengths & weaknesses and/ or opportunities & threats is not easy and many efforts should be sacrificed for; especially by those non-profit organizations, financial providers, in addition to academics who should align their knowledge with experience then participate them through many training programs, workshops to share the importance of financial technologies BT solutions widely through three main dimensions; enhancing security, reducing risk; and saving money to achieve sustainability.

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