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مجلة إقتصاد المال والأعمال

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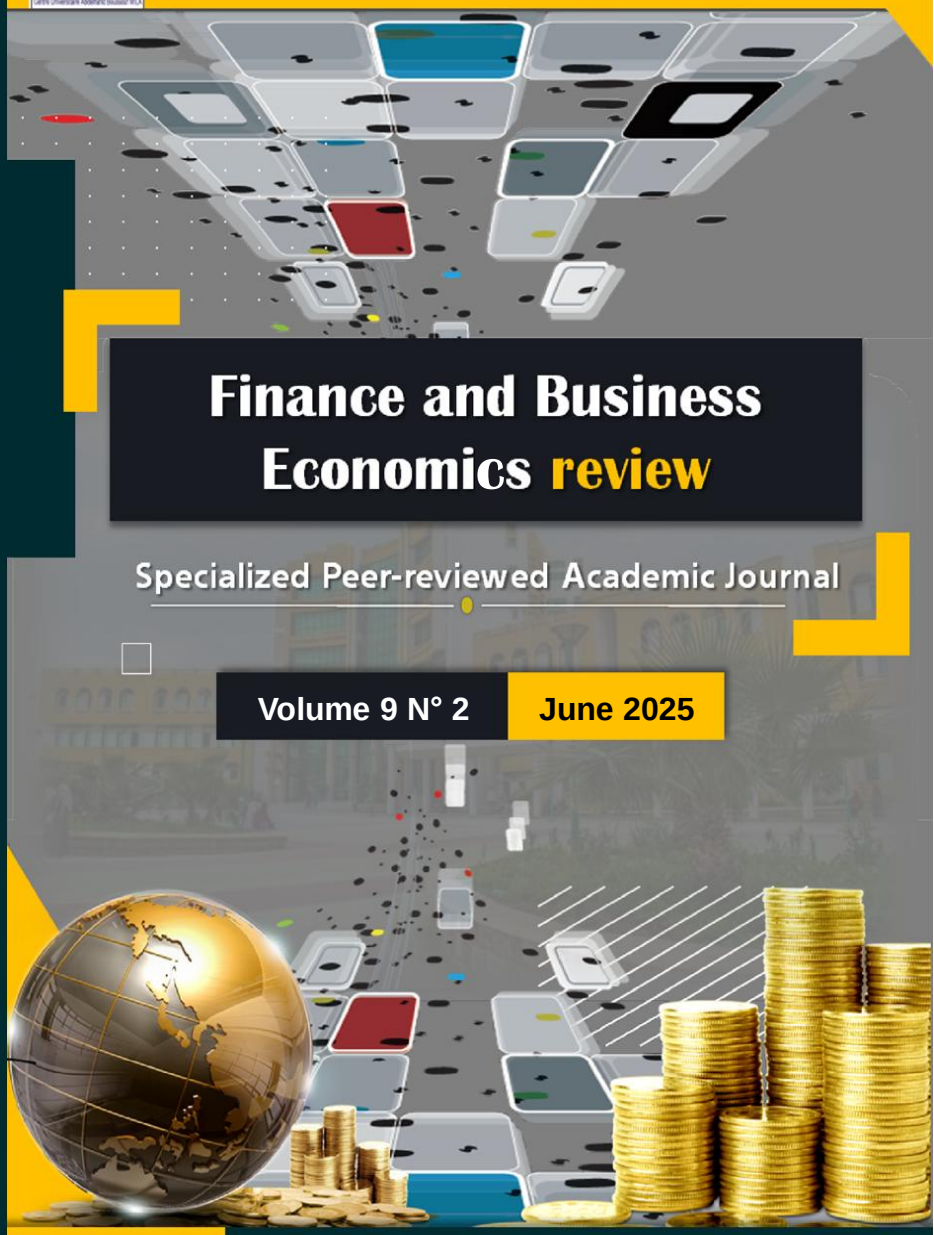

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اهتمامات المجلة

تنشر المجلة البحوث والدراسات المفاهيمية والتطبيقية الجادة التي تتميز بالأصالة العلمية في مجال **العلوم الاقتصادية والإدارية** بشتى فروعهما في **علم الاقتصاد والاقتصاد القياسي والعلوم المالية والمحاسبة والتسويق وإدارة الأعمال** وغيرها مما يتصل بها، كما تفتح المجلة أوراقها للمراجعات النقدية والردود العلمية حول الاصدارات العلمية المختلفة في مجال اهتمامها.

أهداف المجلة

تهدف المجلة إلى إحداث تكامل بين الفروع المختلفة للعلوم الاقتصادية والإدارية من حيث حرصها على نشر البحوث والدراسات التي تتناول إشكالات راهنة ومهمة على المستوى المعرفي والواقعي.

إجراءات النشر

- **تقديم المقالات :**

- تقديم المقالات المقترحة للنشر في " مجلة اقتصاد المال والأعمال "يتم حصرا عبر صفحة المجلة على المنصة الإلكترونية للمجلات العلمية الجزائرية (ASJP)، ويتطلب ذلك امتلاك أو فتح حساب على المنصة www.asjp.cerist.dz.
- لتقديم المقال، يلتزم المؤلفون بتنزيل الملفات المضغوطة المتواجدة في صفحة المجلة من خلال أيقونات "تعليمات للمؤلفين " و " دليل المؤلفين " على الرابط:

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- يلتزم المؤلفون حتما بإتباع التعليمات والتوصيات المذكورة في "تعليمات للمؤلفين" و "دليل المؤلفين" من أجل تسهيل وتسريع عملية النشر.
- يتم تقديم المقال من خلال النقر على أيقونة "إرسال مقال" / "Paper submission" / " Soumission d'article" في صفحة المجلة على أرضية ASJP المذكورة سلفا.
- إذا كان للمؤلف **اسم مستخدم/ كلمة مرور** لـ "حساب على المنصة": "تسجيل الدخول"/ "Se connecter"/ "Login"
- فإذا لم يكن كذلك فيجب التسجيل من خلال: "تسجيل" / "Inscription" /" Registration " ويتيح التسجيل لصاحبه الدخول لتقديم المقالات ومتابعة وضعية مقالاته المقدمة للنشر.

- **المبادئ التوجيهية للمؤلف:**

يلتزم المؤلفون بالتعليمات المذكورة في " دليل المؤلفين " ، ولذلك ندعوهم لقراءة هذه التوصيات بعناية والالتزام بها، حيث يحق لرئيس التحرير رفض المقال شكلا وإعادة الأوراق البحثية التي لم يتم تقديمها وفقًا لهذه التوصيات.

- **إعداد المقال:**

لتسريع عملية نشر المقالات في " مجلة اقتصاد المال والأعمال "، ندعو المؤلفين لاستخدام قالب المجلة، ويمكن للمؤلفين تنزيل القالب من قسم "**تعليمات للمؤلف**"، حيث يمكنهم الوصول إلى هذا الفضاء عن طريق زيارة:

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ثم النقر على "تعليمات للمؤلف" على الجانب الأيسر من الشاشة.

- **الاطلاع على ملف دليل المؤلف:**

بالضغط على أيقونة "دليل المؤلف" يتم تحميل ملف مضغوط، وهو توجيه لصاحب المقال يوضح طريقة إرسال المقال، كما يتضمن حقوق المؤلف الخاص بالمجلة ويتضمن أيضا خطاب تعهد يمضي عليها صاحب المقال توضح أن الملكية الفكرية تعود للمجلة فقط.

- **إرسال المقال:**

بعد إعداد المقال وفقا لقالب " مجلة اقتصاد المال والأعمال " الذي تم تحميله، والإطلاع على دليل المؤلف، يتم الضغط على أيقونة "إرسال مقال". تظهر استمارة للملء تتضمن مختلف البيانات الخاصة بالمقال وبالمؤلفين: لغة المقال؛ عنوان المقال؛ الملخص؛ كلمات مفتاحية؛ الاسم الكامل للمؤلف؛ مؤسسة الانتماء؛ الايميل (ويلزم إضافة المؤلفين الآخرين في حالة وجود أكثر من مؤلف)؛ اقتراح مراجعين.

بعد ملء كل البيانات وتحميل ملف المقال على المنصة، يتم الضغط على أيقونة: "إرسال " الموجودة أسفل استمارة المعلومات.

- **إشعارباستلام المقال:**

في حالة نجاح عملية إرسال المقال على المنصة تظهر رسالة على الشاشة تبين ذلك، وفي مرحلة موالية يستلم المؤلف المرسل على إيميله الشخصي إشعارا بتقديم المقال، وإشعارا للمؤلف الثاني على إيميله لتأكيد اشتراكه في المقال.

- **إشعاربرفض المقال:** إذا تبين أن المقال لا يطابق قالب وشروط المجلة فسيتم إشعار المؤلف برفض المقال.

- **عملية معالجة المقال:** وتنقسم إلى ثلاث مراحل:

- المرحلة الأولى -

يتم فحص المقال بشكل سري على مستوى لجنة القراءة للمجلة، التي تجتمع بانتظام وتتدخل في مرحلة ما قبل التقييم، حيث تقدم قرارا بأهلية المقالات قبل إرسالها إلى المراجعين أو المحررين المساعدين، إذا كان القرار سلبيا فسيتم رفض المقال على المنصة مع اعلام صاحب المقال بسبب الرفض (والتي تتعلق عادة بعدم

احترام قالب المجلة وشروط النشر)، ويمكن للمؤلف إعادة إرسال مقاله مع الأخذ بعين الاعتبار التوصيات المقدمة.

- المرحلة الثانية -

في الحالة التي تكون فيها المقالة مؤهلة للتقييم (تم إعدادها وفق قالب المجلة ووفق شروط النشر)، سيتم ما يلي:

- إغفال المقال بحذف المعلومات الشخصية للمؤلف و/أو المؤلفين (الاسم/مؤسسة الانتماء/الايميل...)
- إرسال المقال المغفل للمحرر المساعد المعني حسب تخصص ميدان البحث للمقال.
- يتكفل المحرر المساعد بإرسال المقال المغفل إلى مراجعين اثنين (محكمين) حسب التخصص وتحت مسؤوليته، كما يمكن لرئيس تحرير المجلة إرسال المقال للمراجعين مباشرة دون المرور عبر المحررين المساعدين حسب الحالة.
- يمكن للمحرر المساعد المرتبط أيضًا تقييم المقالة إذا رغب في ذلك حسب التخصص وتحت مسؤوليته.
- يتولى المراجعان مسؤولية تحكيم الورقة البحثية وفقًا لاستمارة تقييم موحدة متوفرة على المنصة ASJP بشكل إلزامي.
- لا يتم الفصل في نتيجة تقييم المقال إلا بعد تقرير المراجعين الاثنين معا، ويتم معالجتها كالآتي:

  مقبول دون تعديل في التقريرين، هنا يتم إرسال إشعار بالقبول النهائي للمؤلف المعني.

  مقبول مع تحفظ على الأقل في أحد التقريرين، هنا يتم إرسال إشعار قبول بتحفظ للمؤلف المعني، حيث يتوجب عليه تعديل المقال حسب ملاحظات المراجعين في أجل لا يتجاوز شهرا واحدا، ليعاد إرسال المقال المعدل مرة ثانية (بعد استلامه من المؤلف) للمراجعين، على أن تكون نتيجة التحكيم الثانية نهائية بالقبول أو الرفض النهائي.

  قبول المقال من طرف مراجع واحد ورفضه من المراجع الثاني، هنا يتم إرسال المقال لمراجع ثالث على أن يكون رأي هذا الأخير مرجحا، وتتم معالجة نتيجة التحكيم وفق ما سبق إلا في حالة الحصول على رفض ثاني حيث يشعر المؤلف بالرفض.

  رفض المقال من المراجعين الاثنين معا، هنا يتم إشعار المؤلف بذلك، على أن لا يتم إعادة إرساله مجددا للمجلة بنفس الصيغة.

ملاحظة: توفر سكرتارية " مجلة اقتصاد المال والأعمال "خط التواصل المغفل بين مؤلفي المقالات والمحررين المساعدين والمراجعين حصريا عبر منصة ASJP .

- **مدة تقييم المقالات:** تسريعا لعملية التقييم تُمنح فترة تقييم مدتها 30 يومًا، ويمكن أن تمتد إلى شهرين كحد أقصى مراعاة لضغط التقييم في بعض التخصصات على المحكمين، علما أن العملية تتوقف على

المراجعين، وفي حالة تجاوز هذه الآجال يتم إرسال المقال لمراجعين جدد مما سيؤدي إلى تمديد آجال التقييم.

- **متابعة المؤلف لوضعية مقاله على المنصة:**

يمكن للمؤلف الدخول على حسابه في المنصة ومتابعة وضعية مقاله مرحلة بمرحلة وذلك بالضغط على أيقونة: "المقالات" ثم الضغط على أيقونة: "المقالات المرسلة" سيظهر جدول يحمل تفاصيل المقال من: عنوان؛ تاريخ الإرسال؛ اسم المجلة؛ التفاصيل؛ الحالة. وهذه الأخيرة تمر على عدة مراحل:

- المرحلة 1: قبول أو رفض التحكيم
- المرحلة 2: مقال في انتظار المراجعة
- المرحلة 3: اسناد المقال للمراجعين
- المرحلة 4: قرار المراجعين بقبول المقال أو رفضه أو طلب التعديل.

- المرحلة الثالثة -

بعد القبول النهائي للمقال، يتوجب على المؤلف:

- **المراجع الببليوغرافية**: إدخال المراجع الببليوغرافية لمقاله وفقا للإطار المحدد على المنصة من حساب المؤلف، من المهم الإشارة إلى أنه في حالة عدم إدخال هذه المراجع، لا يمكن نشر المقالات المقبولة.
- **خطاب التعهد**: إرسال إقرار بحق نقل حقوق التأليف والنشر (Letter of Undertaking (Ar).doc) وفق النموذج الخاص بالمجلة الذي يمكن تحميله من أيقونة دليل المؤلفين في صفحة المجلة على منصة ASJP.

- **سياسة الانتحال:**

تشكل السرقة العلمية، بجميع أشكالها سلوكًا غير أخلاقي على العموم ودون استثناء، وبالنسبة لمجلة اقتصاد المال والأعمال لا يتم قبول أي خرق لهذه القاعدة، ولن يتم قبول أي مقال آخر للمؤلف الذي قام بالانتحال.

افتتاحية العدد

الْحَمْدُ لِلَّهِ خلق الخلق وكَانَ بِعِبَادِهِ خَبِيْرًا بَصِيْرًا، وتَبَارَكَ أن خَلق سبعَ فِي سمَاوات طباقا وَجَعَلَ فِيْهَا مَصَابيحَ زينةً وَقَمَرًا مُنِيْرًا، وأَشْهَدُ اَنْ لاَ إِلَهَ إِلاَّ اللهُ وأَشْهَدُ اَنَّ مُحَمَّدًا عَبْدُهُ وُرَسُولُهُ، بَعَثَهُ بِالْحَقِّ بَشِيْرًا وَنَذِيْرًا، وَدَاعِيَا إِلَى الْحَقِّ بِإِذْنِهِ وَسِرَاجًا مُنِيْرًا، اَللَّهُمَّ صَلِّ عَلَيْهِ وَعَلَى آلِهِ وَصَحْبِهِ وَسَلِّمْ تَسْلِيْمًا كَثِيْرًا. أَمَّا بَعْدُ؛.

بسم الله نستفتح هذا العدد الثاني من المجلد التاسع، لمجلة اقتصاد المال والأعمال والتي يصدرها معهد العلوم الاقتصادية، التجارية وعلوم التسيير بالمركز الجامعي عبد الحفيظ بو الصوف– ميلة–، هذا العدد الذي يأتي استمرارا لمسيرة المجلة منذ عددها الأول في أن تكون مجلة علمية محكمة، تعنى بنشر البحوث والدراسات في مجال تخصصها، وفق القواعد والضوابط المنهجية العلمية الأكاديمية الرصينة، لتعبر بذلك عن آمالنا وطموحاتنا –كباحثين وأكاديميين– في توسيع دائرة البحث والإنتاج المعرفي، بما يخدم رسالتنا تجاه المجتمع الذي ننتمي إليه، وتنتمي إليه مؤسستنا وأسرتنا الجامعية كلها أساتذة وطلبة وموظفين، ولذلك فإن صدور هذا العدد من المجلة هو امتداد لمسارها في تدعيم البحث العلمي الجاد، حيث حوى هذا العدد موضوعات متنوعةً، بحيث يعكس هذا التنوع الأهداف المسطرة التي تطمح المجلة لبلوغها، وكذلك استثمارها في التعدد اللغوي للباحثين لتنشر باللغة العربية والانجليزية، كما تبقى المجلة منفتحة على الباحثين من خارج الجزائر ليتحقق فيها البعد الدولي الذي تسعى إليه، هذا الجهد ما كان ليتم لولا فضل الله أولا ثم مساهمة أطراف عديدة من إداريين ومؤلفين ومراجعين، فلهم منا جميعا جزيل الشكر والعرفان.

وبعد .. يسرنا أن نضع بين أيدي القراء هذا العدد الجديد للمجلة ونرجو أن يحصل به النفع والإفادة، والله الموفق.

هيئة تحرير المجلة

محتويات المجلد الثامن العدد الثالث	
1	**افتتاحية العدد**
2	**فهرس الموضوعات**
4	The Role of Financial Technology and Artificial Intelligence in Improving Banking Sector Performance: Bahrain FinTech Bay Experience ***Zeid Aymen***
19	A Unified Global Digital Currency: A Mechanism to Limit Competitive Devaluation of Currencies ***Nour Elhouda Hamiti, Rahima Bousbia Salah, Sakina Hamlaoui***
31	The Governance-Performance Link in State-Owned Banks: a Case Study of Algeria ***Aziza Serbah, Hamou Zaabi***
43	Applying Social Marketing Campaigns in Global Healthcare: Study Case of The Truth Initiative's Campaign ***Rahma Souheila, Tebboub Youcef***
53	Exploring the Impact of Eco Labels, Eco Brand, and Eco Advertisements on Green Purchase Intention: Green Trust as a Mediator and Word Of Mouthas a Moderator ***Mabrouk Khalil Oussama, Boussad Nait Ibrahim***
63	A Proposed Vision for Strategies to Develop Organizational Change Leadership Skills ***Nemdili Asma , Ferhat Abdelkrim***
77	Green Startups and Innovative Digital Business Models: Toward Sustainable Household Waste Management within the Circular Economy Framework – A Case Study of a Proposed Model "IFRAZ" ***Merzouki Yasser***
90	Desalination of Seawater as a Strategic Option to Enhance Water Security in Algeria: A Case Study of Desalination Plants in Skikda wilaya ***Balaska Zakaria , Guerfi Omar***
103	The Contribution of Economic Diversification in the Control in Oil Price Changes in Algeria: An analytical Study (2000-2020) ***Narimane Aissaoui , Nassima Cherrati***
114	أثر مؤشرات الأداء المالي على سياسة توزيع الأرباح: دراسة بنك القاهرة عمان خلال الفترة (2014-2023) ***بن زغدة حبيبة، بوشويط فيروز***
129	مساهمة شركة SOFINANCE في تعزيز الأداء المالي للشركات المستفيدة من تمويلها: دراسة تحليلية باستخدام مؤشرات الأداء المالي ***بلعزيزية وسام***

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The Role of Financial Technology and Artificial Intelligence in Improving Banking Sector Performance: Bahrain FinTech Bay Experience

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Abstract: The study aimed to highlight the importance of financial technology and artificial intelligence in enhancing the performance of the banking sector, with a focus on the impact of digital currencies, particularly Bitcoin, which has brought about a significant transformation in the financial world through its encryption-based system. The study revealed that digital currencies have accelerated financial transactions and reduced intermediary costs, but also highlighted the absence of a guarantor to protect the rights of the parties involved. Therefore, the study recommended the development of mechanisms to safeguard the rights of all parties and combat illegal uses.

Keywords: Bitcoin; Blockchain; Cryptocurrency; Mining.

1. Introduction

The banking sector has witnessed a significant transformation in recent decades as a result of rapid economic and technological changes imposed by waves of globalization and renewable innovations. These transformations have pushed banking institutions to face unprecedented challenges, necessitating their alignment with global developments to maintain competitiveness and expand their business into new markets. Among the most prominent of these innovations is artificial intelligence, a relatively recent field focused on studying the simulation of human intelligence to create computer systems capable of performing complex tasks that require inferential thinking and cognitive behaviors characteristic of humans.

Technological advancement, in turn, has brought about a fundamental change in banking operational mechanisms, with institutions now relying on technology to develop their services and improve customer interactions. The rapid evolution in information and communication technologies, such as electronic payment systems and transaction settlement, has opened new horizons for the financial industry, significantly impacting customer consumption patterns and behaviors, and leading to improved transaction efficiency and reduced costs.

Moreover, the global monetary system has undergone major transformations, starting from the barter system, passing through commodity money, and arriving at digital and virtual currencies. The emergence of encrypted digital currencies was one of the most prominent of these developments, with Bitcoin becoming the most famous and widespread among these

currencies, presenting an innovative and decentralized alternative to traditional money, with the potential for use in a wide range of financial applications.

This significant progress has not been without challenges, as the unregulated nature of encrypted currencies raises many questions about their future and their impact on economic and financial stability. Therefore, there is an urgent need for an in-depth study of these developments and establishing appropriate regulatory frameworks to ensure maximum benefit while minimizing associated risks.

1.1. Research Problematic

Through the study we will conduct, we pose the following fundamental question:

- What is the role of financial technology and artificial intelligence in improving banking sector performance - Bahrain FinTech Bay Experience?

1.2. Research Aims

The study's objectives lie in the following points:

• Clarifying the nature of financial technology;

• Understanding the concept of artificial intelligence;

• Reviewing Bahrain's experience in financial technology as a practical example that highlights the role of these technologies in the financial sector.

2. **The Nature of Financial Technology**

Financial technology is an innovative means of developing processes and systems in the financial and banking sector, such as electronic payment, money transfer, and facilitating borrowing and savings. It also helps provide innovative products that support companies, business owners, and individuals in improving their financial management, especially with the increasing reliance on the internet and smartphones.

2.1. The Concept of Financial Technology

Financial technology has gained a large number of definitions despite the recent nature of studies that addressed it, which led to differences in opinions about the precision of its concept. However, before delving into the concept of financial technology, we must take an idea about its emergence and development over time.

2.1.1. Origin and Development of Financial Technology: The world today is witnessing a qualitative shift from a cash economy to a non-cash economy, thanks to financial technology services. These services are capable of making radical changes in the financial services sector, as financial technology provides services to many individuals and companies in ways that are fast, easy, and less expensive (Wissam Ben Faddah, 2020). It is not a new or recent phenomenon, as banking services and financial service institutions have a long history of adopting technology through various stages, which can be summarized as follows (Harfoush, 2019 P725) :

A. First Stage (1866-1967): During this stage, the first transatlantic cable was laid, and the ATM was invented. Technology and finance came together to ignite the first period of financial globalization;

B. Second Stage (1967-2008): In this stage, financial technology remained dominated within the traditional financial services industry, which used financial technology to provide financial products and services. This period witnessed the beginning of electronic payments, clearing systems, ATMs, and online banking services;

C. Third Stage (2008-present): Since the global financial crisis in 2008 and until today, startups began to emerge and provide financial products and services directly to companies and individuals. These companies helped expand financial technology, which became an essential part of the global financial system. Several factors contributed to the spread of this technology, such as (Wahiba Abdelrahim, August 2019 p355-356):

•Technological Development: Financial technology was characterized by the absence of constraints hindering its progress, which contributed to accelerating its development and increasing its acceptance. This development revealed new capabilities with a great ability to adapt to changes. The 31% decrease in technology costs over the past decade helped enhance this growth. Additionally, modern technology contributes to improving the flexibility and efficiency of institutional work systems, such as banks, enabling them to develop faster and more effectively.

•Availability of Funding: The development in financial technology facilitated access to financing, enabling entrepreneurs and founders to launch new projects. As a result, venture capital investments saw significant growth, reaching $13.6 billion globally in 2016.

•Changing Customer Expectations: Consumer demands for digital services have changed, requiring traditional players, such as financial technology companies, to seek innovative solutions that meet these evolving needs. This shift led to increased adoption of financial technology products and services, with statistics showing that approximately 63.1% of global consumers use these products and services.

•Regulatory Support: Support from governments and regulatory authorities for financial technology has helped reduc-e barriers for investors. Some governments have recognized the important role financial technology companies play in facilitating and enhancing the traditional roles of financial service companies. In 2016, governments of five countries announced the development of "Sandbox" programs, which are regulatory laboratories aimed at promoting innovation in this sector at the national level.

2.1.2. Definition of FinTech: Due to the novelty of the term Fintech, which is an abbreviation for Financial Technology, there have been multiple attempts to define it by academics, financial companies, and international bodies.

The International Stability Council defined FinTech as financial innovations that rely on using technology, and contribute to creating new business models, applications, processes, or products, which have a clear impact on financial markets and institutions, as well as on the way financial services are delivered and provided (Eneutu Lokanga p03) .

As defined by the Digital Research Institute in the Polish capital, Dublin, financial technology refers to the latest technological innovations and inventions in the financial sector. These innovations encompass a range of digital programs used in banks' financial operations, such as customer transactions, financial services like money transfers, currency exchange, interest rate and profit calculations, and estimating expected returns on investments, in addition to many other banking operations (al, June 2020 p306) .

The Basel Committee on Banking Supervision has defined financial technology as any technology or financial innovation that leads to the development of a new business model, process, or product, thereby impacting markets and financial institutions (Wahiba Abdel Rahim , April 17-18, 2018, p. 2) .

Patrick Schueffe, an academic from the Institute of Management in Vevey, Switzerland, explained in an article published in the Innovation Management Journal in 2016 that the term 'financial technology' has gained global acceptance and is on its way to becoming part of financial dictionaries. According to the Oxford English Dictionary, financial technology is defined as 'computer programs and other technologies used to support or enable banking and financial services'. Based on this definition, it can be considered an economic industry composed of companies that rely on technology to make financial services more efficient and effective (Schueffe, 2016) .

In the joint book 'Studies in Financial Services Technology', Nicoletti Bernardo, in his contribution titled 'The Future of Financial Technology', defined financial technology as 'innovative business models and initiatives that leverage information and communication technologies in the financial services sector'. He also suggested that it can be considered an

industry composed of organizations that use modern financial technology to support or enable the provision of financial services (Nicoletti, 2018) .

Based on these definitions, we can conclude that financial technology is a collection of technological innovations that startups leverage to compete with traditional companies in providing financial services. This technology enables them to replace traditional tools used in the financial sector, offering more modern and efficient solutions. These solutions encompass a diverse range of services, from simple payment applications to complex programs that utilize advanced technologies such as artificial intelligence and big data to enhance performance and efficiency in the financial sector.

2.1.3. Characteristics and importance of financial technology: Financial technology, a term that merges the technological and financial realms, has given rise to a field focused on financial transactions using the latest technological advancements such as smartphones, networks, e-commerce, and digital currencies. These technologies have been harnessed to develop and enhance financial services, now being offered by companies that have leveraged technology within the financial services sector. Despite significant progress, this field still lags behind others such as media (media technology), commerce (e-commerce), and currency (electronic currency) (Telli, March 28-29-2019).

A. Characteristics of Financial Technology: The most important characteristics of financial technology can be summarized as follows:

•Financial technology encompasses a range of financial and banking knowledge, skills, and methods.

•Technology, in its various concepts, is not an end in itself but rather a means used by financial and banking institutions to achieve their goals.

•Financial and banking services are the primary domain for the application of technology.

•The applications of technology are not limited to the provision of financial and banking services but also extend to administrative methods.

B. Importance of Financial Technology: Financial technology has gained significant importance, especially in the Middle East and North Africa region, where it offers numerous opportunities, such as reducing costs for customers, enabling instant payments, providing diverse options, and facilitating financial services. It also contributes to facilitating access to finance for individuals and small and medium-sized enterprises, particularly those who are unbanked. This contributes to achieving greater and more inclusive growth for all segments of society. Governments can leverage digital platforms to improve the efficiency of revenue collection and payment processes, while banks can benefit from technology to enhance their efficiency, strengthen risk management, and improve compliance with regulations and laws. Among the most important benefits of financial technology are the following (Abdelghani Moulodi, 2019) :

- Enhancing creativity and innovation in the financial sector and developing economic transactions.

- Digitalizing the financial sector and achieving credibility and transparency.

- Enhancing the desire for transactions, gaining customers, and expanding the financial sector.

- Facilitating the availability of funding sources for various small and medium-sized enterprises.

- Facilitating large-scale commercial transactions and contributing to the expansion of financial activities.

- The use of financial technology ensures compliance with regulations, reduces risks, and

achieves financial stability.

2.1.4. Obstacles and challenges facing financial technology: The intense competition between traditional financial institutions and fintech companies in providing financial services has driven many banks to adjust their business models by increasing their reliance on technology and investing in their infrastructure. Despite these transformations, fintech faces numerous obstacles and challenges, such as cybercrime and the difficulty of issuing regulations to govern this sector (FinTech), due to some technical obstacles between financial institutions and the services they provide. Therefore, we will review the most prominent obstacles and challenges facing financial technology (Hodge, 2017) :

a. Cybercrime: Shielding against cyberattacks is one of the biggest challenges faced by companies and governments worldwide. Due to the sensitive nature of customer data, these attacks pose a significant concern for fintech companies, especially as cyberattacks become more sophisticated and frequent. In 2018, cybercrimes increased by 480% compared to 2017, causing financial institutions to incur huge losses. With the increasing number of companies relying on fintech, these crimes are expected to rise further. Consequently, it has become imperative for companies to allocate more time and financial resources to combat these attacks. On average, companies spend around $11.7 million on cybersecurity.

b. Big Data: Big data technologies are both a blessing and a curse. They can be used to collect customer data from social media and consumer databases to improve customer service and protect institutional interests. However, the process of sorting through unstructured big data to extract accurate information is not easy, as it requires advanced data analysis technology. Despite this, new solutions continue to emerge that help financial institutions leverage this data more effectively.

c. Policies and Regulations: Of the 18 Arab countries, only four are in the top third of the global ranking in terms of facilitating company formation and reducing complexity. The fintech sector could have been more active were it not for the additional regulations imposed on this sector. When startups begin offering their services, they typically operate on a small scale until they need to obtain a license, which requires a significant investment at an early stage. As a result, many companies seek to collaborate with large banks at the beginning of their operations. If the regulations for fintech were facilitated by regulatory authorities, it would attract more companies and reduce their migration to other places.

d. Human Capital: Entrepreneurs have indicated that they face difficulty in hiring people with experience in the financial sector as well as programmers. Recruitment has become one of the main challenges facing fintech companies. The problem is not in building a strong team, but rather that 64% of employees find working with large companies more attractive, leading them to move to them and leave startups. Despite this, the reassuring aspect is that 4 out of 5 entrepreneurs have previous experience in this field, and among every 5 founders, 4 of them were previous entrepreneurs.

e. Lack of Customer Trust in Digital Technology: Not everyone trusts fintech, especially in developing and poor countries, due to their limited knowledge of the services and offers provided by this technology. Fintech is also relatively new in some of these countries. Therefore, it is essential to raise awareness about the importance of this technology through advertising campaigns that explain the benefits that individuals and communities will gain from using it**.**

3. **The Importance of Artificial Intelligence**

Artificial intelligence has made remarkable progress and has become a common term, especially after its contribution to automating data analysis processes. This progress has raised concerns among some that machines will dominate humans and that the human role will become less important, although reality is still far from this perception. The emergence of artificial intelligence dates back to the post-World War II period when computer programs

were developed that simulated human intelligence in areas such as games and puzzle solving. These efforts contributed to the development of traditional systems that later evolved into integrated artificial intelligence systems.

3.1. What is Artificial Intelligence?

Artificial intelligence (AI) is a branch of computer science and one of the fundamental pillars on which many modern technological applications are based. AI aims to develop systems capable of simulating human intelligence through the ability to learn, think, solve problems, and make decisions based on available data (Abdelhadi, 2000) .

Artificial intelligence relates to the ability to achieve superhuman thinking and analyze data more deeply and efficiently than traditional human functions. Although artificial intelligence is sometimes associated with images depicting high-performance human-like robots controlling the world, its primary goal is to enhance human capabilities and significantly support human contributions, not replace them.

*3.1.1. The Concept of Artificial Intelligence:*The term artificial intelligence consists of two words: "intelligence" and "artificial," each with a specific meaning. According to the Webster dictionary, intelligence is the ability to understand new and changing circumstances or conditions, which means it involves perception, comprehension, and learning when facing new situations. As for "artificial," it is related to the verb "to manufacture" or "to synthesize," and refers to things that arise as a result of human activity or an action involving the manufacturing or shaping of things, in distinction from things that exist naturally without human intervention (Yaqoob, 2012)

Artificial intelligence is a term that encompasses a set of mental capabilities such as analysis, planning, problem-solving, rapid mental simulation, in addition to abstract thinking, organizing thoughts, interacting with languages, and quick learning. Although the general concept of intelligence among people may be associated with all these capabilities and perhaps conceived as related to memory power, psychology studies intelligence as a behavioral trait independent of creativity, personality, and wisdom, as well as independent of memory or retention power (Kramez, 2011).

Artificial intelligence is one of the branches of computer science that enables the creation and design of computer programs that simulate the human intelligence style, which allows the computer to perform certain tasks instead of humans, tasks that require thinking, understanding, hearing, speaking, and movement in a logical and organized manner (Kazem, 2012) .

A. Characteristics and Objectives of Artificial Intelligence: Artificial intelligence has helped enhance business capabilities across all fields, giving companies the ability to showcase and elevate all their potential to the highest levels. It increases business efficiency and execution speed, adds value, contributes to continuous business development, and increases the number of people interacting with these businesses, due to the continuous evolution of related tools and software.

- Characteristics of Artificial Intelligence:

Artificial intelligence, or AI for short, has become a very important part of many aspects of smart life, and it possesses many characteristics that have made it an effective investment in numerous fields (Khazaaleh, 2024) :

•The application of artificial intelligence to devices and machines enables them to plan and analyze problems using logic.

•It recognizes sounds and speech and has the ability to manipulate objects

•Devices equipped with artificial intelligence can effectively understand and analyze inputs to provide outputs that meet user needs

•It enables continuous learning, where the learning process is automated and self-directed without supervision.

•It can process vast amounts of information

•It can identify patterns in data more effectively than human brains

•It can find solutions to unfamiliar problems using its cognitive abilities.

- Objectives of Artificial Intelligence:

The primary goal of artificial intelligence is to provide a comprehensive scientific interpretation of human, animal, or machine intelligence, while clarifying the shared principles that distinguish these three types. However, the problem lies in the fact that we currently know very little about these principles. Generally, there are three main objectives of artificial intelligence (Mustafa Al-Louzi, 2013) :

•Making devices more intelligent;

•Understanding the nature of intelligence;

•Making devices more useful.

In other words, artificial intelligence systems aim to:

•Work on storing, analyzing knowledge, and storing methodological rules for dealing with it and accessing its facts.

•Acquiring, updating, preserving, and investing accumulated human knowledge in problem-solving.

•Optimally investing scientific and applied knowledge and overcoming problems of damage, deficiency, and forgetfulness.

•Generating or developing new knowledge and experiences, activating computational knowledge, and using it in decision-making.

B. Benefits of Artificial Intelligence: One of the significant benefits of artificial intelligence is its ability to process massive amounts of data much faster and more effectively than humans, without any effort. AI software can also make decisions based on that data and can learn to draw new conclusions through machine learning processes. Its benefits include (Khaza'leh) :

- Agriculture Field: Artificial intelligence is employed in monitoring climatic conditions to determine optimal planting times, evaluating soil conditions to select appropriate crops, and researching methods to develop production quality and increase crop yields.

- Medical Field: Artificial intelligence has contributed to improving diagnostic accuracy and identifying appropriate treatments based on precise disease classification.

- Recruitment Field: Artificial intelligence facilitates the process of screening job applicants and analyzing their resumes to evaluate their competencies.

- Customer Service Field: Artificial intelligence has been intensively used in customer service, especially in the mobile phone sector, providing support to human efforts in listening to and responding to customers effectively and smoothly.

3.2. Fields of Artificial Intelligence Usage

The subfields of artificial intelligence have currently developed to benefit many workplaces around the world with the aim of improving products, increasing revenues, and achieving higher profits. The fields of artificial intelligence used vary significantly, and the following are some of the most commonly used fields (Shukla S, 2013):

a. Artificial Intelligence with Other Scientific Fields: Includes diverse applications in communications, time management, health and safety, education, achieving goals and

information needs, games and entertainment, products and marketing, strategic planning, and awareness enhancement.

b. Artificial Intelligence in Science: Covers several areas including machine discovery, experiment design, efficient resource utilization, data interpretation in multiple fields such as biology, chemistry, medicine, and climate.

c. Artificial Intelligence and Infrastructure Field: Includes applications in transportation sectors, business decision-making, agriculture, engineering and architecture, and energy management and conservation.

d. Artificial Intelligence and Consumer Field: Focuses on developing relationships with accounts, sensing technologies, logic and learning, and designing specialized smart applications with an emphasis on data and privacy challenges and opportunities.

e. Artificial Intelligence and Research Fields: Covers advanced research areas including perception and performance methods, inference and reasoning methods, cognitive sciences, cognitive neural network models, and distributed artificial intelligence.

f. Artificial Intelligence and Applied Fields: Concentrates on natural language processing, computer vision technology, speech and voice recognition techniques, expert systems, intelligent computer-assisted education and learning, and smart educational systems.

3.3. The Relationship between Financial Technology and Artificial Intelligence

Digital transformation represents a fundamental axis in the future of the financial and banking sector, where customers are increasingly turning towards executing their banking transactions through electronic applications and smart solutions. Both artificial intelligence and financial technology have the ability to create radical transformations in the traditional financial services structure. Financial technology is distinguished by its capacity to make financial services faster, safer, and more transparent, while expanding banking service access to currently unbanked segments. Simultaneously, the rapid development of startups offering innovative financial solutions poses a challenge to traditional banking institutions. This development necessitates taking precise precautionary measures to ensure the safety, integrity, and stability of the financial and banking sector, while maintaining competitive capabilities and continuously meeting changing customer requirements (Union).

We can say that artificial intelligence systems can analyze financial data with high precision, including historical data and current statistics. These systems use financial technology to detect market patterns and trends such as indicators, stocks, and trading activities. These analyses help financial intermediaries better understand the market, enabling them to make more accurate and precise financial decisions. In other words, artificial intelligence enhances the ability to make informed financial decisions by providing accurate and comprehensive insights.

3.4.The Importance of Artificial Intelligence and Financial Technology in the Banking Sector

The use of artificial intelligence and financial technology in banking services represents an important strategy for reducing operational costs and improving the performance and profitability of financial institutions. Most financial institutions seek to invest in modern financial technology and artificial intelligence applications. According to PwC's expectations, artificial intelligence is expected to contribute 7.15 trillion dollars to the global economy in 2030, distributed as follows: 6.6 trillion dollars from increased productivity rates, 1.9 trillion dollars resulting from increased consumption due to improved product quality. At the Arab level, expectations indicate a 2% share of the region's contribution, with AI applications contributing 320 billion dollars to the Middle East economy by 2030, representing 11% of the total GDP.

The primary role of artificial intelligence and financial technology in the banking sector

focuses on providing accurate data insights with a low error margin, protecting funds by combating money laundering and detecting fraudulent patterns in financial transactions. Banks have been able to use artificial intelligence to improve data analysis quality and better understand customer needs, providing a distinguished customer experience. For example, the Bank-BI Fraud Detection system uses advanced techniques for early detection of fraudulent transactions and provides warnings to banks (Union, Financial Technology and Artificial Intelligence in the Financial and Banking Sector, 2024).

4. Bitcoin Transactions in the International Market

Many people have turned to using Bitcoin in various financial transactions, which has contributed to increasing trust in it. Additionally, many emerging institutions have begun to rely on Bitcoin as a source of funding. Bitcoin's global acceptance has played a crucial role in significantly increasing its value. With the growing number of transactions using blockchain technology, Bitcoin has become a precious asset, demonstrating people's desire to use it both in their financial dealings and as an investment tool.

4.1. Bitcoin and Its Impact on Financial Transactions

Cryptocurrencies like Bitcoin are not traditional currencies or official payment methods; they remain outside the oversight and supervision of competent authorities in payment processes. This gives them significant impacts on the financial market in financial transactions. Currently, electronic commerce heavily depends on financial institutions as a guarantor that grants trust for all financial transactions, which facilitates intermediation between different parties. Among the potential effects of using Bitcoin in financial transactions could include:

4.1.1. Blockchain Technology Uses in Financial Transactions: The use of blockchain contributes to creating a revolutionary economy, especially with the spread of global e-commerce platforms like Amazon. Blockchain uses in electronic commerce are diverse as follows (Dlimi):

a. Integration with Business Operations**:** Blockchain usage goes beyond just processing online payments, as it can be integrated with new business systems in multiple innovative ways;

b. Effectiveness: The technology is characterized by the ability to combine:

- Product images and descriptions;
- Electronic payments;
- Inventory management;
- Various business operations.

c. Ease of Use: Blockchain-based digital currencies are distinguished by:

- Ease of use compared to traditional currencies;
- No need for regulatory bodies to open an account;
- Absence of additional costs.

d. Transaction Speed: Traditional transactions take days to transfer between countries, while Bitcoin transfers are fast and less costly:

e. Security: Blockchain technology is considered one of the most secure technologies in terms of:

- Protecting online databases;
- Difficulty of modification;

• Providing a secure transaction environment.

It can be said that there are enormous opportunities and numerous technical benefits of blockchain technology available to sellers and e-commerce pioneers.

4.1.2. Risks of Encrypted Digital Currency in Financial Transactions: Despite the initial significant interest in Bitcoin in traditional commercial circles and e-commerce, traders must be cautious when accepting it as a payment method. This is due to rapid fluctuations in its value, where its price can change sharply in seconds. These fluctuations may cause losses for traders who rely entirely on their daily capital for commercial transactions.

4.2. How Bitcoin Works

In the paper published by Nakamoto in 2008, he explained how the Bitcoin system works and clarified the details of transaction processes and how they are checked and protected. He provided solutions to problems facing traditional electronic currencies, such as the double-spending issue, which occurs when the same digital currency is spent more than once. Bitcoin was developed using blockchain, which relies on a cryptographic protocol to ensure transaction security and protection from manipulation, in order to (Leloup., 2017):

- Enable Bitcoin to solve the "double-spending" problem that was hindering the emergence of this type of currency, ensuring that sending currency from A to B cannot simultaneously occur to C;

- The system also guarantees the impossibility of forging user login identifiers or the Bitcoin balance value appearing in the electronic wallet. The Bitcoin wallet is software designed to facilitate financial transactions, such as sending and receiving Bitcoin, while storing secret private keys that allow the user to access their Bitcoin balance (Szmigielsk, 2016). Thus, Bitcoin relies on advanced encryption technologies that protect accounts from hacking, as the private key uses the same encryption technologies used in banks and US intelligence. The electronic wallet helps protect this private key from loss or breach. To join the Bitcoin network and start using the currency, the user only needs to download an app or use a web application.

There are many applications for the "Bitcoin client" program, with the most prominent reference application being "Satoshi Client", which is managed as an open-source project by a team of developers, derived from the original application developed by Nakamoto. Bitcoin works as follows:

All information related to previous Bitcoin transactions is available on a network known as the blockchain. When someone wants to conduct a transaction using Bitcoin, the data for sending and receiving amounts is recorded and the blockchain is updated. Afterward, the transaction is validated on the network by adding it to the chain. To record a new transaction on the blockchain, a complex equation must be solved, which requires high computational capabilities. The individuals or devices that solve these equations are called "Miners". The miner who first succeeds in solving the equation gains the right to add the new transaction information to the blockchain and is rewarded with a specific amount of Bitcoin (Nishibe, 2016).

The Bitcoin reward earned through mining creates a mechanism similar to money issuance in traditional monetary systems, but it decreases by half every four years. When the system started in 2009, the reward was 50 Bitcoin, then reduced to 25 Bitcoin in 2013, and became 12.5 Bitcoin by 2017.

The Bitcoin system relies on six sequential steps that begin with executing the transaction or payment using Bitcoin. After that, the transaction is added by merging a new block within the network, and this block is sent to all members (nodes) in the network simultaneously. Then, members examine the block and verify the transaction's validity, and upon confirming its integrity, the block is added to the blockchain in a final manner that cannot be modified or

reversed. After this stage, the transaction becomes visible to all users, who can review and access it at any time. Finally, the recipient receives the Bitcoin amount or the agreed-upon value in the transaction.

4.3. Risks and Benefits of Bitcoin

4.3.1.Risks of Bitcoin: Many researchers and investors warn that Bitcoin might be just a financial bubble that will inflate and burst later. While some see it as a powerful alternative to traditional money, others caution that dealing with it without a central or governmental institution guaranteeing it involves significant risks.

For example, after the bankruptcy of Mt. Gox, which was considered the fourth-largest Bitcoin exchange site based in Japan, the Japanese Finance Minister stated: "This type of thing won't last long, and I knew it would collapse sooner or later." However, Bitcoin managed to recover from this crisis, and its price rose dramatically to over $10,000 by the end of 2017.

Despite this recovery, researchers continue to point out several risks associated with using this encrypted currency (Othman Othmania):

- It is a deflationary currency whose value increases gradually, making it impossible to maintain a stable value.

- While Nakamoto does not acknowledge intervening in operations, he owns approximately one million Bitcoins. If the issuance ceiling is designed for his benefit, this could enhance speculation, which is a significant problem for Bitcoin.

- One of Bitcoin's problems is that transactions are irreversible; owners cannot cancel a transaction once initiated, as the Bitcoin network does not address this issue.

- Value volatility: According to Gresham's law, "bad money drives out good money" - individuals tend to hold currencies they believe will maintain or increase in value while spending currencies expected to decline. Initially applied to gold and silver, this concept now applies to cryptocurrencies with their significant price fluctuations.

Despite some governments and companies beginning to accept cryptocurrencies, their use remains limited, primarily used in narrow decentralized smart contract domains.

4.3.2 .Bitcoin involves several key risks: Limited usage, with only a small portion of transactions conducted using it.

Lack of a final lending refuge, unlike central banks for traditional currencies, increasing risks during crises.

Sharp value fluctuations, making it an unstable exchange or investment tool.

High electricity costs for computers participating in the network, consuming massive amounts of energy, potentially increasing transaction costs and limiting broader adoption.

4.3.3:*Bitcoin Benefits:* These are concentrated in the following:

- Transactions cannot be practically traced or interfered with, allowing preservation of the privacy of transacting parties. The anonymity is one of Bitcoin's most prominent contradictions; on one hand, transactions are publicly recorded and available on the blockchain, and on the other hand, address holders remain anonymous, relying on pseudonyms instead of revealing their real identities (Melachrinos).

- Reduced government and bank control over the currency;

- Bitcoin is not tied to a specific geographical location and is protected from inflation due to its limited number. "Satoshi Nakamoto" planned to produce only 21 million coins by 2140. This limited number granted Bitcoin significant market value. In its early stages, its price did not exceed 6 cents, but it subsequently experienced sharp fluctuations in value,

with its price rising to over $1,000 and then dropping to around $600. Despite its increasing value, it remains an unstable currency (Center, 2018).

- Bitcoin is considered one of the most successful virtual currencies used in financial transactions, as it does not require an intermediary to complete the process, but occurs directly between the seller and the buyer. The currency itself does not transfer; only its specific code moves from the buyer's wallet to the merchant's wallet. This system is known as "Peer-to-Peer" or P2P.
- Sales and purchase operations in the Bitcoin system are all publicly announced and known to all network users, with full awareness of transaction volumes and timing. However, the identities of the transactors remain unknown, with digital addresses used instead of individuals' real names.
- Bitcoin can be transferred quickly over the Internet, with transferring an amount from one user to another taking approximately 10 minutes only. The process occurs with optional minimal fees, typically equivalent to a few cents (Melachrinos A. o.).
- Bitcoin cannot be forged or counterfeited, as the quantity is limited and no more can be created.
- There is no central intermediary controlling money flow, meaning funds cannot be frozen, held, or subject to arbitrary restrictions.
- Bitcoin transactions are irreversible, which means for traders, there are no refund processes, reducing payment fraud risks (Bitcoins, (Accessed 15/11/2024).
- The encrypted currency allows users to maintain multiple addresses without providing any personal information when setting up an address.
- Reduced inflation risks are due to the system being designed with a limited number of bitcoins, with production capped at approximately 21 million units. By early 2018, about 17 million Bitcoin units had been mined.
- Bitcoin is secure, simple, and cheap, allowing users to obtain money with a single button press. From the buyer's perspective, the payment structure and money transfer between accounts is simple and inexpensive because it relies on a peer-to-peer system instead of passing through intermediaries. Bitcoin is also easy to carry, with the equivalent of a billion dollars in Bitcoin potentially stored on a small memory stick in the buyer's or seller's pocket (Al-Jawarin).

4.4. Factors Influencing Bitcoin Price:

Bitcoin price fluctuations heavily depend on speculation, gambling, and predictions, which makes the element of loss very significant. As a result, some countries like the United States and China have banned trading this currency, while other countries like Germany and France allow dealing with it (ibid).

A. Regulatory, Legislative Frameworks, and International Recognition: Empirical studies have shown rapid price responses to any regulatory decisions regarding virtual currencies. Governments have made varying efforts in establishing regulatory frameworks, ranging from welcoming to hostile attitudes as seen in China and Korea. Regulatory ambiguity causes increased price volatility.

B. Technical Factors: Despite Bitcoin's decentralization, some technical decisions impact its price. Currency trading programs are managed by developers and miners, where increasing the number of miners leads to an increase in currency volume and changes its value, accompanied by high costs related to hardware and electricity consumption.

C. News and Statements: News represents a pivotal factor in determining Bitcoin's value. Statements from important figures work like a double-edged sword: negative news pushes

investors to doubt and sell the currency, driving it into a downward curve, while supportive news stimulates purchasing and raises its value.

D. Behavioral Factors: Investor sentiment plays a crucial role in making investment decisions. Bitcoin's performance is sometimes characterized by its connection to behavioral biases rather than objective conditions. Herd behavior stands out, where investors, especially small ones, seek to maximize profits in the shortest possible time. When the price rises, they rush to sell, and when it falls, they rush to buy, creating a continuous volatile cycle.

5. Conclusion

The disruption in the global financial system, coinciding with the COVID-19 pandemic and accelerating technological developments, created a favorable environment for the spread of digital currencies, especially Bitcoin. A set of characteristics contributed to this spread, such as low cost, transaction speed, peer-to-peer feature, decentralized control, relative transparency, and acceptable security level. However, dealing with a virtual currency characterized by issuance from unknown identities, trading under pseudonyms, and the absence of a financial regulatory authority, carries fundamental risks represented in the potential use of such currencies in criminal activities like money laundering, drug trade, and organized crime. It also involves risks of financial fraud and economic threats such as undermining global monetary stability and lack of clarity in regulatory and monitoring mechanisms.

5.1. Results

Through the presented study, a set of results were reached, including:

-Digital currencies are encrypted currencies traded via the internet and do not have a physical existence.

-Bitcoin is considered one of the most famous digital currencies, and many other -digital currencies have adopted Bitcoin's approach as a model.

-The process of issuing digital currencies is known as mining, which requires -solving numerous complex equations and algorithms that consume computer energy.

-The spread of digital currencies is one of the reasons that may be associated with the COVID-19 pandemic, especially in light of the relationship between virus transmission and paper money circulation among individuals, in addition to individuals' orientation towards e-commerce and the significant technological development in the digital field that the world is witnessing.

5.2. Discussion

-The necessity of establishing mechanisms to ensure the rights of transaction parties on one hand, and monitoring illegal transactions on the other.

-The need for institutions to issue awareness guidelines about digital currency risks, with mandatory instructions preventing the trading of these currencies, until reaching international controls regarding them.

-Encouraging researchers to conduct more studies and research that help understand and develop this new monetary tool, so it can be used more effectively while reducing its negative aspects.

-International monetary authorities, especially the International Monetary Fund, should take steps to provide individuals and businesses with rules and controls that ensure the integration of this new technology with global monetary system rules.

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يـسر هيئة تحرير مجلة " اقتصاد المال والأعمال" إفادتكم أن بحثكم الذي قدمتموه للمجلة بعنـــوان:

The Role of Financial Technology and Artificial Intelligence in Improving Banking Sector Performance: Bahrain FinTech Bay Experience

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