



Impact of Cryptocurrency and Blockchain on Women Entrepreneurs in the Digital Economy

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ABSTRACT

In recent years, cryptocurrency and blockchain technology have gained significant attention in the evolving digital economy. These emerging technologies are transforming the structure and functioning of modern economic and business systems. Cryptocurrency refers to a virtual form of digital currency that cannot be physically handled and operates through blockchain technology, a decentralized system in which information is securely stored in interconnected blocks. The impact of cryptocurrency and blockchain is increasingly visible in business development and digital economic growth. Their integration into management education can enhance students' understanding of future economic systems and promote innovative thinking. More importantly, these technologies have a substantial impact on women entrepreneurs operating in the digital economy. Educated women entrepreneurs are able to adopt cryptocurrency and blockchain for efficient business transactions, secure fund transfers, and time-saving operations. The use of these technologies improves operational efficiency and supports business expansion. By reducing transaction complexity and increasing transparency, cryptocurrency and blockchain create new opportunities for entrepreneurial growth. However, their adoption also involves certain challenges that need to be examined. Therefore, this study focuses on analysing the impact of cryptocurrency and blockchain on women entrepreneurs in the digital economy, along with exploring their need, challenges, and future prospects.

Keywords: Cryptocurrency, Blockchain Technology, Digital Economy, Women Entrepreneurs, Business Development, Digital Transactions

Introduction

The expansion of the digital economy has reshaped the manner in which financial and business transactions are conducted across the world. In this evolving technological environment, cryptocurrency and blockchain technology have emerged as alternative financial mechanisms that challenge traditional centralized systems. Unlike conventional banking structures, these technologies operate on decentralized networks that emphasize transparency, security, and efficiency. For entrepreneurs operating in digitally connected

markets, such technological developments offer new possibilities. In particular, women entrepreneurs, who are increasingly engaging in online and technology-driven enterprises, may benefit from faster transactions, reduced dependency on intermediaries, and improved access to global markets. As women-led businesses continue to contribute to economic diversification, employment generation, and inclusive growth, understanding the relevance of emerging financial technologies becomes essential. However, the adoption of cryptocurrency and blockchain is not uniform. Despite their potential advantages, concerns related to regulatory ambiguity, technological complexity, limited digital literacy, and lack of awareness continue to restrict broader participation. These challenges are particularly significant in developing and emerging economies, where access to digital infrastructure and financial education may vary across regions and social groups. In this context, the present study examines the impact of cryptocurrency and blockchain technology on women entrepreneurs within the digital economy. The study seeks to explore both the opportunities created by these technologies and the structural limitations that may influence their effective utilization among women-led enterprises.

Review of Literature

Daniel Drescher (2017), in his book *Blockchain Basics: A Non-Technical Introduction in 25 Steps*, provides a comprehensive explanation of blockchain technology by bridging the gap between purely technical discussions and business-oriented interpretations. The author systematically explains the fundamental technical concepts underlying blockchain and demonstrates how these concepts function within practical business environments. The book highlights the necessity of blockchain as a decentralized system designed to address issues of trust, transparency, and inefficiency in traditional transaction mechanisms.

DR. Abilash Kancharla (2024), in *Blockchain Essentials: Your Key to Understanding the Future of Technology*, provides a foundational overview of blockchain technology and its evolving role in decentralized digital systems. The author traces the historical development of blockchain, explaining its conceptual foundations and core operational mechanisms. Particular attention is given to the decentralized structure of blockchain networks, which eliminates centralized control and enhances transparency and trust in digital transactions. This work contributes to a broader understanding of blockchain applications and their relevance in emerging digital economies, thereby offering conceptual insights applicable to entrepreneurial and business environments.

Jones (2020), in *Cryptocurrency: An Essential Beginner's Guide to Blockchain Technology, Cryptocurrency Investing, Mining, Mastering Bitcoin Basics, Including Mining, Ethereum Smart Contracts, Trading, and Programming*, provides a foundational overview of cryptocurrency ecosystems and their technological underpinnings. The book explains the operational structure of blockchain networks and examines the processes involved in cryptocurrency mining, investment strategies, and digital asset trading. This contribution offers conceptual insight into the technical and financial dimensions of cryptocurrency adoption, thereby providing a contextual foundation for examining how entrepreneurs, including women-led enterprises, may engage with blockchain-based financial innovations in the digital economy.



Objectives of the Study

The present study aims to examine the role of cryptocurrency and blockchain technology in influencing women entrepreneurs within the digital economy. The specific objectives of the study are:

1. To Understand the Theoretical Foundation of Blockchain Technology and Cryptocurrency
2. To Analyze the Significance of Digital Financial Technologies in Entrepreneurial Development
3. To Explore the Potential Opportunities Created by Cryptocurrency and Blockchain Technology for Women Entrepreneurs
4. To Identify the Challenges and Barriers Faced by Women Entrepreneurs in Adopting Cryptocurrency and Blockchain Technology
5. To Suggest Strategic Measures for Enhancing Digital Awareness and Financial Inclusion among Women Entrepreneurs in the Blockchain Ecosystem

Research Methodology

The present study is purely conceptual in nature. It is based on secondary sources of data, including books, research articles, published reports, and credible online sources related to blockchain technology, cryptocurrency, digital finance, and women entrepreneurship. The study adopts a descriptive and analytical approach to examine the theoretical foundations of blockchain and cryptocurrency and their potential implications for women entrepreneurs in the digital economy.

No primary data has been collected for the purpose of this study. The analysis is based on existing literature and theoretical interpretations to understand opportunities, challenges, and future prospects.

1. To Understand the Theoretical Foundation of Blockchain Technology & Cryptocurrency

The first objective of the study is to develop a comprehensive understanding of the theoretical foundations of blockchain technology and cryptocurrency as core components of the digital financial ecosystem. Blockchain technology is a decentralized and distributed digital ledger system that records transactions securely and transparently. It consists of a continuously expanding sequence of data blocks, where each block is cryptographically connected to the previous block through hash functions. Every block typically contains a timestamp, transaction data, and the cryptographic hash of the preceding block, thereby forming a chronological chain. This structural linkage ensures data integrity and prevents unauthorized alteration of recorded information. Blockchains are generally maintained by a peer-to-peer network of computers, referred to as nodes, which collectively validate and add new transaction blocks according to a consensus algorithm. This decentralized validation process enhances transparency, reliability, and trust within the system. Due to its distributed architecture and strong cryptographic security, blockchain is considered secure by design and demonstrates a high level of Byzantine fault tolerance. The concept of blockchain gained prominence in 2008 when an individual or group under the pseudonym Satoshi Nakamoto introduced it as the public distributed ledger for Bitcoin transactions, building upon earlier cryptographic research.



Cryptocurrency, which operates on blockchain networks, is a form of digital currency that serves as an alternative mode of payment. It is created using advanced encryption algorithms that secure transactions and regulate the generation of new units. Cryptocurrencies function not only as mediums of exchange but also as virtual accounting systems, as all transactions are recorded and verified through blockchain technology. To utilize cryptocurrency, users require a digital wallet. A cryptocurrency wallet may be software-based, cloud-based, or installed on a computer or mobile device. These wallets store cryptographic keys that authenticate the user's identity and enable access to digital assets. The encryption keys serve as proof of ownership and facilitate secure transactions within the blockchain network. Understanding these foundational technological principles is essential for analysing how blockchain and cryptocurrency systems may influence entrepreneurial activities, particularly among women entrepreneurs operating within the digital economy.

2. To Analyze the Significance of Digital Financial Technologies in Entrepreneurial Development

The second objective of the study is to analyze the role and significance of digital financial technologies in promoting entrepreneurial development within the digital economy. The rapid advancement of financial technology (FinTech) has transformed traditional business operations by introducing innovative tools that enhance efficiency, accessibility, and transparency in financial transactions.

Digital financial technologies include online payment systems, mobile banking, digital wallets, peer-to-peer lending platforms, crowdfunding mechanisms, blockchain-based smart contracts, and cryptocurrency transactions. These technologies reduce dependency on physical banking infrastructure and minimize transaction costs. For entrepreneurs, particularly small and medium-scale business owners, such systems enable faster payments, improved cash flow management, and easier access to financial services.

The integration of decentralized financial systems allows entrepreneurs to conduct cross-border transactions without the delays and high fees typically associated with conventional banking channels. This is especially relevant in the context of globalized digital markets, where businesses increasingly operate through online platforms.

For women entrepreneurs, digital financial systems may play a crucial role in overcoming traditional financial barriers. Limited access to formal credit institutions, lack of collateral and institutional bias often restrict women's participation in the formal economy. Digital finance platforms may provide alternative funding opportunities and improve financial independence.

Therefore, this objective emphasizes understanding how technological innovation in finance contributes to entrepreneurial growth, operational efficiency, and economic empowerment within the digital economy.

3. To Explore the Potential Opportunities Created by Cryptocurrency and Blockchain Technology for Women Entrepreneurs

This objective aims to examine the emerging opportunities that decentralized financial technologies may create for women entrepreneurs within the digital economy. Blockchain and cryptocurrency systems introduce innovative mechanisms that can transform access to finance, market participation, ownership rights, and supply chain management.

Facilitating Access to Funding

One of the major constraints faced by women entrepreneurs is limited access to formal credit and institutional funding. Traditional financial institutions often require collateral, extensive documentation, and established credit histories, which many women entrepreneurs may not possess. Blockchain technology offers alternative financing models through decentralized finance (DeFi) platforms and token-based fundraising mechanisms such as Initial Coin Offerings (ICOs).

These decentralized systems enable entrepreneurs to raise capital directly from a global network of investors without relying solely on conventional banking institutions. By reducing intermediary control, blockchain-based funding models may help minimize gender bias in credit allocation and democratize access to entrepreneurial finance.

Promoting Transparency and Trust

Trust plays a critical role in business sustainability and consumer engagement. Blockchain's inherent transparency and immutability provide verifiable records of transactions and supply chain activities. Women-led enterprises can leverage blockchain technology to demonstrate product authenticity, ethical sourcing, and compliance with fair trade standards.

Through blockchain-based supply chain management systems, businesses can provide traceable evidence of raw material sourcing and labor practices. This transparency enhances consumer confidence and may attract socially conscious and ethically driven customers, thereby strengthening brand credibility and competitive advantage.

Enhancing Digital Identity and Ownership

Secure digital identity and proof of ownership are essential for entrepreneurial empowerment. Blockchain technology enables the creation of tamper-proof digital identities and immutable records of asset ownership. For women entrepreneurs, particularly in regions where legal recognition of business ownership may be weak, blockchain can provide secure documentation of intellectual property rights, digital assets, and commercial transactions. Such verifiable records enhance legal protection, reduce disputes, and strengthen entrepreneurial legitimacy. Secure digital identity systems also improve access to financial services and digital marketplaces.

Streamlining Payments and Reducing Transaction Costs

Cryptocurrencies and blockchain-based payment systems facilitate faster and more cost-effective transactions compared to traditional banking mechanisms. Women entrepreneurs engaged in e-commerce or cross-border trade can benefit from reduced transaction fees, quicker settlement times, and minimized currency conversion complexities.

Lower operational costs contribute to improved profit margins, particularly for small and medium enterprises operating in developing economies. Additionally, decentralized payment systems reduce dependency on restrictive banking regulations and intermediaries, thereby increasing financial flexibility.

Empowering Women in Supply Chain Management

Blockchain provides enhanced visibility and accountability within supply chains. Women entrepreneurs operating in sectors such as agriculture, fashion, handicrafts, and manufacturing can utilize blockchain to trace products from origin to final consumer. This traceability ensures transparency in production processes, fair labour practices, and environmental sustainability.

By demonstrating responsible sourcing and ethical production standards, women-led enterprises can differentiate themselves in competitive markets and appeal to ethically conscious consumers. Improved supply chain transparency also strengthens operational efficiency and reduces the risk of fraud or mismanagement.

Overall, blockchain and cryptocurrency technologies present multidimensional opportunities that extend beyond financial transactions. They have the potential to enhance funding access, promote transparency, secure ownership rights, streamline payments, and strengthen supply chain governance for women entrepreneurs in the digital economy.

4. To Identify the Challenges and Barriers Faced by Women Entrepreneurs in Adopting Cryptocurrency and Blockchain Technology

This objective aims to examine the structural, socio-economic, and technological barriers that restrict the effective participation of women entrepreneurs in blockchain and cryptocurrency-based ecosystems. Although decentralized financial technologies offer significant opportunities, multiple challenges limit their inclusive adoption.

Gender Diversity and Inclusion Gap

One of the foremost challenges within the blockchain industry is the significant gender imbalance. Similar to other advanced technology sectors, the blockchain ecosystem remains predominantly male-dominated. This imbalance creates structural barriers for women in terms of professional visibility, acceptance, networking opportunities, and leadership representation. Limited inclusion reduces women's influence in decision-making processes and innovation within the sector.

Lack of Female Role Models and Mentorship

The absence of prominent female leaders and role models in the blockchain and cryptocurrency domain further restricts women's participation. Role models play a critical role in motivating aspiring entrepreneurs by providing guidance, mentorship, and professional inspiration. The limited visibility of successful women in blockchain-related ventures may discourage new entrants and reduce confidence among women entrepreneurs seeking to explore decentralized technologies.



Limited Access to Funding

Access to capital remains a persistent challenge for women entrepreneurs across industries, and this disparity is also evident in blockchain-based ventures. Empirical observations suggest that investors often exhibit bias toward male-led startups, resulting in unequal funding distribution. Women-led blockchain projects may therefore encounter greater difficulty in securing venture capital, private equity, or institutional support. This funding gap restricts innovation capacity and business scalability.

Technical Skills Gap

Blockchain technology is inherently technical, involving cryptographic principles, decentralized networks, smart contracts, and digital security mechanisms. The complexity of these systems may create entry barriers for individuals without formal technical training. Women, who historically have been underrepresented in science, technology, engineering, and mathematics (STEM) education, may face additional disadvantages due to limited exposure to advanced technological skills. The technical knowledge gap can hinder adoption and effective utilization of blockchain-based systems.

Work–Life Balance Constraints

Entrepreneurial ventures, particularly in rapidly evolving technology sectors such as blockchain, demand significant time, adaptability, and continuous learning. The intensive and fast-paced nature of startups can create work–life balance challenges. Women entrepreneurs, especially those with caregiving and family responsibilities, may experience increased pressure in balancing professional and personal commitments. Such constraints can limit their active engagement in highly competitive digital markets.

Educational and Awareness Barriers

Another critical barrier is the general lack of awareness and understanding of blockchain technology among the broader population. Educational disparities, particularly in STEM fields, have historically limited women's participation in technology-driven sectors. Insufficient exposure to digital finance education and training programs further reduces confidence in adopting cryptocurrency and blockchain platforms. Without targeted awareness initiatives and inclusive educational frameworks, technological adoption may remain uneven. Overall, these challenges indicate that technological innovation alone is insufficient to ensure inclusive participation. Structural inequalities, educational disparities, funding biases, and socio-cultural constraints must be addressed to enable equitable adoption of cryptocurrency and blockchain technologies among women entrepreneurs.

5. To Suggest Strategic Measures for Enhancing Digital Awareness and Financial Inclusion among Women Entrepreneurs in the Blockchain Ecosystem

This objective aims to propose strategic interventions that can strengthen the participation of women entrepreneurs in blockchain and cryptocurrency-based financial systems. In order to ensure inclusive technological adoption, targeted educational, financial, infrastructural, and regulatory measures are necessary.



Digital Literacy and Education Initiatives

Digital literacy forms the foundation for effective participation in blockchain ecosystems. Training programs should be designed in localized languages and simplified formats to ensure accessibility across diverse socio-economic backgrounds. Rather than focusing solely on complex technical terminology, educational initiatives should emphasize practical applications such as the use of digital wallets, safe transaction practices, cybersecurity awareness, and basic understanding of smart contracts.

Community-based workshops, online modules, and collaboration with educational institutions can enhance awareness and confidence among women entrepreneurs. Practical and context-specific training reduces technological fear and promotes informed adoption.

Enhancing Financial Inclusion through Decentralized Finance

Blockchain-based decentralized finance (DeFi) platforms offer alternative funding mechanisms that can improve access to capital. Tailored DeFi solutions designed specifically for women entrepreneurs may provide microloans with lower collateral requirements and faster approval processes compared to traditional banking institutions.

By leveraging transparent and automated smart contract systems, decentralized lending platforms can minimize bureaucratic barriers and promote equitable credit access. Such initiatives can significantly contribute to financial independence and business expansion among women-led enterprises.

Tailored Infrastructure and Technology Development

Technological infrastructure must be designed with inclusivity in mind. Mobile-first decentralized applications (DApps) optimized for low-bandwidth environments are particularly essential for women entrepreneurs operating in rural or underdeveloped regions. Since smartphones are often more accessible than desktop systems, mobile-optimized platforms enhance usability and reach.

Developing user-friendly interfaces, multilingual options, and simplified transaction processes can further reduce entry barriers and increase adoption rates in resource-constrained settings.

Networking and Mentorship through Women-Focused Platforms

Supportive professional networks are critical for entrepreneurial success. The establishment of women-focused decentralized autonomous organizations (DAOs) can facilitate collective funding, peer mentorship, and collaborative innovation. Such digital communities can provide a platform for knowledge sharing, skill development, and mutual support.

By fostering inclusive digital networks, women entrepreneurs can build social capital, access global partnerships, and strengthen their presence within blockchain ecosystems.

Regulatory and Policy Support Mechanisms

Effective policy frameworks are essential to ensure inclusive participation in emerging financial technologies. Policymakers should develop gender-sensitive regulations that



encourage women's involvement in blockchain-based entrepreneurship. Simplified Know Your Customer (KYC) procedures for women-led micro, small, and medium enterprises (MSMEs) can reduce administrative barriers and improve formal financial access.

Additionally, governments and regulatory bodies may introduce incentives, grants, and innovation support schemes specifically targeting women entrepreneurs in the fintech and blockchain sectors. Clear regulatory guidelines also reduce uncertainty and enhance investor confidence.

Overall, the successful integration of women entrepreneurs into blockchain ecosystems requires coordinated efforts across education, finance, technology design, community networks, and regulatory policy. Strategic interventions can transform decentralized technologies into inclusive tools for economic empowerment.

Findings

1. The study identifies that cryptocurrency and blockchain technology function within a highly digitalized financial environment, which enables women entrepreneurs to manage their business transactions more efficiently. The digital nature of these systems allows easier operation, particularly for those engaged in online and technology-based enterprises.
2. It is observed that the use of blockchain-based transactions reduces time consumption and minimizes manual effort. Faster payment processing and automated verification systems improve operational efficiency for women-led businesses.
3. The study further finds that blockchain technology offers enhanced security features. Due to its encrypted and decentralized structure, it reduces the risk of fraud, unauthorized access, and financial theft. This secure framework helps protect the financial assets of women entrepreneurs.
4. Another important finding is that cryptocurrency and decentralized finance platforms may provide easier access to loans or alternative funding sources. Compared to traditional banking systems, these digital financial tools may reduce procedural complexities and improve financial accessibility.
5. However, the study also reveals that many women entrepreneurs lack adequate awareness and understanding of cryptocurrency and blockchain technology. Limited knowledge and digital literacy create difficulties in adoption and effective utilization. This lack of awareness acts as a significant barrier to accessing the potential benefits of decentralized financial systems.

Suggestions

Based on the findings of the study, the following recommendations are proposed to enhance the participation of women entrepreneurs in cryptocurrency and blockchain ecosystems.

1. The government should initiate structured awareness programs to educate women entrepreneurs about cryptocurrency and blockchain technology. Information campaigns may be conducted through television advertisements, print media, digital platforms, and community outreach programs. Such initiatives can improve understanding and reduce misconceptions regarding digital financial systems.



2. Financial assistance schemes should be introduced or strengthened to support women entrepreneurs in starting and expanding their businesses. Government-backed funding programs, subsidies, and low-interest loan facilities can encourage women to adopt innovative financial technologies without excessive financial risk.
3. Entrepreneurship Development Programs (EDPs) specifically designed for women entrepreneurs should be organized regularly. These programs can provide training in business management, digital finance, risk management, and the practical use of blockchain-based tools. Structured training enhances confidence and improves decision-making capabilities.
4. The government and educational institutions should create opportunities for women entrepreneurs to access technical education related to cryptocurrency and blockchain. Introducing short-term certification courses, workshops, and skill development initiatives can help bridge the technical knowledge gap and promote effective utilization of decentralized financial technologies.

Overall, coordinated efforts in awareness creation, financial support, entrepreneurial training, and technical education are essential to ensure inclusive participation of women entrepreneurs in the digital economy.

Conclusion

Cryptocurrency and blockchain technology play a vital role in the expansion of the digital economy. These innovations are transforming traditional business transactions into secure and efficient digital systems. For women entrepreneurs, such technologies reduce dependency on physical banking procedures and enable faster, more convenient financial operations.

Blockchain offers enhanced security through its decentralized and encrypted structure, protecting digital transactions from fraud and unauthorized access. Despite these advantages, adoption remains limited due to lack of awareness, illiteracy, and technical knowledge gaps.

Although several challenges exist, appropriate government support, structured awareness programs, and educational initiatives can significantly improve accessibility. With proper guidance and institutional support, women entrepreneurs can effectively utilize cryptocurrency and blockchain technology. In the long run, these digital financial innovations have the potential to empower women-led enterprises and strengthen their role in the evolving digital economy.

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