

Digital Assets and Crypto-currencies in Ghana: Opportunities, Challenges and the Way Forward

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Abstract: Digital assets, a broad term encompassing crypto-currencies, tokens and digital representations of value, have transformed the financial landscape over the past decade. Ghana has transitioned from an unregulated crypto-currency environment to a structured, licensed digital assets space following the passage of the Virtual Asset Service Providers (VASP) Act 2025 Act 1154. Unlike traditional assets, digital assets exist exclusively in electronic form and are secured through cryptographic techniques, most notably blockchain technology. Bitcoin, Ethereum, and other crypto-currencies serve as prominent examples, alongside digital tokens used in decentralized finance (DeFi), security tokens, and stablecoins. They may serve a variety of functions, including use as a medium of exchange, for investment, or as a means of accessing goods, services, or applications within specific ecosystems. These assets include crypto-currencies, tokens, stablecoins, and other blockchain-based instruments. Global digital assets represent any item of value securely stored and managed via distributed ledger or blockchain technology. Encompassing cryptocurrencies, stablecoins, tokenized securities, and non-fungible tokens (NFTs), the sector has rapidly expanded into mainstream finance, revolutionizing global payments, portfolio diversification, and record-keeping. This article discusses the challenges and opportunities of digital currencies and the way forward. This research shows that digital currencies have advantages like making transactions faster, cheaper, and more accessible and also reveals a lot of disadvantages like creating major risks concerning compliance with regulations, cybersecurity, and potential impacts on monetary policy. The review emphasizes the necessity for robust regulatory frameworks for digital assets. It supports both innovation and stability for the digital currencies. It suggests that policymakers and financial institutions should adapt to changes and face the challenges by integrating digital currencies with existing systems. Overall, this review highlights the potential of digital currencies to transform finance. It also stresses the importance of focusing on the challenges they pose to ensure they can coexist successfully with traditional financial systems. As digital currencies evolve, the Ghanaian traditional financial sector faces pressure to adapt, with CBDCs, in particular, being explored as a secure, regulated alternative to volatile crypto-assets. The findings revealed that the central bank must adopt robust regulatory and licensing frameworks must align with Virtual Assets Service Providers (VASP) (Act 2025 Act 1154) by enforcing strict licensing for exchanges and custodians while adhering to AML/CFT (Anti-Money Laundering) directives. Also, the Bank of Ghana and the Securities and Exchange Commission must develop a comprehensive public education programme on the digital assets in the financial ecosystem. Given the novelty of the trend of criminality in the digital asset space, the establishment of specialized cybercrime courts to be presided over by judges, proficient in digital law and cybercrime would be of immense benefit. The mandate of such courts could be to expedite trials and ensure thorough adjudication of complex cyber cases. This would have the combined effect of empowering the Ghana Police Service and Cyber-Security Authority to fully invest time, money, and human resources towards the investigation of cybercrime, as well as serve as a deterrent for criminal elements, ultimately protecting our citizens and providing justice for those seeking redress.

Keywords: Digital Assets, Crypto-currencies, CBDCs, Blockchain. Bank of Ghana, Securities and Exchange Commission, Ghana.

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I. INTRODUCTION/ BACKGROUND

The last decade has seen a phenomenal rise in the number of new digital instruments promising easier, faster, and cheaper global payments and transfers. These digital representations of value and contractual rights comprise a

broad (and expanding) category of assets. Common marketplace terms referencing such new products include cryptocurrencies, digital currencies, crypto assets, virtual assets, all describing systems of storing/capturing value and rights in digital form. Digital assets, a broad term encompassing crypto-currencies, tokens and digital

representations of value, have transformed the financial landscape over the past decade. Unlike traditional assets, digital assets exist exclusively in electronic form and are secured through cryptographic techniques, most notably blockchain technology. Bitcoin, Ethereum, and other cryptocurrencies serve as prominent examples, alongside digital tokens used in decentralized finance (DeFi), security tokens, and stablecoins. The rise of digital assets has introduced a novel way to store, transfer, and invest wealth, offering distinct advantages over traditional financial systems. These assets operate on decentralized networks, enabling peer-to-peer transactions without the need for intermediaries such as banks. As a result, digital assets offer faster transaction speeds, reduced fees and global accessibility, making them particularly attractive in regions with underdeveloped banking infrastructure. Furthermore, the programmable nature of digital assets through smart contracts allows for complex financial transactions to be automated and executed efficiently. Digital assets are referred to any form of electronically stored or encoded content with intrinsic value. They encompass a wide range of assets such as virtual assets (e.g., Bitcoin), tokenized assets representing real-world items, digital documents, and multimedia files.

Virtual assets are not considered legal tender in most jurisdictions, but they are used for a range of activities, including transactions and investments. They may serve a variety of functions, including use as a medium of exchange, for investment, or as a means of accessing goods, services, or applications within specific ecosystems. These assets include crypto-currencies, tokens, stablecoins, and other blockchain-based instruments. A virtual asset is a digital representation of an item that has value in a specific environment. This medium of exchange or property can be digitally traded, transferred or used for payment or investment purposes. Virtual assets tend to create the impression that people have the ability to be their 'own bank' and manage their own wealth, thus eliminating third parties. With high financial instability in various African countries, the introduction of the digital assets market is gradually onboarding young people who are eager to build wealth. Virtual assets and digital assets are sometimes used interchangeably, but digital assets are a much broader category that includes virtual assets and other types of assets. All virtual assets are digital assets, but not all digital assets are virtual assets. For example, a digital bank record that represents an individual's ownership of fiat currency is not considered a virtual asset because it's only a declarative record of ownership. The record itself can't be digitally traded for another asset. However, if a digital asset can be exchanged for another asset such as stablecoin, it might qualify as a virtual asset. They may serve a variety of functions, including use as a medium of exchange, for investment, or as a means of accessing goods, services, or applications within specific ecosystems. These assets include crypto-currencies, tokens, stablecoins, and other blockchain-based instruments.

The 2008-2009 global financial crisis revealed problems in traditional banking systems. Traditional banking has Issues like centralization, lack of transparency, and heavy reliance on middlemen led many people to look for new ways for

banking. In 2009, Satoshi Nakamoto in his original design was outlined in October 2008 in the paper titled *"Bitcoin: A Peer-to-Peer Electronic Cash System,"* It allowed people to send money directly without banks. This new technology that can send money directly is called block-chain. It keeps a secure and public record of transactions. The combination of new technology and experiences from past mistakes created a new space for digital currencies to grow. Since Bitcoin was created, digital currencies have changed a lot. Blockchain technology now allows for secure and permanent records of transactions. At first, Bitcoin used a method called proof-of-work (PoW) to confirm transactions, but people find out new methods like proof-of-stake (PoS) can make the process more efficient than proof-of-work (Smales,2020). Other cryptocurrencies, known as altcoins, and smart contracts on platforms like Ethereum have further expanded what digital currencies can do. Governments are also getting involved with the CBDCs, also called Central Bank Digital Currencies. It showed that interest in digital money is growing for different countries. Digital currencies focus on fixing problems in traditional finance, like high costs and slow speeds in cross-border payments. Traditional systems often rely on many middlemen. It makes transactions slower. Digital currencies have the chance and possibility to make these processes faster and cheaper (Xu, Hecheng (2024)

Digital assets, a broad term encompassing cryptocurrencies, tokens and digital representations of value, have transformed the financial landscape over the past decade. Unlike traditional assets, digital assets exist exclusively in electronic form and are secured through cryptographic techniques, most notably blockchain technology. Bitcoin, Ethereum, and other crypto-currencies serve as prominent examples, alongside digital tokens used in decentralized finance (DeFi), security tokens, and stablecoins. The rise of digital assets has introduced a novel way to store, transfer, and invest wealth, offering distinct advantages over traditional financial systems. These assets operate on decentralized networks, enabling peer-to-peer transactions without the need for intermediaries such as banks. As a result, digital assets offer faster transaction speeds, reduced fees and global accessibility, making them particularly attractive in regions with underdeveloped banking infrastructure. Furthermore, the programmable nature of digital assets through smart contracts allows for complex financial transactions to be automated and executed efficiently. Digital assets offer new avenues for diversification in investment strategies, especially as traditional public market mainstream asset classes face increased volatility and diminishing returns. The digital assets, whether through crypto-currencies, tokenized securities, or even tokenized real-world assets, provide opportunities for wealth managers and institutional investors to hedge against risks in more conventional portfolios. Digital assets are not simply an alternative to equities or bonds but a new dimension of portfolio management.

As more institutions explore these options, they saw the potential for greater customization and portfolio resilience. Digital assets have launched a real revolution, bringing about the necessary changes in payments and banking services.

Traditional banking actors and technology firms are taking a serious interest in these assets and want to embrace this movement to stay caught up. In the current developments in the broad spectrum of digital currencies, particularly CBDCs, the aims to provide a global overview from different perspectives: the central bank and the regulators, the financial companies, and the citizens. Issues like competition in the banking sector with the possibility of disintermediation and the monetary policy options that the central banks explore by the valuation of their CBDCs through a policy rate different from cash, along with strategic technology decisions to be taken related to the infrastructure architecture and implementation and information privacy are only some of the challenges that the current pilot programs run by various countries are trying to address. Central Bank Digital Currencies (CBDCs) have emerged as a potential solution to a wide range of economic and financial problems. To many, CBDCs are a leapfrogging opportunity to close the gap in financial access, revolutionize payment systems for businesses and consumers, and more broadly for innovating financial products and services to allow for more efficient service provision. Numerous central banks around the world have started to explore the possibility of CBDCs for retail and wholesale uses. While no major economy has fully introduced a CBDC, some countries have begun pilot programs. The Bank for International Settlements defines a CBDC as “a form of digital money, denominated in the national unit of account, which is a direct liability of the central bank” (Bank for International Settlements BIS, 2020).² A CBDC can be designed for *retail* (i.e., general purpose) use, which would function as a digital banknote for use throughout a population, or for *wholesale* use, which would be made available to eligible financial institutions only “for use in wholesale payment and settlement systems” CBDCs have now become a focus of global attention, with the Atlantic Council Report (2023) reporting that 130 countries—together representing 98 percent of global GDP—are investigating their own form of CBDC. While some countries, such as the United States, are still in the exploratory stage, others such as Australia are conducting or have completed pilots (Atlantic Council Report, 2023). Meanwhile, China has already conducted 1.8 trillion yuan (\$249.9 billion) worth of CBDC transactions in its trial (Wee, 2023), and others including Nigeria and the Bahamas have officially launched CBDCs—so far with mixed results (Atlantic Council Report, 2023). Digital currencies are likely to change the financial landscape by their wide use. Digital currencies have different outcomes depending on various factors. Important factors like regulations, technological advancements, and public attitudes can play an important role in digital currencies.

The digital asset landscape in Ghana is evolving, with increasing interest and adoption of crypto assets and blockchain technology, supported by a growing number of exchanges and initiatives in the country's financial ecosystem. This trend has been driven by factors such as high mobile money penetration, tech savvy and youthful population, high internet usage among Ghanaians and the influence of online regional and global companies offering crypto or virtual asset services, particularly the VASP.

Crypto-currency adoption in Ghana has surged to an estimated \$3 billion in annual transactions, with citizens leveraging digital assets for remittances, savings, and international business transactions. However, the sector operates in a strict regulatory environment; the Bank of Ghana maintains that crypto is not legal tender and has mandated banks to cut ties with unauthorized foreign currency platforms. With Ghana being an import-dependent economy, digital assets provide a faster, cheaper alternative to slow SWIFT transfers for sourcing goods from China, Dubai, and Europe. High inflation and the depreciation of the Ghana Cedi drive tech-savvy individuals and businesses to stablecoins like USDT and USDC as a store of value. Digital wallets and decentralized networks bypass traditional banking bottlenecks, allowing Ghanaian unbanked populations to participate in the global digital economy. Ghana's proactive testing of 11 crypto platforms in a regulatory sandbox has opened doors for innovative products, including gold-backed digital tokens. Ghana has transitioned from an unregulated crypto-currency environment to a structured, licensed digital assets space following the passage of the Virtual Asset Service Providers (VASP) Act 2025 Act 1154. The governments, Bank of Ghana and Securities Exchange Commission must create clear rules that solve issues like price swings and security, digital currencies could be more widely accepted and used by the Ghanaian population. As more and more people and businesses become comfortable with blockchain technology and its benefits. They also know the disadvantages for digital currencies may grow. That may lead to better integration with traditional financial systems. However, they present significant challenges, such as regulatory uncertainty, cybersecurity risks, high price volatility, and potential disruption. Bank of Ghana adopting digital currencies (crypto and CBDCs) offer developing economies enhanced financial inclusion, faster cross-border payments, and lower transaction costs, acting as a transformative tool for, and disruption to, traditional banking. Digital assets and VAs are emerging as a new asset class in Ghana, offering both opportunities and challenges due to their high volatility, decentralization and technological underpinnings. Investment firms and asset managers are diversifying their portfolios, but this requires robust risk management strategies and regulatory oversight. The Government, Ministry of Finance, Bank of Ghana and Securities Exchange Commission should make new policies to adjust the growth of digital currencies. This might include developing CBDCs to provide a regulated digital option. It can directly point out the risks associated with crypto-currencies like Bitcoin. By issuing CBCs, Bank of Ghana can maintain control over monetary policy while offering a stable way to exchange value. Governments need to update tax policies and regulations regarding digital assets with the growth of digital currencies. And government also needs to help ensure compliance and encourage innovation under a stable financial environment. The rise of digital currencies could greatly influence the way international trade and capital flows operate. People could enable faster and cheaper cross-border transactions because digital currencies become more common [Jalan et al, 2021]. And reducing the need for current financial intermediaries. This could improve financial inclusion, especially for people who do not have bank

accounts in traditional finance systems and support a more decentralized global economy. However, this change may also challenge established currencies, particularly the U.S. dollar, as countries look for digital options for international trade. The result of digital currencies influences is likely to evolve into a more integrated landscape. Financial institutions could work together by adopting hybrid models that combine the advantages of both traditional and digital systems by finding new ways. For example, traditional banks might offer services that include digital currencies. It makes it easier for people to conduct transactions between regular money and digital assets. This integration could lead to improving greater efficiency, lower costs, and better access to financial services for a wider range of people of the global population. Ultimately, the future of digital currencies depends on balancing innovation with regulation [Corbet, et al,2018]. While the potential benefits are substantial. People still need to ensure stability and security will be key for their ongoing use and integration into the global financial system. As stakeholders deal with these challenges, ongoing research and adaptation will be vital to take advantage of the opportunities that digital currencies offer while minimizing their risks (Xu, Hecheng ,2024), while posing significant challenges regarding regulatory uncertainty, cybersecurity risks, and potential disruption to monetary policy While CBDCs may improve payment efficiency, they also risk disintermediating banks and raising surveillance concerns

Digital assets (DAs) such as cryptocurrencies, tokenized securities, stablecoins, non-fungible tokens (NFTs), and central bank digital currencies, will be transforming Ghanaian financial market with new business models, investment opportunities, and transaction efficiencies. Underpinned by blockchain, distributed ledger technology, and smart contracts, digital innovations are reshaping the financial ecosystem. However, their rapid growth introduces substantial risks, including fraud, market manipulation, cybersecurity threats, and regulatory uncertainty.

II. LITERATURE REVIEW

The global adoption of digital assets is transforming financial landscapes by introducing innovative forms of transactions and investments. Bordo and Levin (2017) defined digital currency as an asset stored in electronic form that can essentially serve the same function as paper money, which mainly facilitates payment transactions. CBDC is generally conceptualized as an electronic, fiat liability of the central bank of a country and can be used as a store of value or a medium to settle payments (Dyson et al 2021). CBDCs could be a highly effective form of money and also stimulate price stability since the real value of these currencies can be easily held stable over a long period. While CBDCs are digital currencies like crypto-currency, the latter is unregulated by any state/central bank. The global proliferation of DAs in financial ecosystems has garnered significant attention from scholars, regulators, and market participants (Kuznetsov et al. 2020). These novel instruments pose unique opportunities and challenges, requiring a comprehensive understanding of their implications for financial stability and regulatory oversight. Digital assets

such as crypto-currencies, stablecoins, and various forms of tokenized assets are becoming increasingly integrated into the mainstream financial ecosystem. This shift is driven by the appeal of blockchain technology, which offers decentralized, transparent, and secure transactions (Hecheng Xu (2024). As consumer interest grows, financial institutions, tech companies, and governments are exploring and developing frameworks to incorporate these assets safely and effectively. The rise of digital wallets and crypto-exchanges has made access to digital assets more user-friendly, encouraging broader participation. With the new invention of technology, digital currencies take a more and more important role in the global financial system. Digital currencies have a lot of advantages in technology like making transactions faster and safer. Block-chain technology is the base stone of most of the digital currencies, which records transactions across a network of computers. Each block in the block-chain holds information about transactions and the connection between blocks is secure. This method creates a reliable record of all transactions. Cryptography has functions like protecting user identities and secure data, making digital currencies both innovative and safe. Cryptography plays an important role in digital currencies. Central bank digital currencies (CBDCs) are a digital form of a country's fiat money. Thus, the central bank will issue electronic tokens whose value is backed by the credit of the government. Like paper or coin money, the supply of CBDC will be wholly determined and regulated by the central bank (Duho -et -al, 2022). There are observed differences between crypto-currencies and CBDCs. Crypto-currencies, like Bitcoin and Ethereum, always work on public blockchains. Crypto-currencies allow transactions to be verified in a decentralized way. They focus on decentralization, transparency, and user privacy. On the other hand, CBDCs are digital versions from national currencies issued by central banks. They usually operate on private blockchains, where only authorized entities can validate transactions. While crypto-currencies focus on operating independently of traditional finance, Central Bank Digital Currencies (CBDCs) focus on improving existing systems under the current financial system that people have. The development of digital currencies has already reached several important milestones [Ghosh et al, 2020].

Bitcoin's innovation in 2009 provided a new way to transfer value without banks. The introduction of Ethereum in 2015 brought programmable smart contracts. It allows for the creation of decentralized applications (dApps) and decentralized finance (DeFi). Stablecoins, like Tether and USD Coin, emerged as fewer volatile crypto-currencies linked to traditional currencies. CBDCs have gained attention with countries like China currently exploring digital versions of their currencies. The digital currency market has grown quickly over the last decade. By 2021, Bitcoin's market value will be more than \$1 trillion. It is fueled by interest from institutional investors. The overall crypto-currency market peaked at over \$3 trillion. Although crypto-currencies can be unpredictable. The active exploration of CBDCs by central banks of different countries shows their potential to change the financial landscape [Zhang, T., & Huang, Z. (2022). The increasing use of digital assets in cross-border payments, investment portfolios, and as a hedge against inflation

signifies their growing influence and potential to redefine global economic interactions (Gomber et al., 2018; Corbet et al., 2019; Richards, 2021; Voskoboynikov, 2021). In Thailand, digital asset adoption has seen significant growth, driven by a combination of regulatory progress, technological advancements, and shifting consumer preferences. The Thai government has proactively developed a legal framework to regulate and facilitate the safe use of digital assets, including cryptocurrencies and blockchain technologies. This regulatory clarity has attracted both local and international investors, fostering a vibrant ecosystem of startups and established companies focused on digital asset trading, payments, and decentralized finance. The Bank of Thailand's exploration into a Central Bank Digital Currency (CBDC) also reflects the country's commitment to integrating digital assets into its financial system. As digital literacy improves and the infrastructure for digital payments expands, the adoption of digital assets in Thailand is poised to play a vital role in the country's financial inclusion and economic innovation efforts (Ariya, 2023; Intelligence Team, 2023a; Intelligence Team, 2023b). Demographic factors are crucial in understanding personal characteristics and are extensively used in marketing for consumer segmentation. Key demographic variables — gender, age, education, marital status, and income — each uniquely influence consumer behavior. Gender affects communication styles, product preferences, and decision-making processes, with men and women responding differently to marketing messages. Age influences needs and consumption patterns, with younger consumers prioritizing technology and fashion, while older demographics focus on healthcare and retirement planning. Education shapes knowledge bases and preferences, often correlating with higher levels of critical thinking and brand loyalty. Marital status identifies primary household decision-makers, affecting purchasing decisions and product choices. Income levels dictate purchasing power, with higher-income consumers favoring premium brands and lower-income groups seeking cost-effective options. Combined with lifestyle and cultural influences, these demographic factors enable businesses to tailor marketing strategies effectively to meet the diverse needs of their target audiences, enhancing customer satisfaction and loyalty (Hadi & Aslam, 2023; Kraiwanit et al., 2023; Lee & Bae, 2023). In this study, demographic factors were employed to analyze digital asset adoption in Thailand. Key demographic variables were examined to understand their influence on the adoption rates of digital assets. By analyzing these variables, the study aimed to uncover patterns and trends that could provide valuable insights for stakeholders. This approach is intended to enhance digital financial literacy and promote broader adoption of digital assets among diverse population segments in Thailand. Digital asset risk encompasses volatility, regulatory uncertainty, security vulnerabilities, liquidity issues, and technological challenges. These risks can lead to significant financial losses and impact investor confidence (Field & Inci, 2023; Muradyan, 2023). On the other hand, digital asset knowledge includes understanding blockchain. Suwannasichon (2023) investigates the advantages and disadvantages associated with digital assets, focusing on the legal frameworks and patterns that shape this sector. The rapid advancement of technology, particularly blockchain,

has presented opportunities for investors, offering new avenues for financial gain. However, this swift technological evolution has also outpaced the development of corresponding legal frameworks, leading to regulatory gaps. Investing in digital assets remains inherently risky due to their volatility, which can result in significant financial losses. Technology, differentiating between various digital assets, recognizing investment strategies, staying informed about regulations, and employing security best practices. Wu et al. (2022) examine the key factors that affect individuals' intentions to adopt digital currency in China. Their study indicates that financial knowledge, perceived value, openness to innovation, and perceived convenience all positively influence the intention to use digital currency. Additionally, perceived value is significantly impacted by perceived monetary value, perceived functional value, and perceived emotional value. Chanchaoenrit (2023) conducted a qualitative investigation to explore the impediments and challenges affecting the decision-making process of investors in adopting digital asset trading accounts in Thailand, and to delineate the drivers behind these decisions across various digital asset trading platforms. The results of the study underscore that effective promotional strategies for operators of digital asset trading centers in Thailand are contingent upon a comprehensive understanding. By advancing both theoretical understanding and offering robust empirical evidence, this study significantly enriches the growing body of literature on digital asset adoption. It provides valuable insights for policymakers, financial institutions, and educators aiming to promote the responsible adoption of digital assets in emerging markets and beyond and rigorous compliance with regulatory and legal frameworks, profound comprehension of the market, and the mechanisms that facilitate investment upon achieving business objectives, and heightened self-awareness among entrepreneurs regarding their motivations for investment, objectives, targeted assets, and readiness to handle the associated risks. The rise of digital currencies could greatly influence the way international trade and capital flows operate. People could enable faster and cheaper cross-border transactions because digital currencies become more common (Jalan, et al. (2021)). El Salvador's choice to make Bitcoin a legal currency provides a unique example of how a country is integrating digital currency into its traditional currency. The government supported this move to increase financial inclusion and stimulate economic growth, especially for people without bank accounts on traditional finance systems. However, the implementation still faces a lot of challenges, such as public doubt, lack of infrastructure, and regulatory issues (Badea, L., & Mungiu-Pupăzan, M. C. (2021)).

Aurazo and Franco (2024) provide empirical results suggesting that Fast Payment Systems positively correlate with financial inclusion. Fast payment systems (FPSs) are instant, 24/7 electronic payment infrastructures. They positively correlate with financial inclusion because they drastically reduce transaction costs, enable immediate access to funds, and allow the unbanked to participate in formal digital economies through simple mobile networks. High-cost traditional banking creates involuntary financial exclusion. FPSs bypass this by offering affordable, paperless

infrastructure that works on basic mobile devices rather than requiring physical branch access. E-money provides the benefit that users may not require a bank account and could offer a more accessible entry point to the broader financial system. By giving instant availability of funds and thus mimicking cash more closely, underbanked individuals could gain additional incentives to become banked. Similarly, Huang and others (2024) indicate that e-money promotes financial inclusion by removing the requirement for traditional bank accounts, acting as an entry-level gateway for underbanked populations. Their research further suggests that e-money lowers entry barriers, boosts financial intermediation, and improves market efficiency by reducing spreads between bank lending and deposit rates. Technology is a barrier for those who may lack the familiarity, confidence, or digital literacy to engage with digital financial services, and distrust of the financial system is a barrier in some jurisdictions (Demirgüç-Kunt and others 2022).

III. THE OVERVIEW OF GHANA'S DIGITAL ASSETS LANDSCAPE

The digital asset landscape in Ghana has been evolving, with increasing interest and adoption of crypto assets and blockchain technology, supported by a growing number of exchanges and initiatives in the country's financial ecosystem. This trend has been driven by factors such as high mobile money penetration, tech savvy and youthful population, high internet usage among Ghanaians and the influence of online regional and global companies offering crypto or virtual asset services, particularly the VASPs. The digital assets ecosystem in Ghana is primarily controlled by entities facilitating the buying, selling, and trading of virtual assets. These platforms provide liquidity and access to cryptocurrencies with stablecoins and Bitcoin being the most widely recognized and utilized. In Ghana, the thriving mobile money industry has paved the way for crypto adoption. The mobile money sector has seen tremendous usage in recent years, with a 2.2 billion GHS transaction volume as of the first quarter of 2025, demonstrating a surge in user comfort with digital payment systems. Early crypto users and adopters primarily turned to Bitcoin for online trading, remittances and investment through peer-to-peer (P2P) informal platforms.

The growing footprint of VAs and VASPs in Ghana's financial sector had earlier raised concerns regarding consumer protection, market integrity, anti-money laundering and financial crime prevention, as well as overall financial stability. In response to these, the Bank issued public statements on virtual assets in 2018 and 2022 to caution the financial institutions and the public that virtual assets are not legal tender and are not regulated under the Payment Systems Act, 2019 (Act 987). Similarly, in 2019, SEC cautioned the public against investing in or trading virtual assets, emphasising that such instruments fall outside the Commission's regulatory mandate. According to Bank of Ghana's May (2026) economic and financial data on Ghana's mobile money sector scaled to unprecedented heights, with monthly transaction values frequently surpassing the GH¢400 billion mark. For context, transactions in February 2026 alone hit GH¢447.4 billion, while April 2026 recorded

GH¢493.2 billion across roughly 967 million transactions. Ghana leads not only the West African sub-region but ranks globally for mobile money regulation, scoring 96.1% on the GSMA Mobile Money Regulatory Index. With recent regulatory certainty of the enactment of Virtual Asset Service Providers Act 2025 Act 1154 young Ghanaians could actively traded on platforms such as Binance, and international crypto businesses and exchanges increasingly view Ghana as a growth market. Over the past five (5) years, the use of various digital assets by Ghanaians has recorded a significant increase on account of factors such as high mobile money penetration, a tech savvy youth demographic, high internet usage and the rise of online companies offering crypto and virtual asset services, popularly known as Virtual Asset Service Providers (VASPs) (Bank of Ghana, 2024). Ghana has transitioned from an unregulated crypto-currency environment to a structured, licensed digital assets space following the passage of the Virtual Asset Service Providers (VASP) Act 2025 Act 1154. The digital asset landscape in Ghana is evolving, with increasing interest and adoption of crypto assets and blockchain technology, supported by a growing number of exchanges and initiatives in the country's financial ecosystem. This trend has been driven by factors such as high mobile money penetration, tech savvy and youthful population, high internet usage among Ghanaians and the influence of online regional and global companies offering crypto or virtual asset services, particularly the VASPs. According to Bank of Ghana report (2024) the digital assets ecosystem in Ghana is primarily controlled by entities facilitating the buying, selling, and trading of virtual assets. These platforms provide liquidity and access to cryptocurrencies with stablecoins and Bitcoin being the most widely recognized and utilized. Additionally, Ether (on the Ethereum network) and various alternative crypto assets (altcoins) also hold significant prevalence within the market. Although these transactions have relatively insignificant volumes compared to the broader digital payments, the dynamic growth of digital asset calls for regulatory clarity to ensure adequate financial stability and consumer protection. Furthermore, some Ghanaian startups and organizations are exploring blockchain technology for solutions in sectors like agriculture, healthcare, and financial services. Such initiatives have been acclaimed to hold great potential at improving transparency, efficiency, and security in various industries. In this context, the Bank of Ghana intended to develop a Central Bank Digital Currency (CBDC) E-Cedi to facilitate financial inclusion, foster a cash-lite economy, enhance operational efficiency, and provide a safe alternative to privately issued digital currencies. CBDCs, like the E-Cedi, utilize blockchain to ensure all transactions are permanently recorded, providing an unchangeable and traceable transaction history. Unlike fiat currencies, digital currencies exist exclusively in electronic form and never take a physical form. Digital assets—especially offline-capable iterations like the e-Cedi—lower barriers to entry, providing unbanked and rural populations in regions like Upper East Region with access to secure, digital financial services. For the E-Cedi to be universally acceptable by all users, it should be safe and robust. The E-cesi should potentially include a more efficient payments system and financial inclusion. Notably, it should augment putative benefits and improve and facilitate cross-border transactions.

The functionalities should be apt to support multiple and heterogeneous uses. The E-Cedi should include key features that make it suitable and attractive, adequately to drive adoption. To improve user convenience by making offline and peer-to-peer payments possible, security features and centralized controls should be safeguarded and implemented on all distribution systems to counter the risk of fraud. The E-Cedi will be regulated by the central bank, which would lead to less volatility, unlike crypto-currencies which are susceptible to high inflation, uncertainties and high loss of future values. Since the E-Cedi will be supplied by the Bank of Ghana, the Central bank will regulate it and thus when there are market fluctuations, the central bank will intervene and provide a lasting solution to the market instability (Duho et-al, 2022).

According to the Financial Intelligence Center (2024) opined that the emergence and rapid evolution in Ghana of Virtual Assets (VAs) and Virtual Asset Service Providers (VASPs) have presented both opportunities and complex challenges in the fight against money laundering, terrorist financing, and proliferation financing. Ghana is witnessing rapid economic development, underpinned by a resilient financial system comprising banks, non-bank institutions, and an expanding fintech industry. Digital financial services, like mobile money, are becoming more accessible with the Bank of Ghana (BoG) reporting a significant GH¢1.07 trillion in mobile money transactions in 2022. Ghana's economy, with high inflation and exchange rate volatilities provides a fertile ground for some Ghanaians to adopt cryptocurrencies like Ethereum, Bitcoin, USD Coin (USDC) and Tether USD (USDT) to protect their finances from the declining value of the Ghana Cedis and low returns from traditional bank savings. Additionally, VAs/VASPs provide convenience for easy movement of funds as well as low transaction cost associated as compared to the traditional banking system. The September 2023 Chainalysis Global Crypto Adoption Index ranked Ghana 29th for cryptocurrency adoption and 4th for peer-to-peer (P2P) exchange trade volume worldwide. A recent report by CoinGecko placed Ghana as the 4th highest country in Africa for crypto interest following Nigeria, South Africa and Morocco. These reports indicate a growing interest in crypto in Ghana, establishing it as a leading country for crypto adoption in Africa. In recent years, some crypto-currency platforms have gained significant popularity among Ghanaians, including Binance, Paxful, YellowCard, and LocalBitcoins (before its closure). The LocalBitcoins' global closure was attributed to the prolonged "crypto winter," a term used to describe a significant downturn in crypto-currency markets. Binance is the top choice for peer-to-peer trading which is the primary method used by Ghanaians offering payment options like mobile money and bank transfers

Before Binance's rise in the P2P market, Paxful was a key player in cryptocurrency trading and remains popular among peer-to-peer traders. Like Binance, Paxful offers diverse payment options, including PayPal and gift cards, catering for a different segment of the trading community. Yellowcard has also gained traction as a platform for buying and selling crypto-currencies in Ghana. Mazzuma, a

Ghanaian Web3 startup focusing on Artificial Intelligence (AI) and blockchain, recently secured Cloud funding and launched Mazzuma GPT as the platform expedites smart contract creation such as Ethereum transaction contracts for developers (Financial Intelligence Center, 2024). Stablecoins provide a reliable, dollar-pegged alternative for Ghanaians to store value and transfer funds, reducing exposure to cedi volatility. Digital assets could be used as hedging strategy in Ghana: In previous years (notably 2022 when inflation peaked at 54.1%), Ghanaians aggressively adopted digital assets like Bitcoin, Ethereum, and stablecoins (USDC, USDT) to preserve wealth against a rapidly devaluing cedi. In 2026, the incentive for "panic-buying" digital assets has diminished due to the cedi's relative stability and the sharp decline in inflation. High inflation and rapid depreciation of the Ghanaian cedi (GHS) against major currencies like the USD (which reached over 17 GHS in 2023) are driving increased adoption of digital assets in Ghana. Cryptocurrencies, particularly stablecoins (USDT, USDC) and top assets like Bitcoin and Ethereum, are used as hedges against local currency devaluation, high inflation, and low traditional savings returns, with mobile money facilitating rapid, widespread adoption despite regulatory. Digital asset as hedging against persistent currency depreciation: As the cedi experienced significant depreciation (peaking above 17 against the dollar in 2023), Ghanaians turned to digital assets, especially USD-pegged stablecoins (USDT, USDC), to protect their wealth from losing value. Persistent high inflation, which reached over 23% in May 2024, makes traditional savings unattractive. This has fueled a "crypto-currency as a refuge" sentiment, with many adopting digital currencies to preserve purchasing power. The ease of converting cedis into digital assets via mobile money has contributed to high transaction volumes, with mobile money transactions reaching GH¢1.07 trillion in 2022. This may keep digital assets attractive to investors seeking higher yields than those offered by stabilized traditional markets. Ghana's digital asset space is defined by high youth adoption and the enactment of the Virtual Asset Service Providers (VASAP) Act which officially brings crypto-currencies and digital assets under regulated oversight. The digital market has been rapidly transitioning from legal grey area into structured financial ecosystem in Ghana. Ghana has officially passed the Virtual Asset Service Providers (VASP) Act 2025 Act 1154, transforming digital assets from a legal gray area into a formally regulated sector. With over 3 million Ghanaians actively using crypto for savings, remittances, and commerce, the framework legalizes crypto-currency trading under the oversight of the Bank of Ghana (BoG) and the Securities and Exchange Commission (Bank of Ghana, 2025)

IV. OPPORTUNITIES IN THE GHANA DIGITAL ASSETS ECOSYSTEM

One of the major opportunities offer the digital assets in Ghana will be financial inclusion and remittances in the country. Crypto assets are also becoming more popular for cross-border payments and the sending of international remittances because they are cheaper and quicker than traditional alternatives, such as Western Union or Walmart. The World Bank estimates an average cost of \$9.61 to send a

\$200 remittance from the U.S. to Mexico (the largest remittance corridor in the world); by contrast, the average bitcoin transaction fee has hovered around US\$1.00-US\$2.00 (Spira and Wessel, 2025).

Traditional cross-border remittances to Sub-Saharan Africa can carry fees averaging well above the global average. Digital assets, particularly stablecoins pegged to the U.S. dollar, allow Ghanaians to receive money from the diaspora almost instantly and at a fraction of the cost. Individuals in rural or informal sectors who lack formal bank accounts can use digital wallets as a gateway to financial services. It allows those without traditional credit histories to participate in digital trade. Digital assets offer cheaper and significantly faster cross-border transaction capabilities compared to traditional banking and correspondent networks. Digital assets could bridge the gap for unbanked populations in Ghana by providing access to financial services via smartphones, bypassing the need for physical infrastructure. Reduced costs and increased speed for remittances, which are critical for Ghanaians. Blockchain technology enables faster, more secure, and programmable transactions. Although digital currencies still face a lot of challenges, digital currencies provide important opportunities for traditional economy systems.

With volatile exchange rates and high inflation for the Ghanaian Cedi, crypto-currencies—particularly stablecoins like USDT and USDC—provide Ghanaians with a digital hedge to preserve purchasing power. By tapping into an already Ghanaian highly digitized mobile money market (which recorded over GH¢1.07 trillion in transactions), decentralized finance (DeFi) extends financial services to underrepresented populations. Digital assets offer a decentralized, cheaper alternative to traditional banking for cross border payments making it easier for G In Ghana, decentralized networks and Virtual Asset Service Providers (VASPs) could offer faster, more cost-effective remittance pathways, directly aligning with the financial service goals of the Ghanaian population. Blockchain innovation paves the way for fractionalized investments and tokenizing real-world assets (such as gold), opening up global investment opportunities for the tech-savvy youth.

The digital Cedi or E-Cedi is a form of retail Central Bank Digital Currency (CBDC) which is supposed to complement and serve similar functions as physical cash but in a digital form. Aside from driving the cash-lite agenda of the Government of Ghana through promoting diverse digital payments in a secured and robust payment infrastructure, it is supposed to facilitate payments without the use of contracts, bank account, or smartphones, which will help promote financial inclusion among all demographic groups. The introduction of E-Cedi in Ghana would allow those who are excluded from formal banking services to hold an E-Cedi wallet which will enable them to access various financial services. Thus, the unbanked populations will be financially included in the digital economy. CBDCs and stablecoins provide secure, instant payment alternatives, enhancing the efficiency of cross-border and retail transactions. The Bank of Ghana's E-cedi integration could create hybrid

opportunities to bridge decentralized finance rails with the government backed digital transactions. Digital assets—especially offline-capable iterations like the e-Cedi—lower barriers to entry, providing unbanked and rural populations in regions like Upper east region with access to secure, digital financial services. Although digital currencies still face a lot of challenges, digital currencies provide important opportunities for traditional economy systems.

Digital currencies, including the Bank of Ghana's e-Cedi and private stablecoins, offer major opportunities for the Ghanaian financial system, primarily by accelerating financial inclusion for the unbanked, reducing transaction costs, and improving cross-border remittance efficiency. The e-Cedi aims to provide digital financial services to the unbanked population without requiring traditional bank accounts or smartphones, increasing access to financial services. According to Ministry of Finance report (2023) opined that Ghana Digital Payments Roadmap is designed to chart the way to a vibrant and inclusive digital payments ecosystem that is both pervasive and transformational, capable of supporting and complementing the e-Transform initiative, providing Ghanaians with financial tools tailored to suit their needs, and propelling Ghana into an enviable digitalized financial hub. By encouraging a "cash-lite" economy, these innovations support the government's Digital Ghana Agenda, promoting safer, transparent, and more traceable, non-cash transactions. The introduction of CBDCs has the potential of increasing remittances significantly. The E-Cedi would make it easier and cheaper for Ghanaians and other people in the diaspora to send remittances to their home country. This has the tendency to reduce counterparty risks and further stimulate business. This transfer system would be preferable given that it would be in real-time compared to other current transfer systems where international payments can take days to be successfully processed.

As the world embraces a more digitally connected and technologically advanced future, the landscape of financial transactions is rapidly evolving. The opportunity here lies in creating modular, adaptable solutions that can be customized for each financial institution's needs. By offering flexible, scalable infrastructure, they aim to make it easier for wealth managers and private banks to adopt digital assets without overhauling the entire back-end systems. Technological advancements, including blockchain platforms and the rise of digital currencies, are paving the way for more secure, efficient, and inclusive Ghanaian financial systems. These innovations not only streamline cross-border transactions but also provide unprecedented opportunities for financial inclusion.

Ghanaians could use digital assets as inflation hedging mechanism and wealth preservation. With exchange rate volatilities and the fluctuating value of the Ghana Cedi, many of the estimated 3 million Ghanaian crypto users rely on to protect their purchasing power. The digital assets could provide the hedging mechanism against currency volatility. With the persistent fluctuations in the Ghanaian Cedi, a significant portion of the Ghanaian businesses and individuals could use stablecoins (like USDC or USDT) and

crypto-currencies as a store of value to protect their investments or finances against inflation (Bank of Ghana report, 2022). Digital assets offer new avenues for diversification in investment strategies, especially as traditional public market mainstream asset classes face increased volatility and diminishing returns. The digital assets, whether through crypto-currencies, tokenized securities, or even tokenized real-world assets, provide opportunities for wealth managers and institutional investors to hedge against risks in more conventional portfolios. Digital assets are not simply an alternative to equities or bonds but a new dimension of portfolio management. Tokenization facilitates the development of hybrid products that combine the security and familiarity of finance with the innovation and accessibility of technology. As more institutions explore these options, they see the potential for greater customization and portfolio resilience. Digital assets have launched a real revolution, bringing about the necessary changes in payments and banking services. Traditional banking actors and technology firms are taking a serious interest in these assets and want to embrace this movement to stay caught up. In the current developments in the broad spectrum of digital currencies, particularly CBDCs, the article aims to provide a global overview from different perspectives: the central bank and the regulators, the financial companies, and the citizens. Issues like competition in the banking sector with the possibility of disintermediation and the monetary policy options that the central banks explore by the valuation of their CBDCs through a policy rate different from cash, along with strategic technology decisions to be taken related to the infrastructure architecture and implementation and information privacy are only some of the challenges that the current pilot programs run by various countries are trying to address. Digital assets, especially crypto-currencies such as Bitcoin and Ethereum, have emerged globally and attracted widespread attention in the international financial field. The gradual maturity of its technological foundation, blockchain technology, and the increasing participation of users and investors have led to the continuous expansion of the digital currency market, which has had a profound impact on the international financial system. Therefore, in-depth research on the challenges and opportunities of digital currency for international financial stability is of great practical significance. While digital currencies and cryptocurrencies both exist electronically, digital currencies are issued by governments and backed by fiat money, whereas cryptocurrencies are secured by encryption and not backed by any physical commodity.

The digital assets, whether through crypto-currencies, tokenized securities, or even tokenized real-world assets, provide opportunities for wealth managers and institutional investors to hedge against risks in more conventional portfolios. Digital assets are not simply an alternative to equities or bonds but a new dimension of portfolio management. Digital currencies, particularly blockchain-based, enable faster settlement times and reduced transaction costs, bypassing legacy banking intermediaries. Digital currencies offer access to financial services for unbanked populations, reducing reliance on physical, expensive traditional banking infrastructure.

Digital assets facilitate faster, cheaper, and more efficient cross-border remittances, which is crucial for the Ghanaian economy. The adoption of blockchain and digital currencies reduces the overhead costs associated with traditional banking transactions, enhancing operational efficiency. Digital currencies, particularly CBDCs, can improve on the effectiveness of monetary policy by increasing the control of the central bank over reserves and making money supply more efficient. Payment efficiency and cost reduction in cross-border payment in digital ecosystem than the traditional financial system. Firstly, digital currency can achieve instant payment. According to data from the World Bank, traditional cross-border payments typically take 3-5 working days to complete, while digital currency transactions can be completed within seconds. For example, the block confirmation time of Bitcoin is usually around 10 minutes, which greatly improves the liquidity and availability of funds. Secondly, the transparency and security of digital currencies help reduce payment risks, and encryption technology ensures the security of users' transactions and funds. According to data from research firm CipherTrace, the amount of digital currency theft worldwide decreased by 57% in 2020, indicating that the security of cryptocurrencies is constantly improving.

Digital ecosystem reduces transaction costs. Firstly, cross-border transactions of digital currencies typically do not require multiple currency exchanges. According to data from the International Monetary Fund (IMF), the amounts of cross-border transactions involved globally is approximately \$150 trillion per year. In traditional financial systems, these transactions may require multiple currency exchanges, each of which carries additional exchange rate fees and instability risks. The direct use of digital currency can reduce these costs and improve the efficiency of cross-border transactions. Secondly, the transaction costs of digital currencies are usually lower. According to data from the International Monetary Fund (IMF), traditional cross-border remittance costs typically reach over 7%, while the use of digital currency can reduce these costs to less than 1%, thereby saving individuals and businesses a lot of money. One of the most promising features of digital currencies is the ability to improve efficiency and reduce costs. Digital currencies can make cross-border payments faster by cutting out the need for multiple intermediaries by blockchains. The advantage of digital currency is not only speeds up transactions but also lowers fees. Sending money internationally through traditional banks under the traditional finance system often involves high costs and long wait times. Crypto-currencies can make these transfers quicker and cheaper. By the way, digital currencies can also improve financial inclusion, especially in developing countries. Many people can get access to traditional banking services. It limits their ability to save or make transactions. Digital currencies can be accessed with just a smartphone and an internet connection. This feature makes digital currencies easier to use. This can improve individuals and small businesses. It contributes to enabling them to take part in a larger financial system. The transparency of blockchain technology can benefit accountability in financial transactions. Every transaction is recorded on a public ledger. Recording contributes to helping

reduce fraud and corruption. Additionally, cryptography is the most important part of security features of digital currencies. Cryptography protects against unauthorized access. The growth of digital currencies contributes to new innovations in financial products and services [Gad et al, 2022]. Decentralized finance (DeFi) allows users to lend, borrow, and trade without relying on traditional banks. Decentralized finance could create a more dynamic and competitive financial environment rather than the traditional finance system. Smart contracts can make complex transactions automatically. It also makes different and multiple processes more efficient. Overall, the rise of digital currencies not only brought opportunities for the traditional financial system, but also brought challenges. As these new forms of money become more popular. Digital currencies make people start to rethink the existing financial structures and adapt to a rapidly changing environment because of the changing that bitcoin brought. The potential benefits of combining digital currencies and the traditional finance system are significant, such as improved efficiency, greater financial inclusion, increased transparency, and innovation in financial services. However, regulatory frameworks and security measures for the financial environment remind people to focus on the unique challenges that these digital currencies have. People can move toward a future where digital currencies and traditional finance support each other. A balanced solution will be essential to ensure that these innovations benefit society as a whole. Transitioning value into digital ledgers reduces cash-based economy, by increasing tax revenues and improving economic data for the Bank of Ghana. Ghana aims to be a continental hub for digital technologies with the passage of VASP Act attracts compliant, responsible investments into local fintech and blockchain start up.

V. CHALLENGES IN THE GHANA DIGITAL ASSETS ECOSYSTEM

Virtual Assets-related activities are conducted online and are generally not in the same physical location. This complicates the identification of the customer during the onboarding process or at the time of transactions and increases the risk of forged or inaccurate identification information being provided. Although some conventional financial services also allow non-face-to-face onboarding and transactions, the anonymity feature of VA activities could exacerbate these challenges in the Ghana's digital assets ecosystem. Potential for greater anonymity and availability of anonymity enhancing features of digital assets is another area of concern. In many cases (e.g., Bitcoin), transactions are visible online and traceable from one wallet to another. But linking a particular address or wallet to a specific individual is challenging. This challenge is compounded by the availability of mechanisms designed specifically to hinder the traceability of flows. They include anonymity enhancing features (such as mixers and multiple layers of encryption, stealth addresses and ring signatures) that limit the information available, including regarding the value and counterparties of a transaction. Some also obfuscate identification through secondary information (e.g., by

preventing the identification of the IP addresses, geolocation data, device identifiers, and transaction hashes)

Consumer protection is a major challenge in the digital asset space in Ghana because the ecosystem fundamentally lacks the traditional safety nets of centralized banking, such as deposit insurance, chargeback mechanisms, and clear, localized legal recourse in the event of theft, fraud, or platform failure. The decentralization, borderless nature, and pseudonymity of blockchain technology create specific hurdles for protecting users: irreversible transactions, high risk of scams & fraud, regulatory fragmentation, knowledge gap and no deposit insurance. Unlike traditional finance or credit card networks where consumers can dispute a charge to recover stolen funds, digital asset transactions are generally immutable and final. Once sent, the assets cannot be retrieved. The combination of an unregulated market and technological complexity leaves retail investors highly vulnerable to phishing, malicious smart contracts, and market manipulation like "pump-and-dump" schemes. Because digital assets are borderless, traditional legal systems struggle to adapt, making it difficult for local authorities to enforce rules, prosecute wrongdoers, or recover assets lost in hacks of international exchanges. Digital assets are not recognized as legal tender in Ghana or protected by Ghana deposit protection insurance scheme, meaning that if a crypto exchange or digital wallet goes bankrupt or is breached, users have no guarantee of getting their funds back. A lack of basic digital and financial literacy regarding how private keys, decentralized exchanges, and asset valuations work leaves individuals exposed to outsized financial risks. With an estimated 3 million Ghanaians engaging in cryptocurrency transactions, enforcing consumer protection rules through traditional litigation is highly challenging, leading many defrauded investors to rely solely on regulatory restitution rather than judicial relief

Ghana's regulation of the digital asset space faces critical challenges of regulatory overlap and dichotomy between the Securities and Exchange Commission and the Bank of Ghana, enforcement of the Virtual Assets and Service Providers Act 2025 (Act 1154), and also the lack capacity of local courts to prosecute cross-border crypto fraud without clear judicial precedent. The Virtual Assets Service Providers Act 2025 (Act 1154) divides responsibilities between Bank of Ghana (BoG) which oversees monetary stability and fiat gateways, while the SEC regulates tokenized investments, securities, and digital asset offerings. However, defining the exact boundaries between utility tokens, stablecoins, and securities creates a complex regulatory maze for innovative startups. Enforcement has moved past mere warnings into hard crackdowns. The BoG issued a stern directive requiring all licensed financial institutions, banks, and fintechs to immediately sever ties with unauthorized cryptocurrency platforms offering parallel foreign currency wallet services to Ghanaians. The Ghanaian judicial system faces steep learning curves regarding smart contracts, decentralized finance (DeFi), and the tracing of digital funds across public blockchains. The application of legacy property and contract laws to digital assets remains largely untested in courts. Ghana's regulatory, enforcement, and judicial

challenges stem from a combination of post-colonial institutional weaknesses, resource constraints, and entrenched political interference. These systemic issues—ranging from bureaucratic bottlenecks to conflicting legal traditions—hinder timely justice and robust enforcement across multiple sectors.

As country of the historical of lack of proper regulation, poor enforcement and slow judiciary processes, Ghanaians have already been exposed to cyber-crimes, investment scams like R5 in 1996 and recent gold scam (NAM1) in 2014 and market manipulations and how well digital asset holders will be properly protected and secured as the virtual assets do not under traditional deposit protection schemes. Low levels of digital literacy, digital financial literacy and financial literacy in Ghana more broadly are some of the main reasons why consumers are vulnerable to unscrupulous VASPs when attempting to buy virtual assets (or any financial asset) online. Strengthening financial literacy and especially digital financial literacy levels of consumers will assist in a safer and informed use of digital financial products and services, including virtual assets. While the legal framework is in place, transitioning legacy systems into fully operational licensing protocols can cause friction which may increase the administrative burdens for local fintech startups.

Regulatory overlap and jurisdictional ambiguity are major challenges in the Ghana's digital assets ecosystem. The Virtual Asset Service Providers Act 2025 (Act 1154) divides responsibilities: the Bank of Ghana (BoG) oversees monetary stability and fiat gateways, while the SEC manages tokenized investments, securities, and digital asset offerings. However, defining the exact boundaries between utility tokens, stablecoins, and securities creates a complex regulatory maze for innovative startups. The joint oversight of Ghana's Digital Asset Regulation could create regulatory dichotomy for digital assets ecosystem. The regulatory dichotomy or overlap in the digital assets space refers to the fundamental division in how different governing bodies—particularly in major markets like the banking and securities—classify and govern these assets. The ecosystem is co-regulated by the Bank of Ghana (BoG) and the SEC, while the Financial Intelligence Centre (FIC) monitors for illicit financial activities. Another major challenge is the assigning regulatory and supervisory roles to three different regulators could create regulatory dichotomy. Regulatory dichotomy refers to the structural confusion that occurs when an asset or activity faces conflicting classifications—such as being simultaneously labeled a commodity and a security—due to overlapping frameworks. Furthermore, the current regulatory arrangement over securities, payment instruments) or supervisory approaches could also give rise to regulatory arbitrage. For example, this occurs when different regulators view the exact same digital asset or service through different lenses. A prominent example is the US, where the SEC and CFTC debate whether a specific token is a "security" or a "digital commodity," leading to competing enforcement actions and legal uncertainty. The Bank should oversee activities related to payments, custody and any activity with potential implications for monetary policy, financial stability, or the integrity of the payment system while the SEC should

oversee offering, trading and investment of virtual assets, while the FIC should oversee AML/CFT compliance, acting in coordination with the BOG and SEC. The FIC's enforcement powers should be exercised in accordance with directions from the Bank and SEC. Severe violations should attract criminal sanctions.

The rise and development of digital currencies could bring several challenges for Ghanaian traditional financial systems as most of the Ghanaian financial institutions are still operating on systems built on decades ago that were not designed to handle tokenized assets or decentralized technology. This could create friction in adopting digital assets smoothly, as the integration often requires significant investment in upgrading or replacing outdated systems. Integrating decentralized, fast-moving digital asset data with slow, centralized, traditional data pipelines is a major operational hurdle, primarily because it requires marrying two fundamentally different technological and temporal infrastructures. While digital asset data operates in real-time or near-real-time via public, decentralized, and often fragmented networks (blockchains, decentralized applications), legacy financial systems rely on batch processing, rigid schemas, and centralized control. Digital assets achieve 24/7 real-time movement through decentralization, automated consensus, and continuous global ledgers. In contrast, the current traditional banking systems like enterprise resource planning (ERPs) and core banking rely on centralized, siloed architectures where data requires manual reconciliation and is bundled into delayed batch-processing cycles to manage risk, prevent system overload, and enforce regulatory compliance.

Reconciling a fast-moving, volatile asset price or transaction with a slow-moving, daily-settled ledger results in constant, "broken" reconciliations where data is out of sync. Digital assets often lack standardized metadata, while legacy systems have very rigid, pre-defined formats. Aligning these requires complex mapping, leading to high error rates and the need for manual intervention to resolve mismatched data types or definitions. The high volatility of digital assets means that a "price" can change significantly between the time it is recorded in a decentralized exchange and when it is ingested into a, for example, daily-settled legacy database. Due to the lack of pre-built, standardized connectors between blockchain data and legacy systems, companies often resort to manual, spreadsheet-based reconciliation, which is prone to errors and cannot keep up with the volume of digital transactions. Digital asset information is often spread across various, non-uniform, and decentralized sources, requiring sophisticated data ingestion, transformation, and extract, load, transform (ELT) processes to consolidate into a single view. It is a modern method for moving data from different sources into a central storage place, like a cloud data warehouse.

Ghanaian financial institutions face significant operational hurdles due to a heavy reliance on rigid, monolithic legacy systems. This technology gap frequently creates severe security vulnerabilities, escalating maintenance costs, and operational disruptions, constraining

the sector's ability to seamlessly scale alongside Ghana's rapidly evolving digital economy. Most of the Ghanaian financial institutions continue to rely on legacy financial systems to manage critical functions such as payments, compliance, lending, and account management. These platforms, often built on mainframe technology and written in programming languages like COBOL, were once regarded as robust and reliable. However, the demands of modern finance—instant payments, digital-first services, advanced analytics, and strict regulatory requirements—expose the limitations of these outdated Ghanaian banking systems. Organizations that remain tied to them face higher costs, operational inefficiencies, and greater security risks compared with those that have modernized. Ghanaian legacy financial systems are aging software platforms and infrastructures that form the backbone of many banks, and corporate finance companies. Most were developed between the 1990s and 2000s and continue to process vast volumes of transactions daily. These systems typically operate through batch processing, lack interoperability with cloud and API-driven tools, and require scarce programming expertise. Despite their shortcomings, banking legacy platforms persist for several reasons. The most significant is risk. These systems support trillions of dollars in transactions and have been tailored over decades to meet specific institutional needs. Replacing them carries the possibility of disruptions that could affect millions of customers or even compromise financial stability. Cost is another factor. Rewriting or re-platforming a core banking system requires billions of dollars in investment, years of planning, and extensive regulatory oversight. Many institutions view the expense and uncertainty as greater risks than maintaining the status quo. There is also organizational inertia: institutions have layered new technologies on top of existing systems rather than undertaking full-scale replacement, creating a patchwork of applications that depend on the original core. Integration is one of the most persistent barriers created by legacy financial software. Modern financial ecosystems depend on seamless interoperability: APIs connect banks with fintech partners, cloud services enable real-time analytics, and distributed systems facilitate global payments. Legacy systems were never designed to operate in this environment. Most Ghanaian financial institutions rely on middleware or custom-built connectors to integrate legacy cores with modern applications. While this provides temporary relief, it often introduces complexity and fragility. Integrations become point-to-point connections that are costly to maintain and prone to failure. For example, when a major European bank attempted to integrate its legacy lending platform with a new mobile loan application, delays in data synchronization caused errors in credit decisioning, leading to customer complaints and reputational damage. To avoid these types of challenges, a robust loan management system ensures seamless integration, reliable data flow, and efficient loan processing.

Digital counterfeiting remains a massive challenge in the Ghana's digital asset space because blockchain technology only verifies the authenticity of a specific token on a ledger, not whether the creator had the legal right to mint that token. Digital counterfeiting—along with broader

cybercrimes like mobile money fraud and deepfake scams—is a major security challenge in Ghana because the country's rapid digitization has outpaced public cybersecurity literacy. Cybercriminals exploit digital platforms to deceive individuals, undermine trust in financial systems, and damage reputations. In the instance where the Bank of Ghana intends to make the E-Cedi useable offline, it is more susceptible to digital counterfeiting. There could be “double-spending” attacks where CBDC is spent multiple times illegitimately. The offline payment systems can prevent double-spending by relying on digital signatures generated in the trusted execution environment available on smartphones, even when offline. Moreover, limits can be imposed on spending and transaction frequency to reduce such attacks (Duho et al 2022). Integrating blockchain technology into Ghanaian banking systems could be significantly hindered by legacy infrastructure, as older systems—often running on outdated languages like COBOL and rigid, centralized, monolithic architectures—were not designed for decentralized, real-time, or immutable ledger systems. The process of connecting these systems requires extensive, costly, and complex modifications, often involving the use of intermediate software (“middleware”) to facilitate communication. Legacy systems and blockchain platforms often struggle to “talk” to each other due to the lack of shared interfaces. To bridge this gap, middleware or custom adapters can be used to translate data formats and communication protocols effectively. Older systems don't always align with blockchain's cryptographic requirements. To address this, conduct a thorough security audit and implement measures like strong authentication, access controls, and encryption to safeguard the integration process. Moving data between rigid legacy databases and blockchain's distributed ledger can be tricky. It requires reconciling data models and ensuring smooth migration. Establish clear transformation processes, perform validation checks, and use staged batch migrations to maintain data accuracy and integrity. Blockchain uses cryptographic hashes and a unique data structure (blocks chained together), while Ghanaian banking legacy systems usually employ relational databases or other architectures, making integration technically complex. Blockchain is still a relatively new technology, while Bank of Ghana regulatory landscape is in flux. Legacy systems, compliant with existing regulations, might find it challenging to adapt to new legal frameworks centered around the blockchain.

Other key challenges associated with this infrastructure clash include: high costs and investment: Upgrading or integrating these systems requires significant financial investment, with many institutions already spending up to 75% of their IT budgets on merely maintaining legacy, rather than innovating; technical incompatibility: Ghanaian banking legacy systems typically use centralized relational databases, which differ vastly in structure from distributed blockchain networks. They often lack modern API interfaces, requiring custom-built connectors to interact with other systems. The digital asset market features high complexity due to overlapping decentralized networks, rapidly shifting regulations, and opaque trading venues. Risks include extreme price volatility, smart contract vulnerabilities, counterparty defaults, and cyber-security threats. The

monolithic, tightly coupled nature of legacy systems makes them fragile; updating or changing them can cause disruptions to critical, day-to-day operations. Performance Bottlenecks: Older infrastructure may lack the necessary speed to handle the real-time, high-volume transactions often required in digital banking, struggling to match the capabilities of blockchain platforms. Security and Data Integration: Migrating data from legacy systems to a blockchain requires, at minimum, a partial overhaul, with risks of data loss or, at the very least, data mismatches. Strategic Risk: While modernization can reduce the total cost of ownership (TCO) by 38–52% in the long run, the immediate complexity of replacing "fragile" platforms can introduce new bugs and security vulnerabilities.

These challenges come from the decentralized nature of digital currencies. It often operates outside established banking structures and may not fit into current Bank of Ghana's regulations. As central banks and regulators try to adapt to the changes that digital currencies bring. They should face difficulties related to policy, regulation, and security. Traditional financial systems follow strict rules. But they were not designed with decentralized digital currencies in mind. Banks and financial institutions must follow the laws against money laundering (AML) and terrorism financing (CFT). However, the semi-anonymous nature of cryptocurrencies makes it hard to track transactions. While public blockchains offer more transparency than private blockchains, they also raise privacy concerns. It makes it more complicated to enforce AML and CFT regulations. Organizations like the Financial Action Task Force (FATF) have called for stronger Know-Your-Customer (KYC) measures. But it was tricky applying these in decentralized systems [Kakebayashi et al 2023]. Digital currencies also create challenges for traditional monetary policy tools that central banks use to manage interest rates and control inflation. Central banks usually influence economies by changing the money supply. If crypto-currencies or stablecoins become widely used by blockchains. Central banks may find it hard to regulate the money supply. It is also hard to manage inflation and keep the economy stable. While Central Bank Digital Currencies (CBDCs) could help maintain control over digital money. They also create challenges between balancing user privacy and the need for oversight.

Bank of Ghana E-Cedi could present real cybersecurity and privacy risks because they centralize vast amounts of deeply personal financial data into a single, digitized system. This structure fundamentally alters the nature of money by eliminating the anonymity of physical cash and exposing users to unprecedented digital threats. Centralized databases or distributed ledger networks create massive "honeypots" of data that attract sophisticated cybercriminals. If the central node is breached, the entire national monetary infrastructure is compromised. Unlike localized breaches at individual commercial banks, Bank of Ghana E-Cedi outage or successful hack can erode public trust in the national currency itself. Digital assets have unique cyber-security risks that are different from currencies in traditional systems. Banks have established ways to handle fraud and data breaches. But

digital currencies face problems like phishing, malware, and hacking that target digital wallets and exchanges that could not be solved in traditional ways. Since these currencies are decentralized. It is often impossible to recover stolen funds. Poorly designed smart contracts can be exploited. And it was always leading to theft or disruptions.

Money laundering is a major challenge in Ghana's digital asset ecosystem due to high-volume mobile money interconnections, the use of informal Over-the-Counter (OTC) brokers, and the historical reliance on unregulated peer-to-peer (P2P) trading. These factors create severe visibility gaps for regulators. Specific vulnerabilities driving this challenge include mobile money (MoMo) integration, informal OTC brokers, P2P trading anonymity, identity verification gaps and data management limitations. The intersection of decentralized virtual assets with highly accessible mobile money systems allows illicit funds to easily jump between fiat and crypto. Criminal networks use these channels to move money rapidly with extreme complexity. Many transactions occur off-the-books via informal dealers rather than registered platforms, making it difficult to enforce customer identification and record-keeping mandates. : Peer-to-peer cryptocurrency exchanges historically operated beyond the direct oversight of traditional financial institutions, providing a shield for layering illicitly obtained funds. While the national identification system (Ghana Card) has improved Know-Your-Customer (KYC) protocols, financial crime trends reveal that criminals frequently exploit digitally altered documents, synthetic identities, or remote onboarding vulnerabilities to bypass these checks. Many local financial institutions and regulatory bodies have historically struggled with inadequate data management systems, hindering their ability to analyze and link suspicious transactions across multiple digital platforms in real time.

Ghanaian financial institutions are still operating on legacy systems built over decades ago that are not designed to handle tokenized assets or decentralized technology. This creates friction in adopting digital assets smoothly, as the integration often requires significant investment in upgrading or replacing outdated systems. Another key challenge is regulatory compliance. Ghanaian financial institutions must ensure that they meet stringent regulations such as AML (Anti-Money Laundering) / CFT (Combating the Financing of Terrorism), and KYC (Know Your Customer) when integrating digital assets into their portfolios. This becomes more complex when dealing with decentralized finance (DeFi) protocols or cross-border tokenized assets. While blockchain offers potential benefits such as reduced transaction costs, faster cross-border processing, and improved security, these advantages are often overshadowed by the high initial costs and risks of the integration process.

One of the main challenges associated with using a CBDC such as the E-Cedi is a cyber-security risk. Cyber-security is a primary challenge for the e-Cedi because they introduce a highly centralized digital architecture that consolidates financial data and payment processing. If a central server is compromised, it could theoretically disable the entire system, potentially locking citizens out of their

funds. The Bank of Ghana e-Cedi could pose severe cybersecurity challenges because, unlike physical cash, it requires a centralized digital infrastructure that creates high-value targets for hackers. A successful breach could disrupt the entire national payment system, compromise sensitive user data, and severely erode public trust in the state-backed currency. The specific risks that make cyber-security a primary hurdle for central bank digital currencies like Bank of Ghana E-Cedi include; single point of failure, data concentration, advanced threat vectors and technological constraints. Centralized databases or even distributed ledger technologies (DLT) centralize the core issuance and clearing functions, meaning a successful cyber-attack on the central authority can disable the entire network and freeze all transactions. Consolidating millions of citizens' financial data into one system creates immense incentives for data theft, espionage, and malicious targeting by hostile actors. CBDCs are highly susceptible to sophisticated attacks like ransomware, phishing, and Distributed Denial of Service (DDoS) designed to manipulate balances, reroute funds, or paralyze banking systems. Developing economies like Ghana face greater hurdles securing a CBDC ecosystem due to legacy IT systems, suboptimal critical infrastructure (e.g., power/network outages), and a scarcity of specialized cybersecurity personnel.

VASPs are attractive targets for cyber criminals due to the significant value they hold in digital assets. Cyberattacks, including hacking and phishing, can lead to substantial financial losses and undermine confidence in the digital asset ecosystem. Cybersecurity risk is also heightened by the shortage of skilled professionals in Ghana who understand legacy environments. While modern cybersecurity teams are trained on cloud and distributed systems, fewer professionals specialize in securing mainframes and COBOL-based architectures. This knowledge gap leaves financial institutions vulnerable to insider threats and external attacks. The rapid growth of the virtual assets market in Ghana has outpaced the development of regulatory frameworks. This regulatory gap creates an environment where VASPs can operate with minimal oversight, increasing the risk of financial crimes and consumer exploitation. The lack of a universal, consistent, and clear regulatory framework for digital assets across different sectors in the Ghanaian economy is a primary factor creating hesitancy among traditional financial institutions regarding adoption. The uneven global implementation of rules has led to "regulatory heterogeneity," forcing many institutions to adopt a cautious stance or rely on white-label partnerships with regulated infrastructure providers to manage complexity. In 2026, Goldman Sachs noted that regulatory uncertainty remains a significant hurdle for financial institutions, with 35% of institutions still citing it as the primary barrier to digital asset investment. This fragmentation, often described as a "patchwork" of rules, makes it difficult for global institutions to manage compliance, legal risk, and operational integration, particularly for cross-border activities. Key aspects of this regulatory uncertainty causing institutional hesitancy include: The absence of a standardized global framework like the Bank for International Settlements (BIS) or Financial Stability Board (FSB) leads to inconsistent regulations (e.g.,

contrasting approaches in the EU, US, Africa and West Africa), which complicates compliance and encourages regulatory arbitrage. A significant barrier is the lack of clear, uniform definitions on whether specific digital assets are securities, commodities, or currencies. This causes uncertainty in how to handle custody, trading, and reporting. In Sub-Sahara Africa region, regulations have lagged behind the rapid growth of the market, forcing regulators to rely on enforcement actions rather than clear, proactive rules. This "regulation by enforcement" creates an unpredictable environment that discourages long-term institutional commitment. Cryptocurrencies facilitate cross-border transactions, which can complicate regulatory oversight and enforcement. The de-centralized nature of VAs allows for transactions that can bypass traditional financial systems and regulatory controls. Ghana's Act 1154 classifies virtual asset advocacy as a standalone regulated activity, separate from trading, custody or any other service category. Ghana legislated control over the public narrative around virtual assets and enforced it before the detailed rules were published.

One of the threats posed by VAs and VASPs in Ghana is their potential use in ML/TF. Cryptocurrencies, due to their pseudonymous nature, can facilitate the concealment of illicit financial activities. Ghana, like many other countries, faces challenges in tracking and regulating these transactions effectively. Ghanaian financial institutions will be hesitant to adopt digital assets due to the high costs of navigating, or in some cases entirely lacking, clear anti-money laundering (AML) and know-your-customer (KYC) guidelines for decentralized or tokenized assets. The lack of legal certainty around the ownership of digital assets, especially in cross-border transactions or in the event of platform failures (e.g., in DeFi), increases risk exposure. Custody of Assets is perceived as having a high inherent vulnerability due to the responsibility of service providers safeguarding significant amounts of assets, making them targets for cyber-attacks and theft. Stablecoins, pegged to fiat currencies, pose high risks due to speculative activities and regulatory uncertainties. Transitioning from traditional banking to self-custody is essentially a shift from institutional trust to personal responsibility. While it offers unparalleled financial sovereignty, it introduces a unique set of technical and operational risks that every user must navigate. While traditional banking relies on bank security and insurance, self-custody replaces this trust with user accountability. The primary trade-off is between the convenience and recovery options of a custodian and the absolute sovereignty and control of self-custody. The most significant risk is the permanent loss of assets if the user loses their private keys or seed phrase, as there is no central authority to assist with recovery. Without the security teams of an exchange, users are vulnerable to phishing attacks, malware, and social engineering designed to steal private keys. Simple mistakes, such as copying an address incorrectly or sending assets to the wrong chain, can lead to irreversible loss of funds. If using smart contract wallets (like Argent) or DeFi platforms, users are exposed to bugs in the contract code, which can be exploited to drain funds. Hardware wallets, while secure against online hacks, can be lost, stolen, or damaged. If the

primary storage mechanism fails, and no proper backup strategy is in place, the assets are lost

Another challenge is the Cross border regulatory and compliance could be a major issue in digital assets in Ghana. Cross-border regulatory and compliance issues are a significant challenge for the adoption and operation of digital assets in emerging economies like Ghana, acting as a potential hurdle to financial innovation while creating risks related to illicit financial flows, consumer harm, and market instability. The fragmented nature of global regulations often leaves emerging markets struggling to reconcile local laws with international standards, particularly concerning anti-money laundering (AML) and know-your-customer (KYC) requirements. Regulatory approaches to digital assets are inconsistent globally, ranging from outright bans to comprehensive legal frameworks. This creates a "patchwork" of rules that are confusing for businesses and investors. Emerging economies like Ghana often face difficulties in implementing robust oversight due to limited technical expertise and resources. This makes it challenging to monitor decentralized, cross-border, and often anonymous blockchain transactions. Decentralized Finance (DeFi) platforms, which operate without central intermediaries, are difficult for regulators to control. Furthermore, cross-chain bridges are frequently targeted for money laundering, complicating compliance efforts. While digital assets can enhance financial inclusion, their unregulated, cross-border nature presents risks of capital flight, money laundering, and, in some cases, the undermining of local monetary sovereignty. Fragmentation is a major hurdle; companies operating in multiple jurisdictions must often design specific compliance programs for each country, leading to duplicated costs and operational inefficiencies.

By operating on decentralized blockchains, these assets could diminish the Bank of Ghana's role as the sole issuer of money, the regulator of financial stability, and the conductor of monetary policy. Bank of Ghana could lose control of monetary policy in the digital assets regime. High adoption of crypto assets threatens to displace the cedi (cedization), weakening the central bank's ability to manage money supply and inflation. Digital assets could reduce policy effectiveness. As users shift to decentralized finance (DeFi), traditional levers like the Monetary Policy Rate (MPR) become less effective at influencing economic activity. The "digital asset regime" challenged the BoG's control through several channels. Digital assets were increasingly used for cross-border transfers, bypassing traditional banking channels and making it difficult for the BoG to track foreign exchange flows. The rise of stablecoins (like USDT) created a "backdoor" for illicit financing and speculative bubbles, potentially undermining the Ghana Cedi as the primary unit of account. High-volume crypto trading (reaching GHS 113 billion in 2025) operated outside the regulated financial system, reducing the effectiveness of BoG's interest rate adjustments on the broader economy. Bank of Ghana influences the economy by managing interest rates to affect borrowing and spending. The digital asset regime undermines this in several ways: i) Reduced Effectiveness of Interest Rates: As users adopt digital currencies for saving,

borrowing, and lending, they move away from commercial bank deposits, reducing the efficiency of conventional monetary policy transmission; ii) Currency Substitution: In nations with high inflation, digital assets and stablecoins (pegged to foreign currencies like the USD) act as alternatives, forcing central banks to lose control over domestic monetary policy and iii) Velocity Changes: Digital currencies can alter the speed at which money circulates, potentially introducing volatility that makes inflation management harder. The digital asset regime could force Bank of Ghana to adapt to a new landscape where monetary, supervisory, and payment systems are no longer entirely within their purview, necessitating a shift towards developing Central Bank Digital Currencies (CBDCs) and strengthening regulatory frameworks.

The use of digital currencies—specifically unregulated, decentralized cryptocurrencies—that are not controlled by the Bank of Ghana (BoG) could have significant negative impacts on the Monetary Policy Rate (MPR) and the overall effectiveness of monetary policy in Ghana. Based on recent reports, the surge in unregulated digital assets creates a "shadow" financial system that operates outside the central bank's control, threatening to undermine the BoG's ability to stabilize the economy. The Bank of Ghana's Monetary Policy Rate is designed to influence interest rates, spending, and inflation by controlling the money supply. When citizens and businesses use, save, or trade in unregulated cryptocurrencies instead of the Ghana Cedi, they bypass the traditional banking system. This weakens the impact of any changes the Bank of Ghana makes to the Monetary Policy Rate, as a portion of economic activity happens outside its influence. Because digital currencies are not backed by the state and operate on decentralized networks, they cannot be controlled by the BoG. If adoption grows, the BoG's ability to manage liquidity and curb inflation is diluted. Firstly, as digital currency is usually not controlled by the government or central bank, its supply and value may be influenced by market supply and demand relationships. According to the design of Bitcoin, its total supply is limited to 21 million pieces. As of 2021, approximately 18.75 million Bitcoins have been circulating in the market. This supply restriction may lead to excessive demand for Bitcoin in the market, thereby increasing its price. This supply-demand relationship may lead to inflation or price fluctuations. Secondly, the market volatility of digital currencies is high, and prices may experience rapid fluctuations. According to CoinMarketCap data, the price volatility of Bitcoin between 2020 and 2021 was 84% and 63%, respectively. This highly volatile characteristic may attract speculators who seek to profit from short-term fluctuations in prices. This speculative behavior can trigger unstable price fluctuations and have a negative impact on the value of digital currencies. Finally, the global nature of digital currencies may exacerbate the risks of inflation and depreciation. The data from 2021 shows that the global nature of the digital currency market is very evident, with investors from different countries and regions participating. This means that the digital currency market may be influenced by macroeconomic factors from different countries and regions, such as currency policies, political stability.

The proliferation of private digital currencies weakens the Bank of Ghana's interest rate channel by allowing economic agents to bypass traditional commercial banking and central bank reserves. This reduction in the central bank's control over the money supply directly limits its ability to regulate inflation and local economic activity. Unregulated digital currencies weaken the Bank of Ghana (BoG) Monetary Policy Rate (MPR) by reducing the total volume of national currency circulating within the regulated banking system. This shrinkage impairs the interest rate channel, rendering the BoG's policy signals and lending adjustments less effective at controlling inflation and economic activity. The Monetary Policy Rate relies on fractional reserve banking to control the overall money supply. When the BoG raises the MPR, borrowing becomes more expensive, slowing down credit creation and cooling inflation. However, when economic actors hold value in digital assets outside the regulated Bank of Ghana system, those funds cannot be leveraged by commercial banks, shrinking the base of money the central bank can influence. When citizens hold significant value in decentralized cryptocurrencies rather than cedi-denominated bank deposits, changes to the MPR (currently at 14% as of March 2026) have a reduced effect on the broader economy. Unregulated digital currencies act as a "backdoor" for foreign exchange, allowing businesses and individuals to pay for imports or hold value outside the Cedi. This reduces demand for the local currency, increasing depreciation pressure on the Ghana Cedi and undermining the BoG's foreign exchange management. Cryptocurrencies are highly volatile and prone to "bubbles". If large amounts of capital are lost in these unregulated markets, it can lead to financial instability, which the Central Bank may be forced to intervene in, potentially contradicting its current monetary stance. Decentralized assets like Bitcoin or foreign stablecoins could reduce the BoG's ability to regulate total liquidity, making it harder to manage inflation through traditional tools. Rapid, unregulated digital transactions can lead to unpredictable changes in the velocity of money, complicating the BoG's economic forecasting and stability efforts.

Potential challenges and risks are that the transactions itself are anonymous, the block-chain records of the transaction are public and can be analyzed and tracked. This means that although the user's identity may not be immediately exposed, their transaction history can be traced back. The fundamental risk is the conflict between anonymity (concealing real-world identity) and transparency (public record-keeping). While your identity remains unstated, your entire financial history, asset balances, and transaction routes become a permanent, public trail that can be tracked by anyone.

Some digital currency projects attempt to provide stronger privacy protection, such as using zero knowledge proof technology, but this has also attracted attention from regulatory agencies and law enforcement agencies, as stronger privacy may breed illegal behavior. Technical vulnerabilities may lead to system instability and financial losses. In the history of digital currencies in the past, there have been some technical vulnerabilities and system errors, such as DAO attacks on the Ethereum network, resulting in

the theft of millions of dollars in digital assets. Secondly, system errors may affect the availability and security of digital currencies. For example, if the system of a digital currency exchange is attacked or malfunctions, users may lose control of their digital assets. Expanding digital currencies requires robust cybersecurity measures, resilient power infrastructure, and high levels of digital literacy to prevent fraud and protect vulnerable consumers.

Regulatory challenges for digital assets in Ghana primarily revolve around legal uncertainty, foreign exchange violations, and consumer protection. Regulatory challenges for digital assets in Ghana focus on these three areas because decentralized currencies threaten the stability of the Ghanaian Cedi, enable capital flight outside of authorized central bank channels, and have historically exposed citizens to scams and Ponzi schemes in 2005 without legal recourse. Because digital currencies are not recognized as legal tender, the Bank of Ghana (BoG) actively battles to control unapproved foreign-currency wallet integrations that bypass traditional banking channels. A major enforcement challenge is cryptocurrency platforms offering unapproved digital wallets denominated in foreign currencies (like the US dollar). These blur the lines of the Payment Systems and Services Act, 2019 Act 987 and the Foreign Exchange Act, 2006, Act 723 prompting the central bank to instruct regulated institutions to cut ties with unauthorized platforms. The high volatility of crypto markets exposes investors to cyber-security risks, fraud, and price manipulation without the safety nets present in traditional finance.

VI. CONCLUSION

Digital assets could bring both significant challenges and opportunities to the Ghanaian population. It could also change the digital assets landscape. The price swings of cryptocurrencies like Bitcoin make it hard for them to be used as reliable forms of payment. The development of CBDCs shows a move toward more regulated digital options that can improve monetary control. These changes make it more essential for traditional economy institutions to fit into a fast-changing atmosphere and the combination between digital currencies and the traditional economy system. Ghana has transitioned from an unregulated cryptocurrency environment to a structured, licensed digital assets space following the passage of The Virtual Asset Service Providers Act, 2025 (Act 1154) which established the foundation for the registration, licensing, and supervision of digital assets in Ghana. Also, digital assets are not covered by Ghana's deposit protection scheme or any statutory compensation fund. Unlike bank deposits held in licensed financial institutions, investments in virtual assets carry their own risks, and users are responsible for safeguarding their holdings. Consumers should exercise caution and ensure they understand the risks before engaging in virtual asset transactions. The growing popularity and prevalence of digital assets such as cryptocurrencies and non-fungible tokens reveals that existing financial ecosystems are in many cases unable to respond to citizens' needs and concerns. The capabilities of digital assets in financial markets are increasing day by day and they are entering the game from

simple to complex financial transactions. Cryptocurrencies stand out especially with their ability to handle more efficient online transactions, lower costs and simplified payment processes. They also meet an increased level of efficiency in commerce and value exchange over the Internet. Non-fungible tokens, on the other hand, stand out with their ability to acquire a presence in the digital world, to be unique, and to be easily transferred. In particular, the financial indicators cited in this article give the impression that the interest in decentralized finance technologies will continue to increase, based on the potential of these two digital assets.

Digital assets could bring both significant challenges and opportunities to the Ghanaian population. It could also change the financial landscape. The price swings of cryptocurrencies like Bitcoin make it hard for them to be used as reliable forms of payment. The development of CBDCs shows a move toward more regulated digital options that can improve monetary control. These changes make it more essential for traditional economy institutions to fit into a fast-changing atmosphere and the combination between digital currencies and the traditional economy system. These changes make it more essential for traditional economy institutions to fit into a fast-changing atmosphere and the combination between digital currencies and the traditional economy system. The challenges mentioned including meeting regulations, cyber-security risks, and potential disruptions to monetary policy, require proactive action from policymakers and financial experts

The development of Ghana's digital currency could be complex and also create diverse challenges and opportunities in the traditional financial system. Only through cooperation and innovation, fully leveraging the advantages of digital currencies and effectively addressing their risks, can the Ghanaian financial system better achieve stability and sustainable development. Digital currency will continue to play an important role in the financial sector space and requires joint efforts from all parties to ensure that its positive role in international financial stability is maximized. In short, Bank of Ghana's digital currency project could bring challenges and opportunities to the country's financial stability. It could face regulatory and inflationary risks, but could also provide new opportunities for financial innovation, financial inclusiveness, and reducing transaction costs. A strong and growing fintech community, which, in partnership with financial institutions, is supporting a digital assets revolution with innovative digital financial products and services. Ghana's digital assets surge could threaten monetary control, exposes weak legacy banking systems, heightens financial crime and cybersecurity risks, and creates regulatory gaps, forcing banks and policymakers to modernize quickly or risk losing relevance and stability.

RECOMMENDATIONS FOR POLICY DIRECTION (WAY FORWARD)

This research identifies key actions and initiatives that highlight existing challenges and opportunities in the Ghanaian digital assets ecosystem to implement projects with

potential recommendations for effective digital assets transformation.

First, the regulators Bank of Ghana and Securities Exchange Commission must adopt more robust licensing and compliance regimes to ensure that service providers and investors actively align with the new regulatory framework which requires VASP operating in the country to formally register and obtain license. Robust Regulatory and Licensing Frameworks must align with Virtual Assets Service Providers (VASP) (Act 2025 Act 1154) by enforcing strict licensing for exchanges and custodians while adhering to AML/CFT (Anti-Money Laundering) directives. Requiring Virtual Asset Service Providers (VASPs) to obtain formal authorization from either the BOG or SEC depending on their service scope. This ensures platforms comply with strict financial integrity standards. Also, the central bank must ensure that all existing crypto businesses to register to maintain compliance with national frameworks.

Second, the Bank of Ghana and the Securities and Exchange Commission must develop a comprehensive public education programme on the digital assets in the financial ecosystem. Regulators must ensure to incorporate digital asset education into consumer safety campaigns to protect investors from fraud. The Bank of Ghana (BoG) and the Securities and Exchange Commission (SEC) must conduct comprehensive public education to protect citizens from scams, prevent financial crime, and support the roughly 3 million Ghanaians participating in the rapidly growing digital asset market. The regulators must drive this public education for following critical reasons investor and consumer protection, prevention of financial crimes, regulatory alignment, promoting responsible innovation and investment and supporting financial inclusion. With roughly 17% of Ghana's adult population engaging in cryptocurrency transactions, widespread education is necessary to protect citizens from high-risk investments, market volatility, and predatory scams. Comprehensive digital literacy programs to understand compliance requirements. This strengthens domestic frameworks. The regulators should launch the National Virtual Assets Literacy Initiative (NaVALI) to foster a sound understanding of blockchain technology and tokenization. This could encourage safe, sustainable adoption rather than reckless speculation. Proper education could lay the groundwork for seamless integration between emerging digital assets and digital currency initiative, the e-Cedi. Bank of Ghana and Securities and Exchange Commission must jointly launch a National Virtual Assets Literacy Initiative to combat scams and educate the public on volatility and cybersecurity risks. Firms are also mandated to ensure full, transparent risk disclosures to clients

Third, cross border harmonization must be a key strategic component in Ghana's digital asset space. Cross-border harmonization is essential in Ghana's digital asset space because the borderless nature of virtual assets makes isolated domestic regulations ineffective. Utilize the e-Cedi and Purpose Bound Money (PBM) to reduce cross-border transaction fees, actively supporting African Continental Free Trade Area (AfCFTA) operations for local MSMEs It helps

prevent regulatory arbitrage, protects citizens from market risks, attracts institutional capital, and supports seamless regional trade under the AfCFTA. The strategic components driving this regional and international alignment include: mitigating regulatory arbitrage, enhance AML/CFT, supporting AfCFTA and protect consumers and market stability. Because borders within the ECOWAS region are highly porous, inconsistent rules allow bad actors to exploit regulatory loopholes. Harmonization ensures a baseline standard that prevents service providers from shifting operations to less-regulated countries. Digital assets are frequently used for remittances and cross-border stablecoin transactions. Ghana as the host of the AfCFTA Secretariat, Ghana is positioned to lead continental trade integration. Harmonized digital asset laws facilitate cheaper, faster, and more interoperable cross-border payments across the continent's fragmented regulatory landscape. The Bank of Ghana and Securities and Exchange Commission (SEC) Ghana require coordinated oversight to manage systemic financial risks. Harmonized frameworks ensure stablecoins and tokenized assets are properly monitored without stifling financial inclusion.

Fourth, Ghana may require robust and efficient judicial processes that are essential for Ghana's digital assets space to enforce the regulatory framework established by the Virtual Asset Service Providers (VASP) Act 2025 Act 1154. Robust and efficient judicial processes are essential for Ghana's digital assets space to enforce the Virtual Asset Service Providers Act, protect millions of local consumers Bank of Ghana, and combat financial crimes Bank of Ghana in a rapidly growing, tech-driven economy. These judicial mechanisms are specifically needed to: enforce compliance & deter crime, resolve commercial & property disputes, protect consumers & investors and validate electronic evidence. The government and the judiciary must support the Bank of Ghana and Financial Intelligence Centre (FIC) in prosecuting breaches of the virtual assets law. Provide clear, legally binding rulings regarding digital asset ownership, smart contract breaches, and bankruptcies. Ensure that fraud victims have a fast, reliable avenue to seek redress, freeze stolen assets, and recover funds. Equip the courts to properly handle, authenticate, and try cases involving cryptographic data, digital wallets, and blockchain transactions. To manage the complexities of e-commerce and virtual assets, the Cyber Security Authority (CSA) and the Judicial Service of Ghana must be already actively training judges and prosecutors to stay abreast of the digital assets space. Ghana needs robust and efficient judicial processes in the digital assets space to enforce the Virtual Assets and Service Providers Act 2025, safeguard financial stability Virtual Assets - Bank of Ghana, and protect investors from fraud. Clear legal frameworks are essential to safely regulate the fast-growing crypto economy and attract investments to Accra and beyond. Swift judicial response is necessary to freeze assets, track illicit transactions, and prosecute scammers operating within the growing crypto ecosystem. Because crypto and commercial disputes rely entirely on digital traces, courts must be equipped to authenticate blockchain data, digital signatures, and metadata. Judges and prosecutors need the capability and training to properly handle electronic evidence to ensure the

rule of law is not compromised by technical complexities. Ghanaian prosecutors and judges will also need to develop their understanding of VAs and VA-related activities. In most instances, given the specific nature of VAs and manner in which VASPs operate, this will most likely require enhanced training of prosecutors and the judiciary to ensure that they are able to understand the technological evidence and legal framework for VAs and VASPs in order to handle cases appropriately. While many traditional investigative skills remain useful, they may not be entirely sufficient to deal with VAs, and Ghanaian laws enforcement agencies may need to develop new skill sets related to conducting investigations online (e.g., ability to use monitoring/ screening tools to trace VA transactions, searches of cell phones and computers, where permitted). As a starting point, countries should consider whether they have adequate expertise (e.g., investigators specialized in cybercrimes).

Furthermore, Ghana should consider whether they have adequate expertise (e.g., investigators specialized in cybercrimes). In many instances, specific training will be useful (e.g., on conducting investigations online, with a focus on identifying VAs and related transactions on the blockchain, and simulation trainings to understand the use of the darknet). In many cases, this might require strengthening interagency cooperation, developing special units with the relevant tech expertise, and ensuring adequate dialogue with foreign counterparts

Ghana urgently requires specialized courts for digital assets and cyber fraud to process highly technical cases. Traditional courts lack the forensic expertise to evaluate complex electronic evidence, resulting in trial delays. Specialized courts ensure swift adjudication, protect the digital economy, and deter sophisticated cybercriminals exploiting weak enforcement. Given the novelty of the trend of criminality in the digital asset space, the establishment of specialized cybercrime courts to be presided over by judges, proficient in digital law and cybercrime would be of immense benefit. The mandate of such courts could be to expedite trials and ensure thorough adjudication of complex cyber cases. This would have the combined effect of empowering the Ghana Police Service and Cyber-Security Authority to fully invest time, money, and human resources towards the investigation of cybercrime, as well as serve as a deterrent for criminal elements, ultimately protecting our citizens and providing justice for those seeking redress.

Fifth, Ghana must truly collaborative and joint approach to virtual asset regulation must be maintained. Ghana needs a truly collaborative approach to virtual asset regulation to protect consumers, prevent financial crimes, and safeguard the country's monetary stability. By coordinating agencies like the Bank of Ghana (BoG), SEC, and FIC, Ghana avoids regulatory blind spots while fostering safe, responsible fintech innovation. Virtual assets span multiple sectors, requiring collaboration with the Financial Intelligence Center (FIC) to enforce the digital assets guidelines in line with FATF standards. No single agency has the purview to cover all aspects of the digital asset ecosystem. The Bank of Ghana (BoG) oversees financial stability and licensing, while the

Securities and Exchange Commission (SEC) regulates investment products to protect local investors from fraud. The inclusion of the Cybersecurity Authority (CSA) and the Data Protection Commission (DPC) ensures that digital platforms and Virtual Asset Service Providers (VASPs) maintain robust data privacy and consumer protection measures

There should be continued collaboration on policy stances and regulatory actions across agencies including the Bank, SEC, FIC, Cybersecurity Authority (“CSA”) and Data Protection Commission (“DPC”). These agencies should act in unison and in a harmonized manner. Ghana must push for a collaborative, joint approach to virtual asset regulation ensures the country harnesses crypto innovation—like remittances and financial inclusion—while protecting consumers, safeguarding the Ghanaian Cedi, and preventing financial crime without driving the multi-million-person industry into unregulated, informal channels. Virtual assets cross multiple financial and technological boundaries. A collaborative model will bring together the Bank of Ghana (monetary stability, foreign exchange, payment systems), the Securities and Exchange Commission (investment products, tokens, consumer protection), and the Financial Intelligence Center (AML/CFT compliance). Collaboration ensures comprehensive, unified oversight. The Cybersecurity Authority will protect platforms from cyber threats and hacks, while the Data Protection Commission could ensure that the sensitive data of Ghanaian crypto users is secure. Ultimately, the path toward a resilient and inclusive DA ecosystem depends on collaboration. Stakeholders (i.e., technologists, regulators, investors, and end users) must engage in sustained dialogue and coordinated action. While DAs are inherently decentralized, their safe and equitable integration into global markets requires a shared framework of collective intelligence, accountability, and cooperation.

Sixth, Ghanaian regulators of the digital asset ecosystem must enforce strict compliance to prevent financial crimes, protect everyday consumers, and maintain overall financial stability. Without rules, digital spaces can become safe havens for bad actors. Strict enforcement in Ghana's digital assets space is essential to safeguard the economy from illicit financial flows, prevent the erosion of the cedi's sovereign purchasing power, and protect consumers from widespread scams and fraud. Regulators must be actively directing traditional financial institutions and commercial banks to sever ties with unauthorized or non-compliant digital asset platforms to preserve financial stability. With the passage of the Virtual Asset Service Providers Act 2025 Act 1154, regulators are required to take aggressive measures to ensure structural integrity across the sector to protect Ghana Cedi, combat financial crimes, curbing predatory marketing and ensure VASP licensing and compliance. The central bank must ensure that regulated financial institutions to cut ties with crypto-currency platforms operating unauthorized U.S. dollar-denominated wallet services. Strict enforcement ensures that alternative digital currencies do not undermine the sovereign role of the Ghana cedi as legal tender. With over 3 million Ghanaians actively engaging with digital protocols is critical. Strict rules prevent Ghana's financial system from being used for global financial crimes and illicit cross-border

trades. Regulators such as the Securities and Exchange Commission (SEC) enforce explicit rules on advertising and advocacy. This includes halting mass advertising and requiring influencers to be authorized to prevent the promotion of unregulated, volatile, or fraudulent schemes. All custodial wallet providers, trading platforms, and stablecoin issuers must register to operate. Strict oversight ensures that service providers are adequately capitalized, transparent, and capable of managing cyber-security risks

Seventh, Ghana must formally adopt a risk-based digital assets supervision framework through the Virtual Asset Service Providers (VASP) Act, 2025 (Act 1154). This law ends the previous legal uncertainty around cryptocurrency. Risk-based, registration and licensing process for virtual asset services should be tailored to the level of risk associated with the use case. Instead of a one-size-fits-all approach, higher-risk virtual asset services should face more stringent registration and licensing requirements, while lower-risk ones should follow a simpler process. This approach ensures that regulatory resources and efforts are efficiently allocated, to areas with the greatest potential for financial, operational or consumer harm. According to Bank of Ghana risk based digital assets supervision will include activity-based oversight, risk-based rules, the "travel rule and consumer protection. The Bank of Ghana (BoG) will handle payments and digital asset custody, while the Securities and Exchange Commission (SEC) will regulate crypto trading and investments. Instead of banning crypto, authorities now require platforms to classify and track their risks. High-risk activities face extra scrutiny to prevent money laundering and terrorist financing. Virtual asset service providers must collect and share exact details about who is sending and receiving digital money to stop hidden, illegal transfers. All operating platforms must prove they have safe, secure, and clear governance rules in place to protect the money of everyday Ghanaians. This risk-based approach is designed to stop financial crimes while still allowing safe tech innovations and easier digital payments to grow. Regulatory actions should be proportionate to the risks posed by virtual asset activities. Each virtual asset use case should be reviewed from a risk perspective, recognizing that not all activities carry the same level of threat or systemic impact. Key risks to consider include those related to monetary policy, financial stability, potential disintermediation of monetary and payment systems, money laundering and financing of terrorism, as well as risks related to market integrity, consumer protection and fair conduct within the financial system (Bank of Ghana, 2025). By Ghana adopting Risk-Based oversight for digital assets that will enable regulators to prevent bad actors from exploiting virtual assets for financial crimes, avoid global financial blacklisting, and protect citizens from consumer abuse while safely harnessing the financial inclusion benefits of blockchain technology. Adopting a Risk-Based Approach (RBA) is essential for several strategic reasons, preventing financial crime and illicit flows, protecting consumers and investors, avoiding global sanctions and "grey-listing and fostering innovation while managing risks. Digital assets offer speed, borderless transfers, and relative anonymity, making them prime targets for money laundering and terrorist financing. By enforcing

AML/CFT frameworks for Virtual Asset Service Providers (VASPs), the Bank of Ghana and the Financial Intelligence Centre (FIC) can mandate Customer Due Diligence (CDD), monitor suspicious transactions, and trace illicit funds within the local economy. The growing popularity of digital assets in Ghana exposes citizens to extreme volatility, scams, and unregulated global risks. A Risk-Based framework requires VASPs to meet compliance, transparency, and data security standards. This shields local consumers from fraud and ensures they have recourse if an exchange collapses or is compromised. The Financial Action Task Force (FATF) strictly requires countries to regulate virtual assets and enforce Recommendation 15 to combat global financial crimes. Failure to implement these controls puts Ghana at risk of being designated a high-risk jurisdiction (grey-listed). Being grey-listed would severely disrupt international trade, foreign investment, and correspondent banking relationships for Ghanaian businesses. Prohibiting digital assets pushes trading underground into opaque, unregulated channels. By officially recognizing VASPs under a risk-based structure, Ghana can monitor systemic risks without stifling innovation. This ensures the country can benefit from blockchain-driven financial inclusion and efficient remittances while keeping the broader financial system stable. Implementing comprehensive anti-money laundering and counter-terrorist financing controls. VASPs must conduct strict customer due diligence (CDD), monitor transactions, and report suspicious activities. A risk-based framework empowers the Financial Intelligence Centre (FIC) to monitor transactions and mandate Suspicious Activity Reports (SARs).

Eighth, the growing presence of digital assets introduces new forms of risk into the Ghanaian financial ecosystem. The rise of artificial intelligence (AI) and machine learning (ML) has transformed cyber-security by enabling automated threat detection, natural language processing for pattern recognition, and real-time response mechanisms. However, AI and ML offer powerful tools for both Bank of Ghana and Securities and Exchange Commission to mitigate these risks. By analyzing vast datasets in real time, these technologies can detect potential threats, prevent fraud, ensure regulatory compliance, strengthen cyber-security, and generate actionable insights into evolving market dynamics. As DAS continue to expand in scope and adoption, AI and ML will play an increasingly central role in managing and reducing associated risks. Equally, the potential of AI and ML in identifying, assessing, and mitigating risks offers a promising pathway toward smarter, more adaptive oversight. Automation, AI, ML, and cloud technologies are becoming essential tools for the financial services industry—particularly within asset management and security services. These technologies promise to usher in a new era of competitive service delivery and efficient processing powered by digital intelligence.

Ninth, Ghana should foster international cooperation in light of the highly mobile nature of VAs, close and swift cooperation between countries is key to ensure stability in the digital asset ecosystem. There needs to be a clear legal basis for exchanging information and cooperating, even for countries in Sub-Sahara Africa that have restricted or banned

VA-related activities. In some instances, traditional processes such as mutual legal assistance (MLA) requests may be too slow and thus ineffective in a virtual context. Therefore, there may be a greater need to build up informal cooperation channels with different authorities (for instance, police and tax authorities) who would have the ability to take swift, conservatory action, including for freezing/seizing of wallets, until more formal international cooperation processes have been initiated. Where MLA depends on dual criminality, additional issues may arise when other countries' criminal justice frameworks do not properly capture VAs. Finally, good domestic coordination is also useful since different authorities may have different channels for communication with their foreign counterparts (see examples of Law Enforcement Agencies cross-border cooperation and initiatives (IMF,2021)

Lastly, The Ghanaian government needs to update tax policies and regulations regarding digital currencies to close tax loopholes, boost domestic revenue, and prevent the loss of billions of Cedis. The Ghanaian government must urgently update tax policies and regulations for digital currencies to prevent massive revenue leakages, capture billions of Cedis in informal market volume, and enforce tax compliance on digital asset income and capital gains. With Ghana's crypto transaction volumes crossing the \$3 billion mark, the Ghana Revenue Authority (GRA) faces risks of untaxed capital gains, corporate income, and uncollected Value Added Tax (VAT) on digital transactions unless tax frameworks are explicitly adapted. The passage of the Virtual Asset Service Providers Act, 2025 Act 1154 officially established a legal boundary for the crypto market in Ghana. Aligning the tax code with this Act—alongside ongoing regulatory and licensing implementation by the Bank of Ghana—is necessary to turn this legal framework into actionable tax collection. The central bank has cautioned against unregulated, unauthorized crypto-currency platforms offering parallel digital US dollar wallets outside the traditional banking architecture. Clearer tax and operational regulations protect the national monetary system and curb illicit financial flows. By updating domestic tax guidelines, Ghana must position itself alongside international best practices (such as the Crypto-asset Reporting Framework), preventing the country from being exploited as an avenue for international tax evasion. The Crypto-Asset Reporting Framework (CARF), developed by the OECD to automatically share digital asset tax information across borders, has secured commitments from over 70 jurisdictions, with nearly 50 actively operating and collecting data. Some countries operating the Crypto-Asset Reporting Framework are Austria, Belgium, Brazil, Bulgaria, Cayman Islands, Chile, Colombia, Croatia, Czechia, Denmark, Estonia, Faroe Islands, Finland, France, Germany, Gibraltar, Greece, Guernsey, Hungary, Iceland, Indonesia, Ireland, Isle of Man, Italy, Japan, Jersey, Kazakhstan, Korea, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, New Zealand, Norway,

Poland, Portugal, Romania, San Marino, Slovak Republic, Slovenia, South Africa, Spain, Sweden, Uganda, and United Kingdom. By Ghana Revenue Authority must

establish clear tax frameworks, the country can protect investors, curb financial crimes, and formalize a rapidly growing and lucrative digital economy. Existing tax laws, like the Income Tax Act, lack statutory definitions for "digital assets," making it difficult for the Ghana Revenue Authority (GRA) to accurately classify crypto gain. Millions of Ghanaians actively participate in the crypto market, processing billions of dollars in volume. Without explicit tax guidelines, these gains often evade traditional capital gains or income tax tracking. The digital assets could enable the country reaching the GDP Target: Ghana has set an ambitious target to raise its tax-to-GDP ratio to 18%-20%. Capturing revenue from digital economy activities is critical to meeting this national goal. And the government also need to help ensure compliance and encourage innovation under a stable financial environment. The rise of digital currencies could greatly influence the way international trade and capital flows operate. People could enable faster and cheaper cross-border transactions because digital currencies become more common.

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