Blockchain adoption in Africa

Trends in market activity and policy development

A background note prepared for the African AI and Blockchain Policy Forum

15-16 November 2023

OECD

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This background paper was prepared for the African AI and Blockchain Policy Forum held on 15-16 November 2023 in Mauritius, a joint initiative of the OECD and the Mauritius Regional Centre of Excellence within the Financial Services Commission. The paper provides background analysis to inform the Forum's discussions on general blockchain policies, crypto-asset regulation, and the suitability of crypto-assets and related markets for financial inclusion.

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Introduction

The advent of blockchain and other distributed ledger technologies spurred a flurry of commentary and analysis on the technology's applications, particularly as use cases moved from crypto-assets to wider applications in both the financial sector and the general economy. This background paper, prepared for the African AI and Blockchain Policy Forum held on 15-16 November 2023 in Mauritius, considers the development of blockchain technologies in selected Sub-Saharan African economies.

This paper and its accompanying Policy Forum come at a time when the level of blockchain innovation and adoption in Africa – and the accompanying anticipated benefits – could be considered below previous expectations set in this technology's early stages. At the same time, evolutions in other emerging technologies, particularly Artificial Intelligence (AI), are demanding responses that call on the limited resources of governments and their digital policy functions. This context makes targeted, evidence-based interventions more important than ever for governments interested in directing blockchain technology innovation towards national and regional objectives, and this paper provides African policymakers with new market and policy insights to help prioritise and tailor their efforts.

This paper's first section looks at blockchain at a cross-sectoral level, with quantitative measures of market activity both within and between jurisdictions, and a stocktaking of policy measures and public sector initiatives in this area using the OECD's *Recommendation on Blockchain and Other Distributed Ledger Technologies* as the basis for the identification and analysis of blockchain-specific policy initiatives. With the bulk of observable market and policy activity focused on financial market uses and crypto-assets in particular, the second section provides data on the evolution of crypto-asset usage in these markets, countries' financial regulatory settings and key international developments.

This paper's analysis focuses on twelve high and middle-income Sub-Saharan African markets, selected based on gross GDP and/or income per capita to capture significant levels of activity and offer a level of comparability: Angola; Botswana; Cameroon; Cote d'Ivoire; Gabon; Ghana; Kenya; Mauritius; Nigeria; Seychelles; South Africa; and Tanzania. Data is provided for other countries where it is relevant to include. The observations in this report refer to analysis of these countries and, given the diversity of economies and societies across Sub-Saharan Africa (including between the twelve focus countries), should be considered in reference to local conditions for other economies.

1 Blockchain activity in Sub-Saharan Africa

This section provides a snapshot of market and policy developments in the twelve focus economies at a cross-sectoral level using several public and private data sources, and a review of national policies aimed at technology-level governance.

The quantitative metrics used to measure blockchain activity, though not comprehensive, show a clear trend of increasing activity in investment, research and public discourse over recent years. Activity is generally centralised in a small number of the twelve focus countries, even when adjusting for size. Importantly, measurable activities seem largely geared towards financial uses of blockchain technology, though projects and enterprises focusing on other sectors also exist.

This section's analysis also shows a low level of blockchain-specific policymaking, even when considering wider digital economy policy. It highlights features of existing policies in these countries, and highlights international platforms that could contribute to further developing the blockchain policy environment in the region.

1.1. Market developments

The OECD's Artificial Intelligence Policy Observatory has developed a range of live indicators to measure and compare AI activities across countries over time (OECD.AI, 2023[1]), and the following analysis adapts a selection of these indicators for blockchain activities, namely for private equity investment, research in academic institutions and general public discourse through news media articles.

It is important to recognise that data on blockchain activities remain sparse, and that measuring geographic activity is difficult in the absence of coordinated collection efforts, and also hampered by lack of common definitions and classifications. These data should therefore be treated as indicative, intended to provide policymakers with a relative view of activity in their jurisdictions as part of a wider empirical picture.

1.1.1. Investment from private capital is growing and directed towards financial services

Private equity investment in blockchain companies has risen steadily since the technology's advent, reaching a high in 2022 of USD 347 million (Figure 1.1). Among those deals that have financial figures available, levels of investment across countries since 2013 are generally low and irregular, except for concentrations in Seychelles (USD 292 million in total) and South Africa (USD 133 million in total).

Figure 1.1. Value of private equity deals in blockchain companies 2013-2022

Source: Prequin, OECD calculations
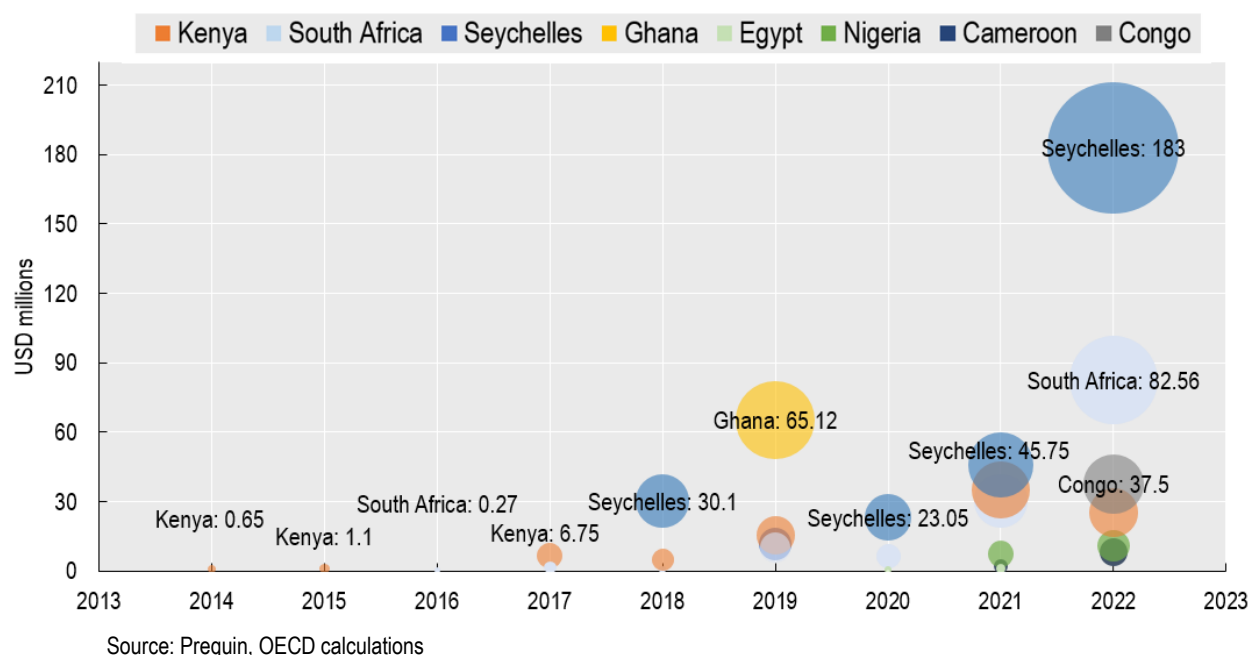
Not all deals in the data have financial figures reported, and so the value of deals can be complemented with the number of investors actively funding blockchain companies for a more complete picture (Figure 1.2). As well as Seychelles and South Africa, Kenya has been a consistent destination for blockchain investment, with the number of investors also rising rapidly in Nigeria and Congo in recent years. Foreign-based investors are particularly prevalent, with the top three jurisdictions of origin the United States, Hong Kong and mainland China. Investors from South Africa (fifth most prevalent) and Nigeria (seventh most prevalent) are the leading source of funds from within the Continent.

Figure 1.2. Number of private equity investors by country and year
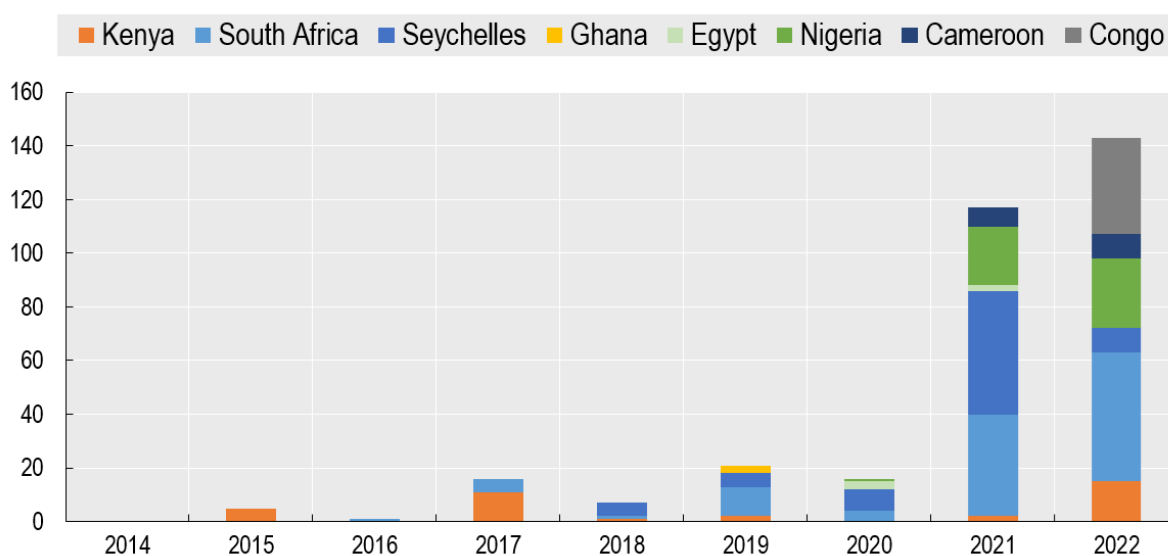
Source: Prequin, OECD calculations
Note: A single deal may have multiple investors and investors from different geographies.

Importantly, of the 30 deals within the portfolio analysed for this paper, there were no recipient companies undertaking blockchain-related activities outside financial applications. In total, 63% of deals were directed to companies offering financial services, such as insurance, payments services and other market infrastructures, with the remaining 37% were directed towards fintech applications, including crypto-assets.

1.1.2. Non-financial use cases exist but haven't reach the same scale

While blockchain technology was originally created to support stores of value and payments with crypto-assets, it is considered a "general-purpose technology" which can support innovation in multiple settings and uses. The OECD's work has demonstrated its potential and actual use in applications from traceability in supply chains (OECD, 2019[2]), streamlining shipping and customs procedures (OECD, 2022[3]), developing novel solutions for digital identity and personal data, such as in health care (OECD, 2020[4]), supporting mobility of tertiary qualifications (OECD, 2021[5]) and in a range of public sector service delivery settings (Berryhill, Bourgery and Hanson, 2018[6]).

Policy research by development institutions such as the African Union Development Agency (AUDA-NEPAD, 2021[7]) and the German official development agency (Smart Africa Secretariat, 2020[8]) provide examples of pilots and projects in Africa which demonstrate a wide range of activities across the continent against many of these use-cases. These case studies are also enriched by a database of development-focused blockchain projects collected by PositiveBlockchain.io (2023[9]) which shows a range of activities across sectors in this paper's focus countries (Figure 1.3). However, in line with the investment data discussed above, the vast majority of projects are focused on financial applications, and within that category most are peer-to-peer payment services or financial inclusion initiatives. Also consistent with the data presented previously, the majority of projects are based in South Africa and Kenya. Finally, many of these projects appear to be experimental pilots or have a relatively limited scale.

### Figure 1.3. Number of development and impact blockchain projects by use-case category
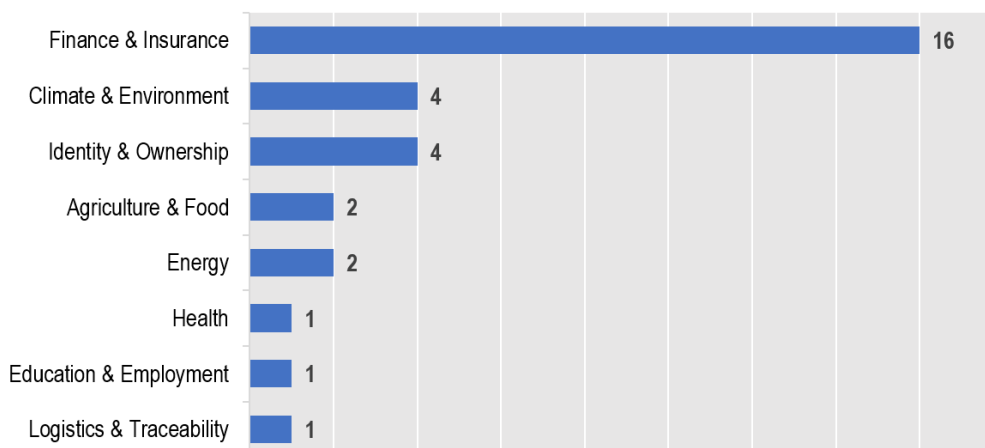
Source: PositiveBlockchain.io, OECD calculations

1.1.3. Blockchain research is robust and growing, but concentrated in some economies

In addition to commercial activities, academic blockchain research represents a significant element of national and regional blockchain ecosystems, as a driver of innovation, skills development and knowledge transfer, and with universities as important partners in entrepreneurial activities and policy implementation. Figure 1.4 provides an overview of blockchain research activities across the twelve focus countries over time, drawn from aggregated data on research publications from academic institutions based on those countries. There has been a significant level of research across the focus countries which has grown

steadily over time, with over 8,000 research papers published on blockchain, distributed ledger technology and related concepts in 2022 alone. At the same time, research activities have been heavily concentrated in South Africa and Nigeria, the largest economies by GDP and among the largest by population in the group, with Ghana, Kenya and Cameroon also producing a notable level of research output.

Figure 1.4. Blockchain research publications per year
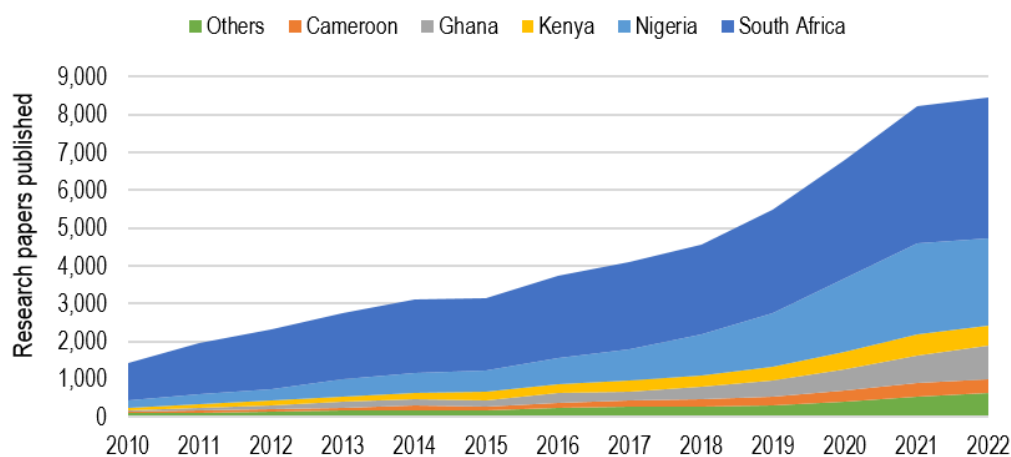
Source: OpenAlex, OECD calculations

Adjusting for the size of countries in terms of gross GDP and population provides further insights into research activities at the national level, allowing policymakers to more accurately evaluate the scale of blockchain research activity in their economies. When adjusting for country size with research on a per capita basis, South Africa remains an important producer of blockchain research, while Mauritius, Botswana and Seychelles also have a high level of academic activity within their economies relative to their size (Figure 1.5).

**Figure 1.5. Total blockchain research output by country per capita, 2010-2023**
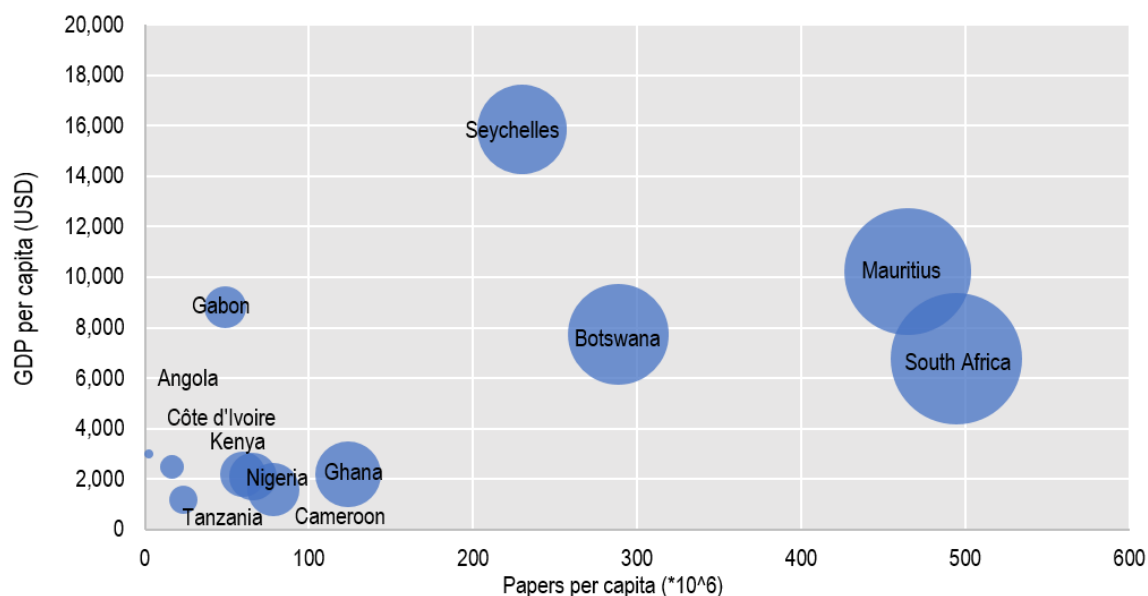
Source: OpenAlex, World Bank, OECD calculations

1.1.4. Public interest is largely focused on crypto-assets

The level of public discourse is also of interest as a measure of the general population's awareness of and engagement with blockchain innovation, and as a proxy for citizen expectations of government engagement on the issue. A review of published news articles across the jurisdictions covering blockchain and related topics shows that the level of public discourse in the media has been climbing steadily since 2016, with a dramatic increase in reporting from 2021 onwards.

Figure 1.6. Total blockchain-related news articles by country per capita, 2016-2023
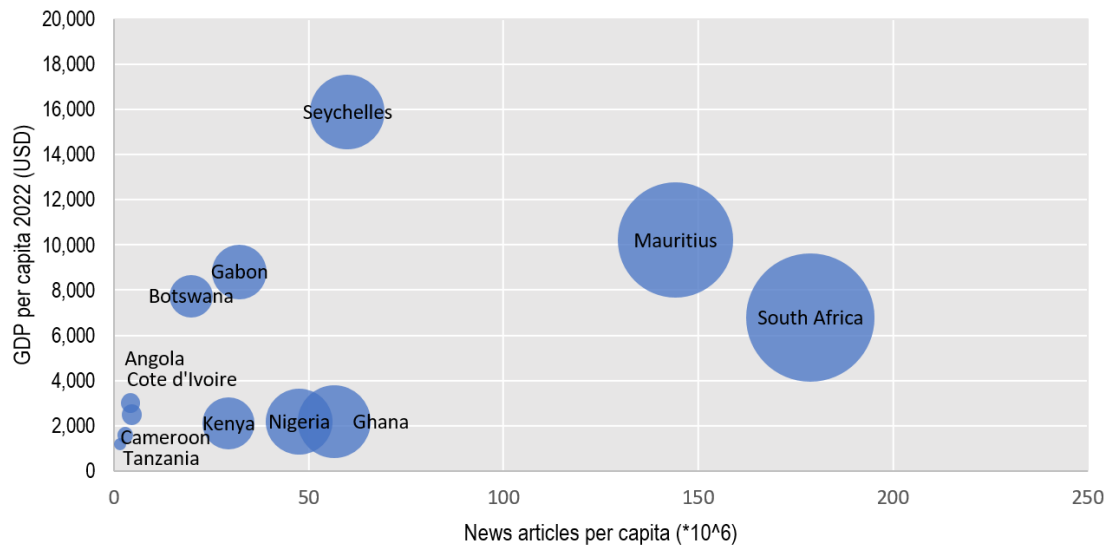
Source: Event Registry, OECD calculations

Adjusting again for size of the economy and population, South Africa and Mauritius have particularly engaged populations (Figure 1.6). At the same time, the discourse across countries has been heavily focused on financial issues; of the almost 9,000 articles reviewed, 66% had a specific focus on crypto-asset topics, while 74% focused on finance-related issues (including crypto-assets).

1.2. Policy developments and public sector initiatives

The OECD's work on blockchain has underlined the value of governments' proactive engagement with specific legal and regulatory questions around the technology, has outlined a range of practical applications for the technology in meeting governmental priorities, and has echoed statements from the G20 and other multilateral groups on the need to ensure that emerging technologies develop in a way that is in line with social and economic needs (OECD, 2022[3]). The OECD's *Recommendation on Blockchain and Other Distributed Ledger Technologies* was established as an international policy standard in 2022 to support policymakers' efforts towards these goals (OECD, 2022[10]). It encourages governments to:

- **Develop coordinated policy approaches** by integrating blockchain policy response across levels of government, taking into account the intersection with other technologies and applicable policies and cross-border implications, and by considering blockchain as a tool for achieving policy objectives where appropriate.

- **Foster a supportive environment for technological innovation**, such as blockchain research and development, including through multi-stakeholder collaborations like public-private partnerships, and supporting use by SMEs and entrepreneurs.

- **Strive to build human capacity** by supporting education and training on the skills necessary to understand and work with blockchains, and support fair transitions for disrupted and displaced professions.
- **Support an enabling policy environment for technological innovations** by gathering diverse inputs when forming public policy, developing institutional capacity, assessing the need and benefit for adapting existing rules, pursuing policy settings to enable responsible innovation.
- **Co-operate internationally** by pursuing common approaches, working across international and regional fora to foster knowledge sharing, co-operation and collaboration, and promoting multi-stakeholder, consensus-driven, and open processes for global technical and ethical standards.

The Recommendation forms the basis for the identification and analysis of blockchain-specific policy initiatives across this paper's twelve countries of focus, as well as continental-level initiatives in African multilateral institutions.

1.2.1. Blockchain-specific policies are uncommon

Dedicated national blockchain policies among this paper's focus countries are rare, and countries are at divergent points in their consideration of the technology, its uses and impacts on public sector priorities. A review[1] of government policy documents across the twelve jurisdictions reveals that just two countries within the group have national blockchain strategies: Kenya (Ministry of Information, 2019[11]) and Nigeria (Nigerian Government, 2023[12]). A further three countries feature blockchain goals and/or actions within wider national digital economy or industrial policy strategies: Cote d'Ivoire (MENTI, 2021[13]), Mauritius (MTCI, 2018[14]) and South Africa (Government of South Africa, 2020[15]).

These policies vary in the scope and level of detail, however there are a range of features that align with the OECD's Blockchain Recommendation and/or provide otherwise instructive examples to policymakers:

- **Assigning specific responsibilities across government:** Nigeria's Blockchain Implementation Strategy establishes a National Blockchain Implementation and Steering Committee with key federal ministries and market regulators, while South Africa's Fourth Industrial Revolution strategy tasked the Department of Communications and Digital Technologies with implementation of the plan.
- **Encouraging public sector technology adoption:** Both the Nigerian and Mauritian strategies encourage governmental agencies to explore adopting blockchain technology specifically or emerging technologies broadly into their operations and service delivery.
- **Development of training and skills:** The Digital Mauritius 2030 strategy includes at least 50 annual scholarships awarded to students studying blockchain and other key emerging technologies.
- **Funding research and development:** Nigeria's strategy provides for public funding for blockchain research and development under the provisions of the Nigeria Startup Act 2022, while Cote d'Ivoire's strategy commits the government to strengthen research and development in emerging technologies including blockchain.
- **Public consultation and non-governmental expertise:** Several strategies convened outside groups of stakeholders and experts to contribute to and consult with on national policy, including Kenya's Distributed Ledger Technology and Artificial Intelligence Taskforce and South Africa's Presidential Commission on the Fourth Industrial Revolution.

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[1] This review excluded crypto-asset policies, regulation and legislation which are discussed in section 2.

- **Implementation monitoring:** Nigeria's Blockchain Implementation Strategy establishes a National Blockchain Implementation and Steering Committee with key federal ministries and market regulators, as well as industry bodies and key market participants.
- **Prioritisation of specific uses and/or sectors:** Most blockchain and related digital policy documents highlight specific areas of the economy where the government sees alignment between blockchain technology's use-cases and national administrative and economic priorities, summarised in Figure 1.6. Financial use cases, particularly financial inclusion including uses for remittances, are the most common.

Figure 1.7. Sectoral and administrative priorities in national blockchain policies
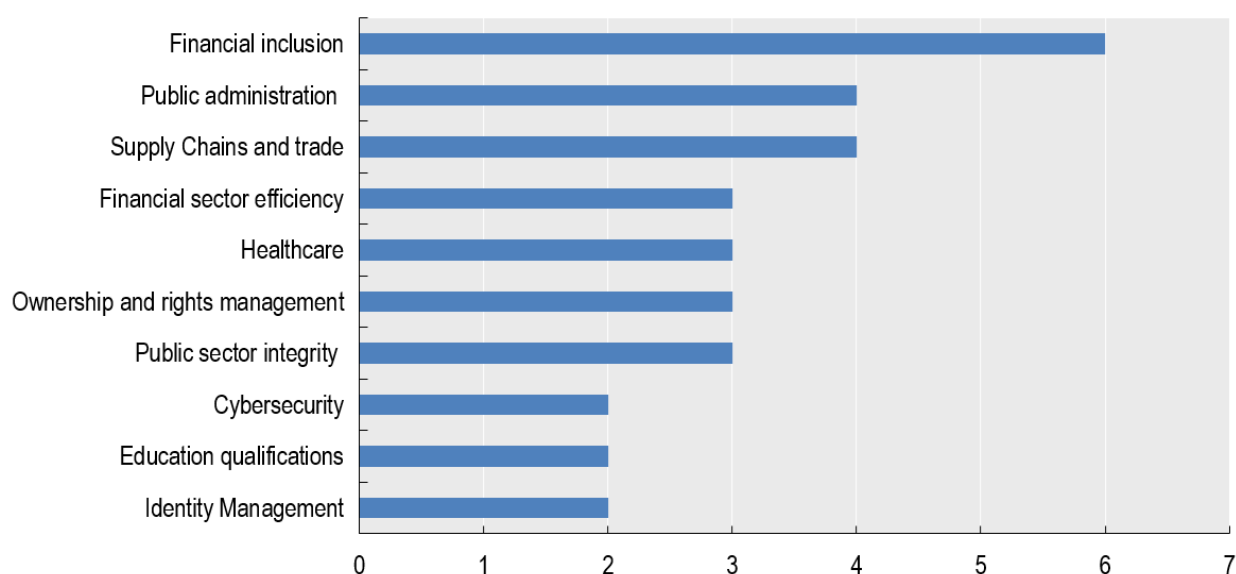
Note: Collected from national and regional blockchain and digital economy strategies cited in this paper

While many of the focus countries have issued public statements in some form on the value of blockchain in meeting national economic and social priorities, for example through ministerial speeches, there may be good reasons not to develop technology-level blockchain policies. Such policies and initiatives can be an intensive exercise incorporating several different parts of government and should be undertaken in the context of wider public priorities and the deployment of governmental resources.

As was discussed previously in this section, the bulk of observed market activity has been in finance-related innovation, and so governments may have deferred to financial regulatory authorities to define policy needs. Equally, the advent of blockchain technology has come at a time of widespread digitalisation in Africa and alongside other emerging technologies, and so governments may be focussed instead on digital economy fundamentals such as internet connectivity, as is the case with Tanzania's *Digital Tanzania Project* (MCIT, 2021[16]), or may be directing resources to more immediate technology governance priorities such as artificial intelligence, where the pace of policymaking has been much faster than blockchain at a technology level (OECD.AI, 2021[17]). Countries may also consider, under a risk-based approach, that current legal and policy frameworks are sufficient to meet their policy objectives.

1.2.2. Regional and international initiatives can support cross-border co-operation

Several of the national policies discussed above also underlined the importance of international co-operation, including on realising cross-border benefits of the technology, avoiding regulatory fragmentation, and reflecting international standards.

At a continental level, the African Union Development Agency (AUDA-NEPAD) has been particularly active in exploring the applications of blockchain technology in supporting Africa's development priorities and the African Union's Agenda 2063 vision through the African Union High Level Panel on Emerging Technologies. The High Level Panel assessed blockchain's relevance and potential to contribute to African priorities in 2021, highlighting specific opportunities in agricultural supply chains, healthcare data management, financial system efficiency and financial inclusion, qualification mobility and voting integrity (AUDA-NEPAD, 2021[7]). The panel encouraged African countries to develop policy approaches towards an enabling environment for blockchain innovation and adoption, and called for a continent-wide strategy, which could serve as a baseline for African countries' approach to governing blockchain applications.

Other African multilateral initiatives also provide opportunities to convene policymakers, develop technology insights for governments and exchange information between countries. Smart Africa, and alliance of 39 countries created to take forward African-level digitalisation goals, has a blockchain workstream and was an early contributor to the evidence base of blockchain activity in Africa (Smart Africa Secretariat, 2020[8]).

Regional institutions elsewhere have successfully established cross-border public blockchain network infrastructure to drive technical interoperability between applications, sectors, and national jurisdictions, which have also served to promote the development of cross-border applications. The European Commission's European Blockchain Services Infrastructure for EU member and partner countries, and the Inter-American Development Bank's (IADB) LACChain for Latin American and Caribbean nations were both developed in partnership with the private sector and academia. LACChain has been particularly successful in accelerating blockchain-related development activity in emerging markets, with 104 applications developed covering agriculture, natural resource, financial, health, education, sector among others. The initiatives span 21 countries in the Latin American and Caribbean area, and the IADB estimates that the project has had impact for over 9 million people.

Finally, at a technical level, most African countries are either members or correspondent members of the International Organization for Standardization, which has focused on technical standards for blockchain through a dedicated technical committee since 2015. To date, the committee has published eleven standards including on taxonomies, treatment of data, security and governance, smart contracts and interoperability of systems. Such standards can help realise a range of regional and international regulatory priorities for blockchain technology (ISO, 2023[18]), and governments should consider referencing these in their own policy activities.

2 Crypto-asset markets in Sub-Saharan Africa

This paper's previous section showed that while the use of blockchain technology remains relatively rare in most economic sectors of the African countries, finance-related uses are substantially more common, have captured public interest, and are already at market in some cases. Countries and regional bodies have also expressed an intent to harness blockchain towards financial inclusion policy goals, including addressing underbanked populations and facilitating remittances.

There are a range of blockchain-based financial technology innovations including tokenised assets, digital settlement assets and central banks digital currencies, among which crypto-assets are the most developed and established use case, with activity present across all twelve focus countries. This section provides data on the scale and nature of crypto-asset usage in order to equip policymakers with data points and considerations when assessing their national settings.

The analysis shows that crypto-asset activity is present at relatively high rate in the focus countries, and that stablecoins are becoming an important feature in these markets. It concludes that crypto-asset flows are likely driven by speculative activity rather than cross-border payments, and that DeFi activity is largely confined to professional investors or firms, in line with global trends. Finally, it notes the diversity of regulatory and supervisory action on crypto-asset markets among the twelve focus countries, and notes the growing body of international standards and tools which might aid – and in some cases oblige – African regulators to develop a closer focus on crypto-asset markets.

2.1. Crypto-asset market dynamics

Sub-Saharan Africa makes up a small share of the global crypto-asset markets, with 2.3% of activity, however this belies the level of activity in some countries relative to the size of their economies. Controlling for GDP and population, for example, Nigeria is considered by some measures as the second economy globally in terms of consumer-level crypto-asset adoption, while Kenya, Ghana and South Africa also rank highly (Chainalysis, 2023[19]).

2.1.1. Crypto-asset activity has risen steadily, particularly use of stablecoins

Aggregate crypto-asset activity across the twelve focus countries reveals a pronounced increase in crypto-asset flows from January 2021, which has remained robust since (Figure 2.1). Market activity broadly mirrors trends observed at the global level, with peaks corresponding with high crypto-asset valuations, particularly around May 2021. Also echoing global preferences, the established crypto-assets of Bitcoin and Ethereum together made up the bulk of value in the focus countries as crypto-asset activity accelerated.
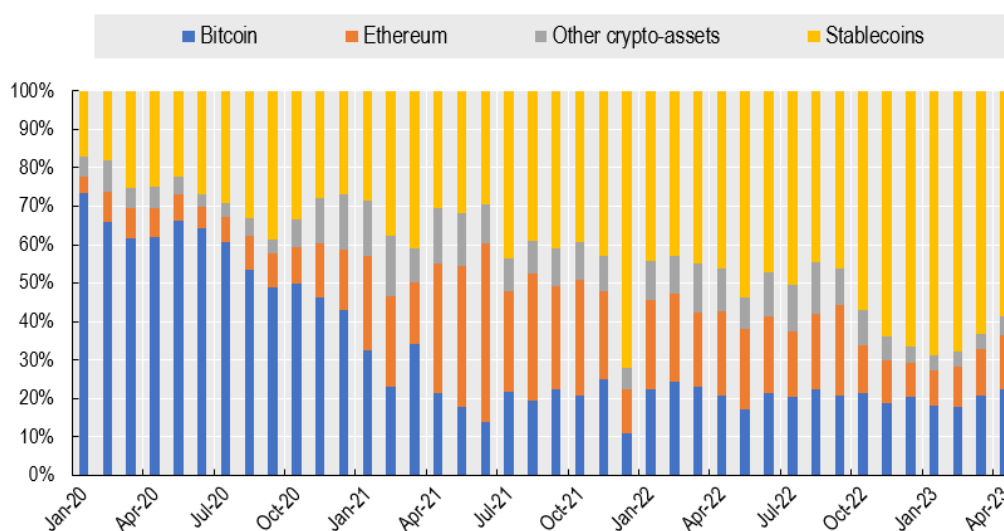
Figure 2.1. Breakdown of flows in focus countries by type of asset
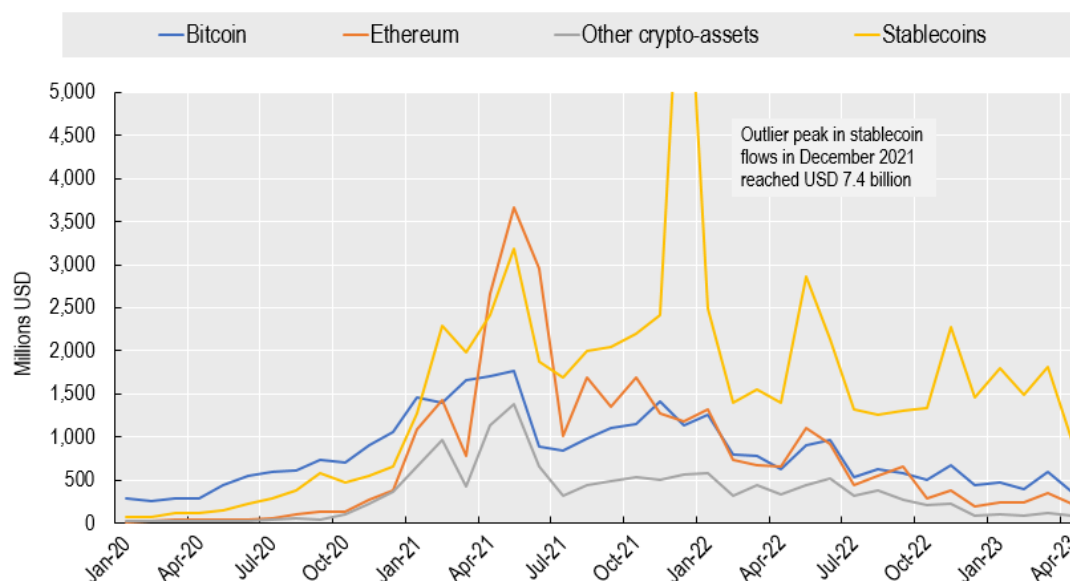
Note: Stablecoins consist of BUSD, DAI, TUSD, USDC, USDP, USDT_BTC, USDT_ETH, USDT_TRX and other crypto-assets consist of DOGE, FTT, LTC, TRX, WBTC, WETH, XRP.
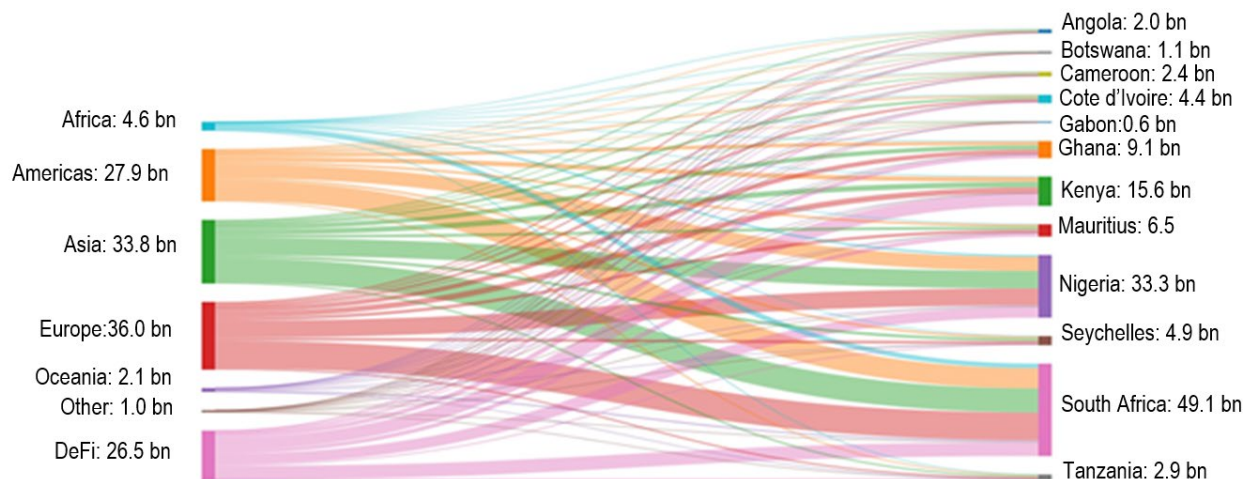Source: OECD based on Chainalysis data.

However, the mix of crypto-assets since this acceleration of activity has evolved over time, with stablecoins steadily becoming a significant feature (Figure 2.2). Over the observed period, the share of stablecoins in crypto-asset flows has risen from 17% to 59%. The move of crypto-asset users to stablecoins also follows a global trend, possibly prompted by the high volatility of other crypto-asset values over this period. A breakdown of total flows and composition of flows for each of the twelve focus countries is at Annex A.

Figure 2.2. Composition of flows in focus countries by type of crypto-asset

Note: Stablecoins consist of BUSD, DAI, TUSD, USDC, USDP, USDT_BTC, USDT_ETH, USDT_TRX and other crypto-assets consist of DOGE, FTT, LTC, TRX, WBTC, WETH, XRP.
Source: OECD based on Chainalysis data.

Current stablecoin usage is still generally tied to crypto-asset-specific activities, particularly DeFi markets. The correlation between flows in stablecoins and "altcoins", speculative crypto-assets which rely on stablecoins as a bridge to more mainstream crypto-assets, is very high across the twelve focus countries (an R^2 value of 0.90), suggesting stablecoin use is largely remaining within the crypto-asset ecosystem and not being used extensively within the wider economy (OECD, Forthcoming[20]). However, the observation of growing stablecoin use is important for regulators and policymakers in these jurisdictions, as the scope for adoption is higher for stablecoins, and the implications and risks different, compared to "traditional" crypto-assets such as Bitcoin and Ethereum.

Generally, "traditional" crypto-assets make poor tools for financial inclusion because of their volatility and barriers to use. However, stablecoins (which are generally denominated in USD) could be more attractive to a wider population, particularly in jurisdictions that already have high crypto-asset adoption rates, high currency volatility, high inflation, and/or a high population of unbanked citizens, which encompasses several of this paper's focus countries. Countries may face particular macroeconomic stability risks from currency substitution towards stablecoins, including diminished monetary policy and capital flow management effectiveness, risks to price stability, difficulties in tax collection, as well as financial stability risks relating to the robustness of the stablecoin arrangements, which would likely be operating offshore (IMF & FSB, 2023[21]).

2.1.2. Crypto-asset flows come from outside Africa, but likely not from remittances

Estimated aggregate crypto-asset flows across continents show crypto-assets flowing to the focus countries from a diverse range of sources, notably from Asia, Europe and the Americas (Figure 2.2). As noted in Section 1, facilitating remittances has frequently been identified by African policy institutions as important potential use of blockchain technology. While it is difficult to estimate the extent to which these crypto-asset inflows represent remittance flows, several dynamics suggest that flows are driven by speculative activity within the crypto-asset ecosystem itself.

Figure 2.3. Aggregate net crypt-asset flows across geographies, 2020-23 (USD)

Note: "DeFi" represents smart contracts that facilitate financial intermediation of crypto-assets, for example lending or crowdfunding. Decentralized exchanges are included in the exchanges category.
Source: OECD based on Chainalysis data.

Overall, the geographic pattern of crypto-asset flows is inconsistent with the general pattern of remittances to Sub-Saharan African countries. While Europe and the US are important sources of remittances to the region, and are well represented as senders of crypto-assets to the twelve focus countries, intra-African

flows are substantially underrepresented in crypto-asset flows relative to their importance to Sub-Saharan African remittances, while Asian economies are significantly overrepresented (IMF, 2021[22]). Analysis also demonstrated a very weak correlation between remittance inflows and crypto-asset adoption in these countries (an R^2 value of 0.11).

However, Asia, Europe and the US are significant jurisdictions for centralised crypto-asset exchange services which host substantial levels of crypto-asset activity. At the same time, high levels of flows from DeFi applications, combined with the observed strong correlation between stablecoin flows and speculative activity, suggest flows are arising within the crypto-asset ecosystem have likely not been used at scale for cross-border payments (OECD, Forthcoming[20]).

2.1.3. Professional investors make up the bulk of crypto-asset activity in Africa

While some Sub-Saharan African countries have relatively high rates of crypto-asset adoption and significant flows, evidence suggests that professional and institutional investors are the most active participants in crypto-assets activities in African markets, likely due to the potential for high returns due to volatility, and unrestricted leverage opportunities on DeFi protocols (OECD, Forthcoming[20]). Using transaction sizes as a proxy, analysis shows that more than two thirds of global crypto-asset activity is performed by professional and/or institutional investors (Figure 2.4).

Figure 2.4. Share of professional investors in crypto-asset activity worldwide
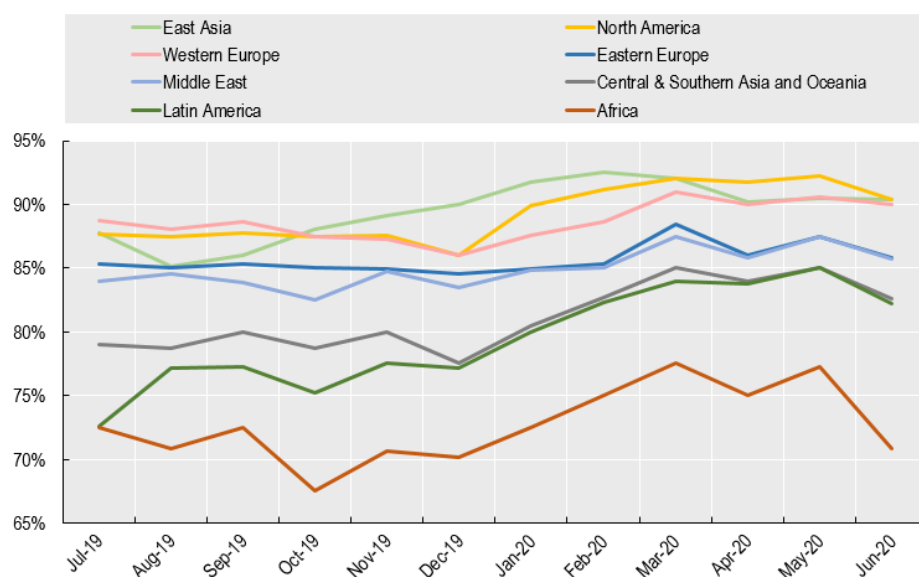
Source: (OECD, Forthcoming[20])

Though Africa had the lowest share of professional activity in crypto-asset markets over the observed period, this still averaged a substantial 73%. While African retail investors appear more engaged in crypto-asset markets than in other jurisdictions, they are likely speculative investors with advanced IT skills rather than financial consumers, owing to the technical complexity and relative inaccessibility of crypto-asset applications and DeFi platforms (OECD, 2022[23]).

2.2. Regulatory developments and public sector initiatives

The financial sector is highly regulated across the twelve focus countries, and crypto-asset usage in these jurisdictions exists alongside regimes covering related activities in crypto-asset markets and of crypto-asset service providers, including regulation governing the issuance and transfer of securities, payments and e-money, lending and crowdfunding, settlement and clearing, asset custody, and other sectoral rules and policies.

Despite the presence of regulatory frameworks however, crypto-asset markets contain features which promote the use of crypto-assets and related services across borders or in a way that makes jurisdictional identification difficult, allowing the circumvention of domestic regimes. This is particularly evident in countries which have issued outright bans on the use of crypto-assets, including Tanzania, Gabon and Cameroon, but where crypto-asset activity inflows have totalled billions of USD, and activity is in the tens of millions each month (see Annex A). The result is that many crypto-asset activities operate without being subject to comprehensive regulation or are being undertaken in non-compliance with applicable jurisdictional regulations (FSB, 2023[24]).

2.2.1. Crypto-asset frameworks are rare while international initiatives develop

Among this paper's twelve focus countries, dedicated crypto-asset regulatory frameworks have been established in Mauritius under the Virtual Asset And Initial Token Offering Services Act of 2021, and in Nigeria by rules issued by the Securities and Exchange Commission (SEC, 2022[25]). In addition, South Africa's Financial Sector Conduct Authority has issued guidance bringing crypto-asset activity into the jurisdiction of the regulator under existing legal frameworks (FSCA, 2022[26]). Among the remaining countries, most have issued warnings from the central bank and/or financial market authority on crypto-asset use, and several have specified that such activities are not regulated in their jurisdictions. As mentioned above, three countries have banned the use of crypto-assets outright.

While regulatory frameworks or comprehensive interventions are rare among these countries, a body of work from international institutions is emerging which can assist African countries to assess the need for specific approaches and policy design. In the case of financial integrity initiatives, African countries may have already committed to implementing global rules which could require specific regulatory features for crypto-asset services and their providers.

Notably, the Financial Stability Board (FSB) released a set of High-level Recommendations for the Regulation, Supervision and Oversight of Crypto-Asset Activities and Markets in July 2023 to promote comprehensiveness in financial regulatory and supervisory approaches for crypto-assets, as well as greater international consistency (FSB, 2023[27]). The recommendations highlight the risks of a "do nothing" approach to crypto-asset regulation, and encourage regulators to use (and where needed to develop) their powers and tools to regulate, supervise, and oversee crypto-asset activities and markets, on the basis of "same activity, same risk, same regulation" compared to traditional financial activities, applying the same standards of risk management and governance. It also encourages authorities to collect data on crypto-asset activities as needed to fulfil their mandates, and to co-operate internationally given the global nature of crypto-asset markets.

While the FSB's crypto-asset recommendations apply equally to stablecoins, it has also issued recommendations for global stablecoin arrangements (FSB, 2023[28]), although none yet exist. In addition, the Basel Committee on Banking Supervision has issued guidance on the prudential treatment of crypto-assets on bank balance sheets (BCBS, 2022[29]) while the International Organization of Securities Commissions has issued consultations on recommendations for crypto and digital asset markets (IOSCO, 2023[30]) and DeFi markets (IOSCO, 2023[31]).

International standards have also been established around financial integrity and transparency through global for a in which African countries participate, and whose objectives are of high relevance to African countries. Specifically, the Financial Action Task Force extended its anti-money laundering and counter-terrorist financing (AML/CFT) standards to crypto-assets and related service providers in 2019 and provided updated guidance in 2022 (FATF, 2021[32]), and the OECD's Global Forum on Exchange of Information for Tax Purposes similarly extended tax transparency and reporting standards in 2022 (OECD, 2022[33]). Countries that do not license or register crypto-asset and crypto-asset service providers regulation may have difficulty fulfilling the obligations contained in these standards, and indeed this difficulty was a major rationale for South Africa's regulatory guidance in this area (FSCA, 2022[26]).

Annex. Breakdown of crypto-asset activity by type of asset and flow composition for all sample countries

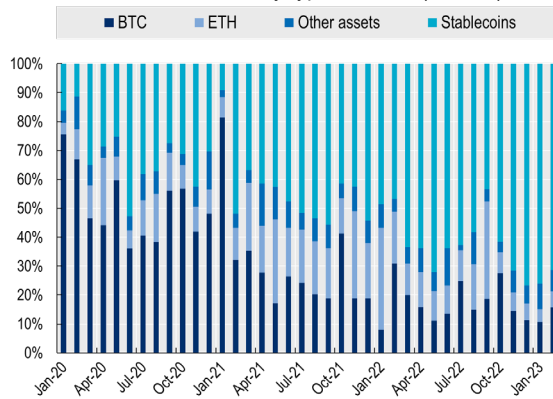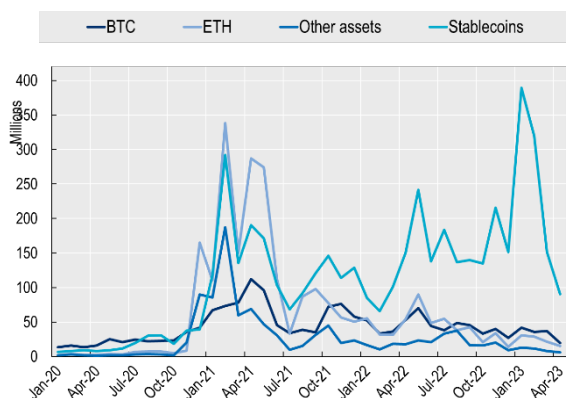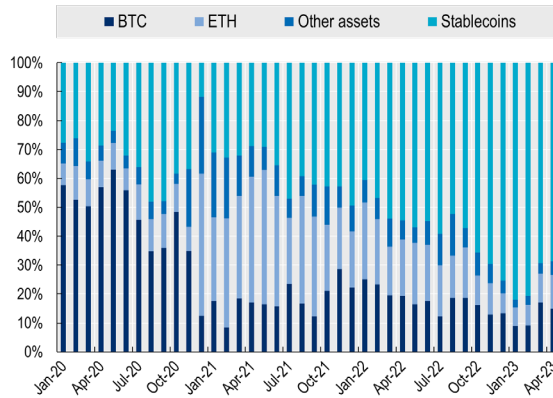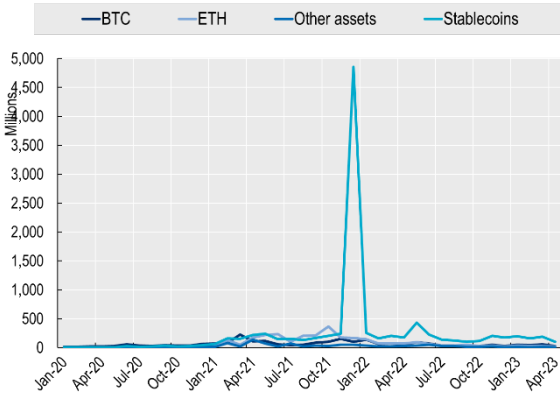Breakdown of Angola inflows by type of asset (in USD)
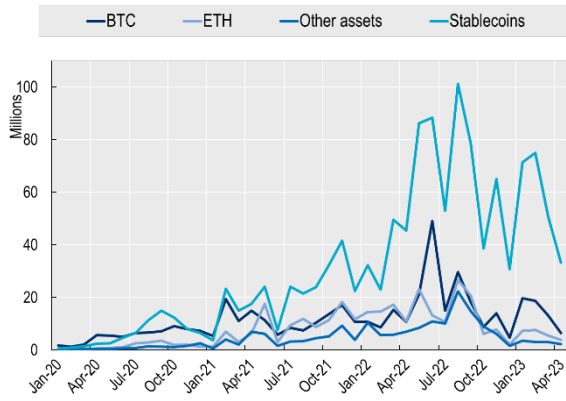
% of Angola inflows by type of asset (in USD)
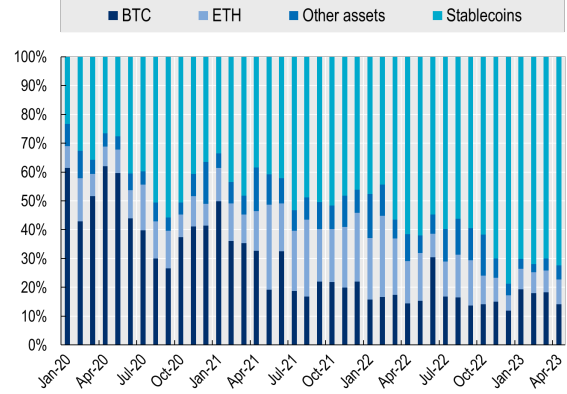
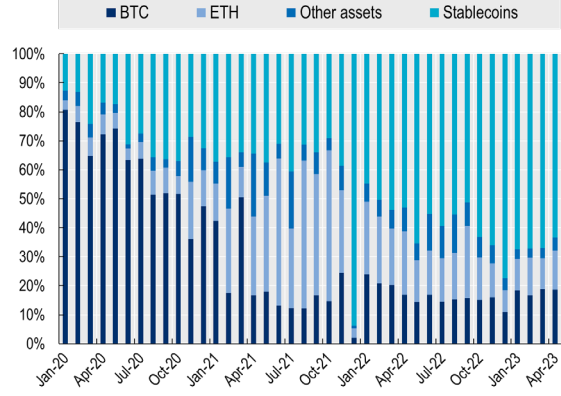Breakdown of Botswana inflows by type of asset (in USD)
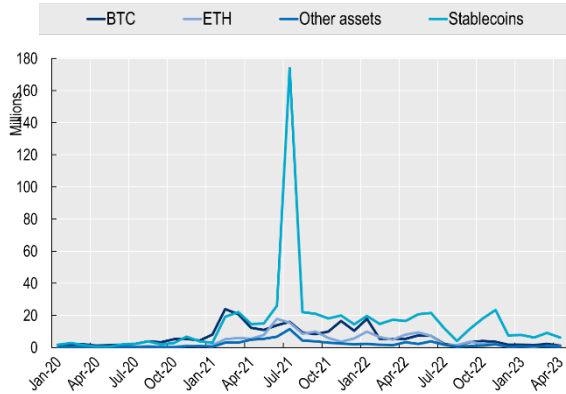
% of Botswana inflows by type of asset (in USD)
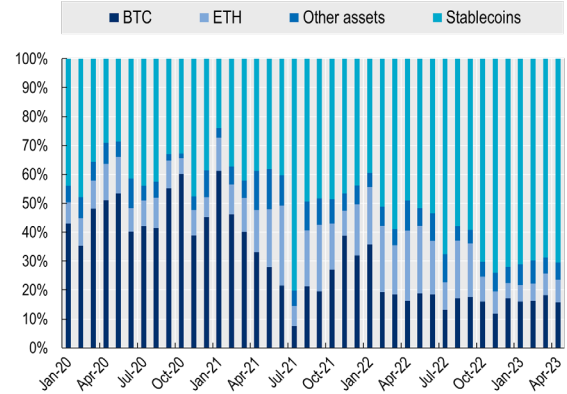
Breakdown of Cameroon inflows by type of asset (in USD)
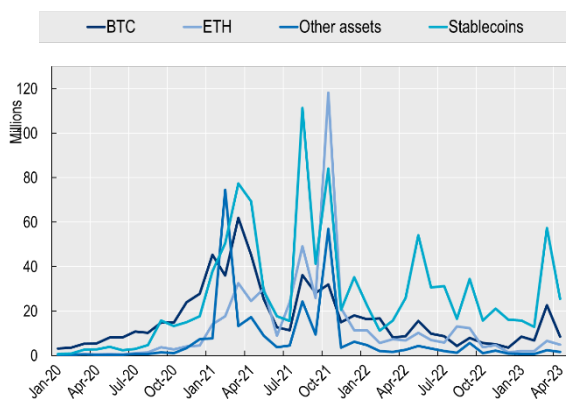
% of Cameroon inflows by type of asset (in USD)
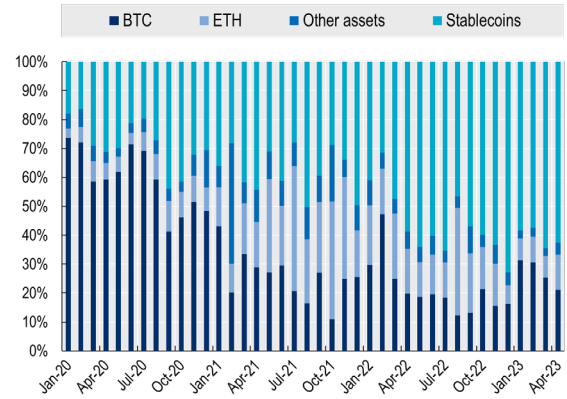
Breakdown of Côte d'Ivoire inflows by type of asset (in USD)
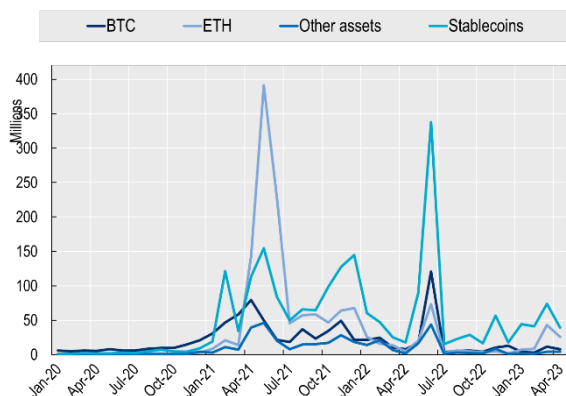
% of Côte d'Ivoire inflows by type of asset (in USD)
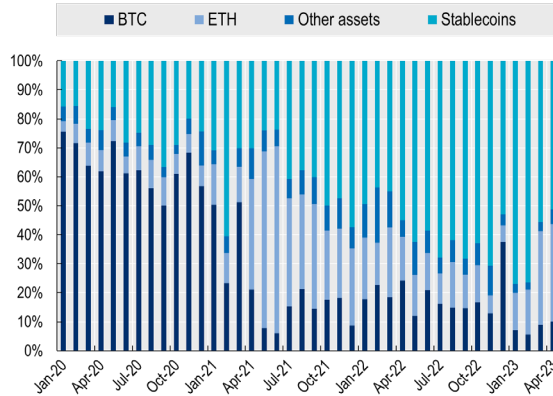
Breakdown of Gabon inflows by type of asset (in USD)
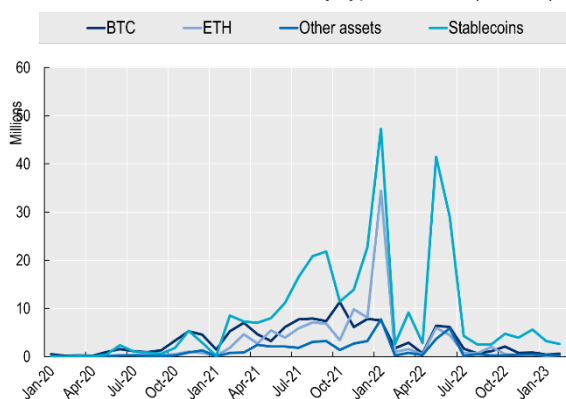
% of Gabon inflows by type of asset (in USD)

Breakdown of Ghana inflows by type of asset (in USD)

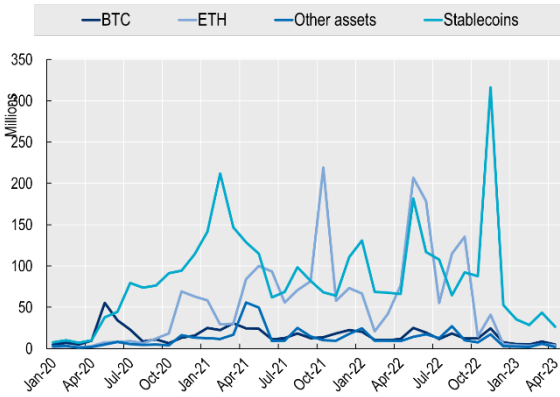### % of Ghana inflows by type of asset (in USD)

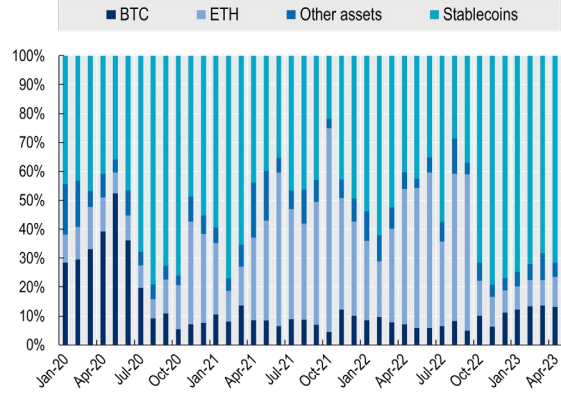### Breakdown of Kenya inflows by type of asset (in USD)

% of Kenya inflows by type of asset (in USD)
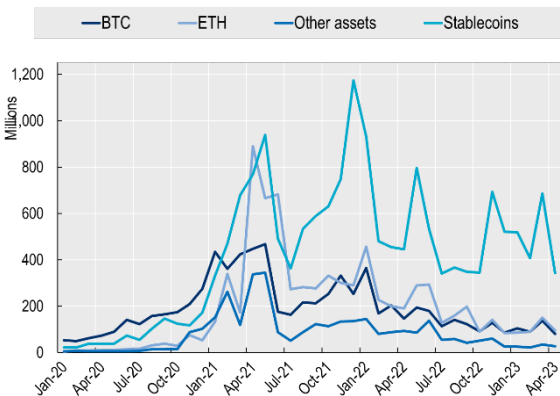

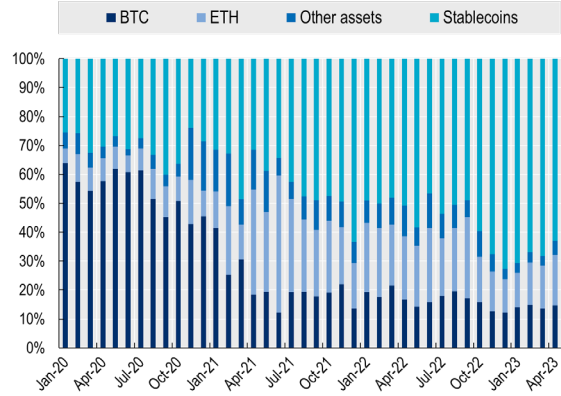### Breakdown of Mauritius inflows by type of asset (in USD)

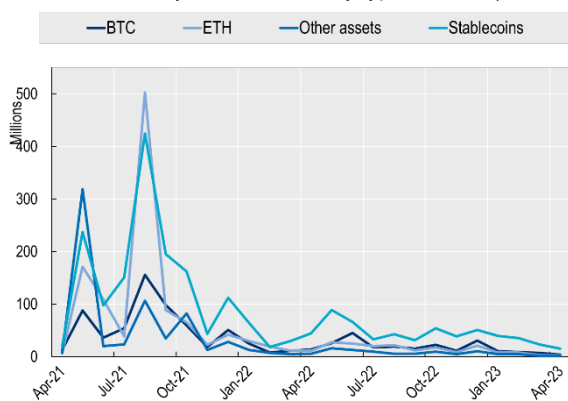### % of Mauritius inflows by type of asset (in USD)

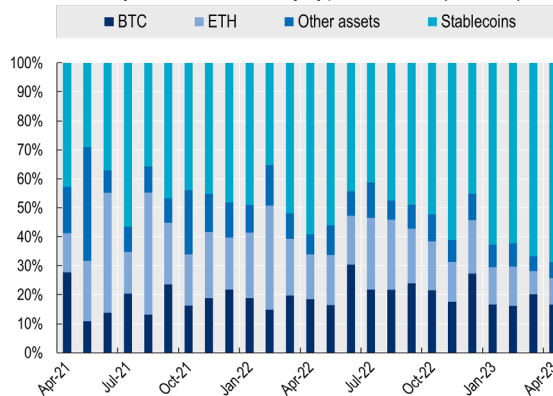### Breakdown of Nigeria inflows by type of asset (in USD)

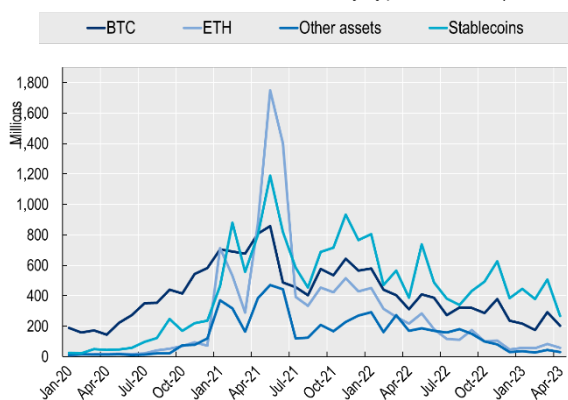### % of Nigeria inflows by type of asset (in USD)

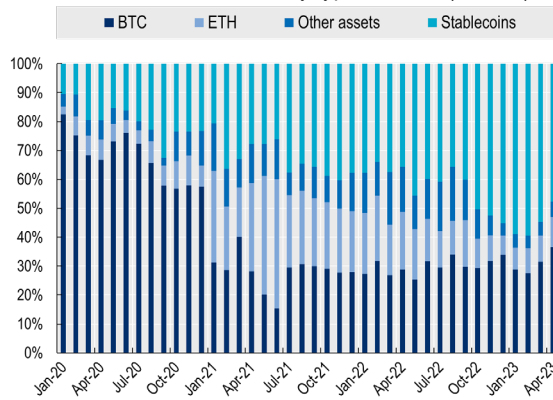### Breakdown of Seychelles inflows by type of asset (in USD)

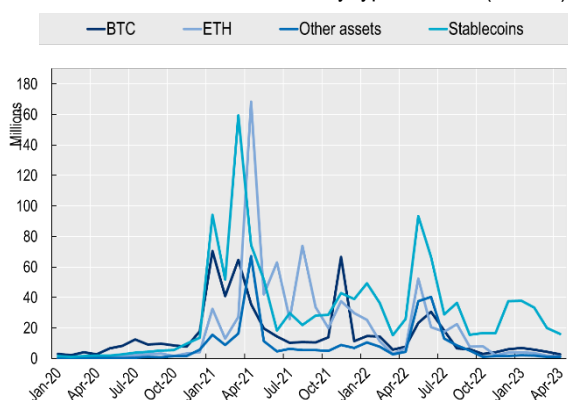### % of Seychelles inflows by type of asset (in USD)

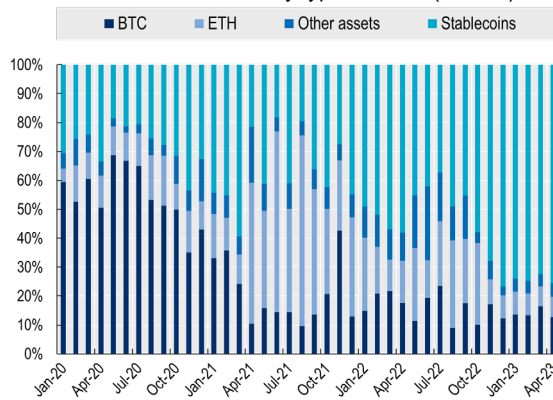### Breakdown of South Africa inflows by type of asset (in USD)

% of South Africa inflows by type of asset (in USD)

Breakdown of Tanzania inflows by type of asset (in USD)

% of Tanzania inflows by type of asset (in USD)

Source for all charts: OECD based on Chainalysis data.

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