Central Bank of Kenya

Banking Sector Innovation Survey 2022

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1.0 FOREWORD

It gives me great pleasure to present the results of the Kenyan Banking Sector Innovation Survey 2022 conducted in February 2023. Kenya continues to live up to its legacy of being the *Silicon Savannah*. In view of this, the banking sector continues to make great strides in leveraging technology to develop innovative products and services.

Against this backdrop, the Central Bank of Kenya (CBK) conducts an annual innovation survey to understand the trend and impact of digitization in the banking sector to inform appropriate policy decisions. The aim of the survey, therefore, was to collect current and forward-looking information on Fintech developments to establish the state of innovation in the Kenyan banking sector as at December 31, 2022. The survey serves as a follow-up to the 2018, 2019, 2020 and 2021 Innovation Surveys.

The 2022 Innovation Survey findings highlighted three broad themes:

First, the Kenyan banking institutions are increasingly focusing on collaboration and partnerships with Fintech start-ups to provide innovative services and products to customers. This will enhance customer experience, enabling easier and more accessible digital banking services. To this end, Application Programming Interfaces (APIs) and enhanced cybersecurity will play a key role in the emerging financial ecosystems.

Second, the survey indicated a continued interest in innovation for climate action. Institutions highlighted the importance of the Sustainable Development Goal (SDG) 13 on Climate Action. To this end, institutions have increased their solutions contributing towards greening the financial system. In recognition of the challenges and opportunities presented by climate change to the global economy, CBK issued a Guidance on Climate-Related Risk Management in October 2021, for the banking sector. This will steer the financial sector towards achieving sustainability.

Third, institutions are prioritising efforts towards SDG 8 on Decent Work and Economic Growth. Creation of jobs will have a positive impact on the economy. Institutions emphasised Micro, Small and Medium Entreprises (MSMEs) financing and the support as a driving force to achieve decent work and end poverty. Accordingly, it is critical that innovations focus on enhanced financial services to MSMEs.

The information collected through the survey will enable CBK to better understand the impact of Fintech on current operating models, including the emergence of new business models and the evolving and emerging risks. The information will also provide CBK with an informed basis for evidence-based public policy decisions on Fintech going forward. Further, the survey findings will keep customers abreast of emerging technologies and enable them to make informed choices when selecting banking services. Finally, the survey findings will inform the banking sector, technology service providers, investors, and the Fintech ecosystem as they craft their innovation strategies and identify opportunities for growth and investment.

Dr. Patrick Njoroge
Governor

2.0 BACKGROUND

2.1 Survey Methodology

- The survey collected data on the state of innovation as at December 31, 2022, from 38 commercial banks, 1 mortgage finance institution and 14 microfinance banks (MFBs).
- The survey was issued in February 2023.
- Questions in the 2022 survey were classified into 6 sections:
  - **Section A** – Institution Innovation Activities.
  - **Section B** – Context for Innovation.
  - **Section C** – COVID-19 and Innovation.
  - **Section D** – Public Support for Innovation.
  - **Section E** – Afro-Asia Fintech Festival Assessment.
  - **Section F** – Impact and Challenges.

2.2 Summary of Findings

i) Innovation Units

- 77 percent of the respondents indicated that they had a dedicated function that spearheads innovation activities compared to 75 percent in the 2021 Innovation Survey.
- Most financial institutions noted that the main role of the innovation function is to develop new products and solutions in a bid to transform customer experience, create new markets and generate new revenue streams.
- On average, innovation function teams constitute 60 percent male and 40 percent female staff.
- 51 percent of financial institutions surveyed indicated that they had set up innovation hubs to promote innovation activities.

ii) Innovation Priorities

- 82 percent of the commercial banks consider payments, clearing and settlement services as the most important operations and service areas to innovate in the short to medium term strategy, compared to 71 percent of MFBs.
- Conversely, 93 percent of MFBs consider credit, deposit and capital-raising services as the most important operations and service areas to innovate in the short to medium term strategy, compared to 72 percent of commercial banks.
- Payments, clearing, and settlement services was the functional area where most banks introduced an innovative product in the period January 1 to December 31, 2022, with 64 percent of the banks innovating in this area compared to 67 percent in 2021.
- Credit, deposit, and capital-raising services was the functional area where most MFBs introduced an innovative product in the period January 1 to December 31, 2022, with 64 percent innovating in this area compared to 57 percent in 2021.
- 96 percent of the institutions have adopted or developed a mobile banking solution (app or USSD) to assist in its administration of banking and customer-relationship services. 32 percent of the institutions noted that credit business is the least digitized area of their institution's operations. The highlighted areas include loan application, credit appraisal, credit approval, disbursement, and repayment processes.

iii) Innovation Risks

- Cyber-risk turned out to be the key risk area for institutions in their innovation endeavours, similar to the findings of the 2018-2021 Innovation Surveys. 92 percent of banks and 100 percent of MFBs identified it as one of the top three innovation-related risks.
- 57 percent of MFBs and 54 percent of banks considered third-party and vendor management

risk as one of the top three innovation-related risks. This correlates with most of the institutions that responded to using an outsourced or collaboration and partnership approach to the development of innovative products. This is lower than 71 percent of MFBs and 67 percent of banks in 2021, indicating an improvement in the management of third parties.

iv) Technological Developments

- APIs have been adopted by most institutions with a 92 percent and a 79 percent adoption rate by banks and MFBs respectively, which aggregates to 89 percent. This is followed by Big Data and Data Analytics, Biometrics Technology, and Cloud Computing, with an adoption rate of 57 percent, 51 percent, and 47 percent, respectively across all financial institutions.

v) Public Support, Policy and Regulation

- Institutions indicated that the top three forms of public support based on the 2022 survey were: provision of infrastructure and services (68 percent), direct funding support (58 percent), and demand-side support (55 percent).

vi) Climate Action and Sustainability

- Of the institutions surveyed, 51 percent of commercial banks and 43 percent of microfinance banks indicated that they had innovated or are in the process of innovating a climate change-related product. This was an increase from 33 percent and 36 percent, respectively in 2021, indicating a steady focus on the emerging issue.
- Some of the climate change-related solutions were focused on climate financing, lending for clean energy solutions, and automation of services to reduce carbon footprint.

vii) Afro-Asia Fintech Festival

- Institutions surveyed recommended that the following solutions would transform the banking sector, and should be incorporated in the next Afro-Asia Fintech Festival:
    - Fourth Industrial Revolution (4IR) technologies such as artificial intelligence (AI) and machine learning (ML) for risk assessment, customer service, and fraud detection.
    - Solutions that address access to credit for SMEs.
    - Open banking for secure sharing of financial data.
    - Central Bank Digital Currencies.
    - Quick Response (QR) code-based payment solutions.
    - Embedded finance.
    - Green finance.
    - Real-time Know-Your-Customer (KYC) solutions.
    - Islamic banking product innovations.
    - Credit scoring as a service.
    - Big data.

2.3 Changes from Innovation Survey 2021

- In the 2021 Innovation Survey that covered the period January 1, 2021 – December 31, 2021, 74 percent of the respondents considered themselves as “better banks”, 19 percent as “distributed banks” and 8 percent as “new banks". However, in the 2022 Innovation Survey, 60 percent of the institutions consider themselves as "better banks", 25 percent as "distributed banks" and 13 percent as "new banks". [1]

- 77 percent of banks and 64 percent of MFBs introduced an innovative product during the period January 1 to December 31, 2022.
- There was an increase in MFBs that introduced an innovative product in 2022, compared to 2021, whereby 50 percent of the MFBs introduced a new product, indicating a steady recovery for MFBs after the COVID-19 pandemic, given that in 2019, 86 percent of MFBs introduced an innovative product into the market.
- Investment management and custodial services remained the functional area with the least innovation during the period, with 13 percent of the banks and none of the MFBs indicating they had introduced an innovative product in this area.
- 10 percent of the institutions indicated that they had spent more than Ksh.200 million in 2022, on secure software development and database related activities. This is an increase from 8 percent in 2021.
- Based on the 2022 Innovation Survey findings, 59 percent of banks and 43 percent of MFBs continued to experience the impact of COVID-19 on pre-existing innovations within the various institutions, compared to 59 percent of banks and 36 percent of MFBs in 2021.
- Institutions considered Sustainable Development Goal (SDG) 8: Decent Work and Economic Growth as the top SDG with the most potential for innovation-related activities tied to digital finance (64 percent). This was closely followed by SDG 13: take urgent action to combat climate change and its impacts (53 percent) and SDG 1: end poverty in all its form everywhere (49 percent). MSMEs were highlighted as critical towards achieving decent work and economic growth, thereby contributing towards ending poverty.
- Comparatively, in 2021, the top 3 SDGs with the most potential for innovation-related activities tied to digitalization of finance were SDG 8: Decent Work and Economic Growth (74 percent), SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (62 percent) and SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (47 percent).

[1]***Better Bank*** *– An institution seeks to become a 'better bank' by leveraging on enabling financial technologies (Fintech) to digitize and modernize its operations and business practices. Its market knowledge and Fintech investment will significantly improve its banking services and products offering.*

New Bank *– An institution seeks to become a 'new bank' by creating a 'built for digital' banking platform. The institution shall apply advanced Fintech to provide banking services, minimize operational costs, improve customer experience, and market their products through social media.*

Distributed Bank *– An institution seeks to become a 'distributed bank' through collaboration and partnership with Fintech start-ups. The institution seeks to compete for the ownership of the customer relationship by providing niche banking services. Such joint ventures will allow consumers to use multiple financial service providers, through a 'plug and play' digital interface.*

Relegated Bank *– An institution seeks to become a 'relegated bank' by allowing Fintech start-ups and third-parties to provide and manage direct customer relationships through 'frontend' digital platforms. The institution will be relegated to offering commoditized banking functions such as deposit-taking, lending and risk management, to the digital platforms that own and manage the customer relationships.*

3.0 SURVEY FINDINGS

3.1 Institutions' Innovation Activities

3.1.1 Institutions' Business Strategy towards Financial Innovation

- According to their business strategies, 60 percent of the institutions consider themselves as a "better bank", 25 percent as a "distributed bank" and 13 percent as a "new bank".
- The number of institutions that consider themselves a "better bank" decreased to 60 percent in 2022, from 74 percent, 72 percent, and 71 percent in 2021, 2020, and 2019, respectively.
- In the 2021 Innovation Survey that covered the period January 1 – December 31, 2021, 19 percent of the respondents considered themselves as "distributed banks". This number increased to 25 percent in 2022. However, institutions that consider themselves as a "new bank" increased from 8 percent in 2021 to 13 percent in 2022.
- 62 percent of the commercial banks consider themselves as a "better bank", 28 percent as a "distributed bank" and 8 percent as a "new bank". Comparatively, 57 percent of MFBs consider themselves as a "better bank", 29 percent as a "new bank", and 14 percent as a "distributed" bank.

Figure 1: Institutions' Business Strategy on Financial Innovation

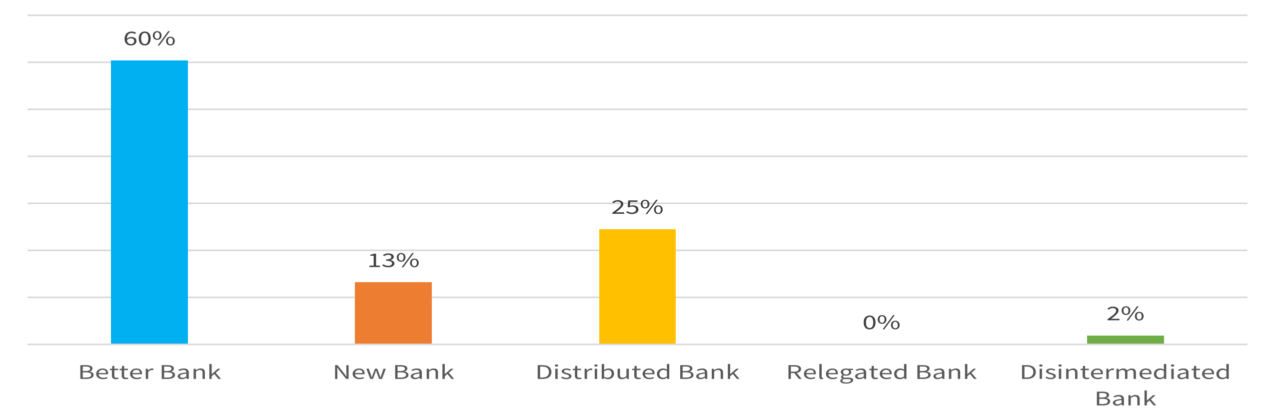


Figure 2: Business Strategy Comparison between 2021 and 2022 Innovation Surveys

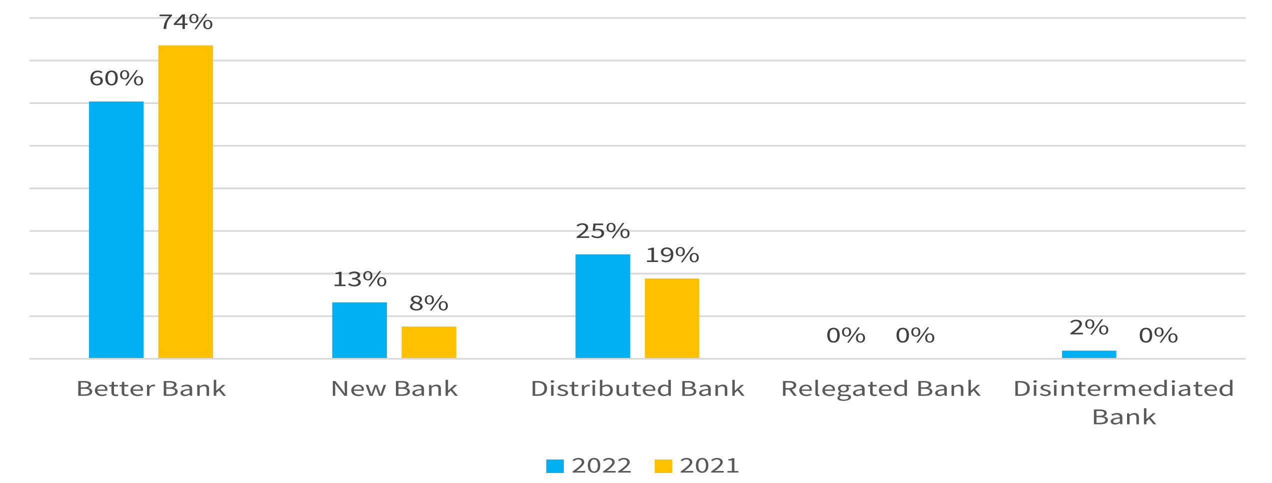


Figure 3: Banks' Business Strategy on Financial Innovation

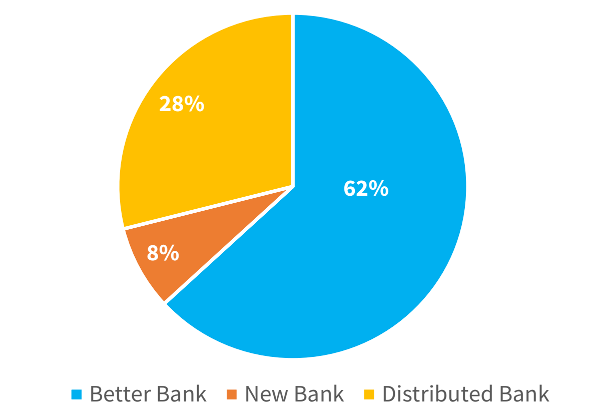
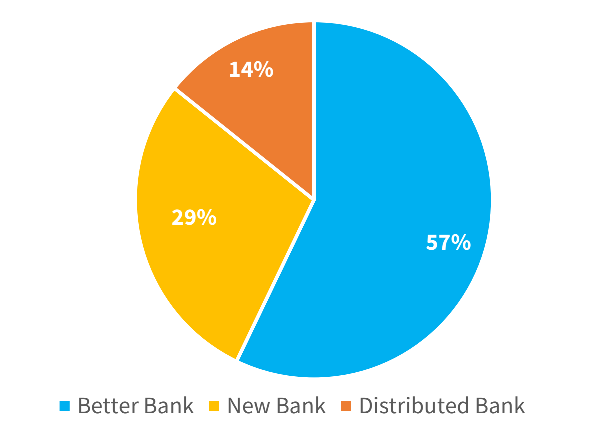
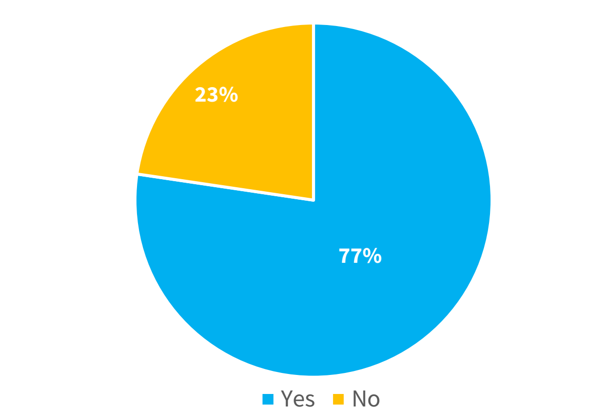


Figure 4: MFBs' Business Strategy on Financial Innovation



- 77 percent of the respondents indicated that they had a dedicated function that spearheads innovation activities compared to 75 percent in the 2021 Innovation Survey. This constituted 79 percent of the commercial banks and 71 percent of the MFBs, who indicated that they had a dedicated function that spearheads innovation activities.
- Most financial institutions noted that the main role of the innovation function is to develop new products and solutions in a bid to transform the customer experience, create new markets and generate new revenue streams.

Figure 5: Institutions with a Dedicated Innovation Function



- On average, innovation function teams constitute 60 percent male and 40 percent female members.
- Limited financial resources and a strategy where existing business functions are assigned the role of spearheading innovation activities were cited as the main reasons why some institutions have not established a dedicated innovation function.
- Most of the institutions noted that ideas for product innovation originated from customer needs, shared through customer feedback and engagement. This aligns with the Kenya Banking Sector Charter (KBSC). The Charter, which focuses on customer centricity among other key pillars, has prompted institutions to innovate products that consider the customer first.
- Other key factors considered by most institutions before innovating a product were:
  - Customer-centricity.
  - Availability of resources and technology.
  - Scalability.
  - Deposit mobilisation.
  - Business strategy.

- Product risk assessment.
- Competition.
- Regulation.
- Operational efficiency.
- Return on investment.

- Several institutions have established an innovation framework that guides the decision-making process of innovating a product and a committee that reviews innovative product proposals before seeking Board approval.

- 11 percent of the institutions develop their products in-house, 15 percent through partnerships and collaboration with other entities, 4 percent by outsourcing development, and 70 percent use two or more of those approaches.

- 79 percent of commercial banks combined two or more of the highlighted approaches when developing products. Only 8 percent responded to using an in-house development approach. This underscores the role of third parties and collaboration in Fintech innovations.

Figure 6: Institutions' Approaches towards Development of Innovative Products

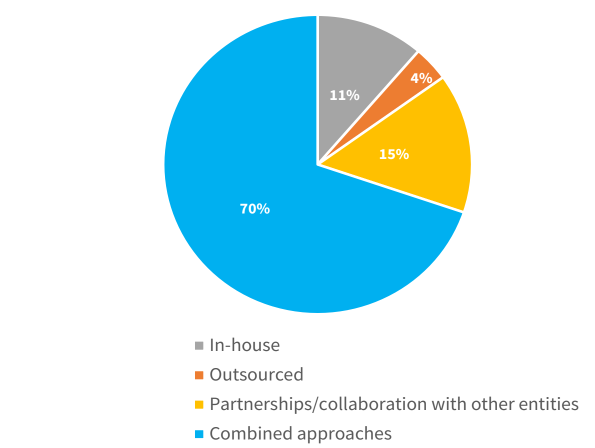
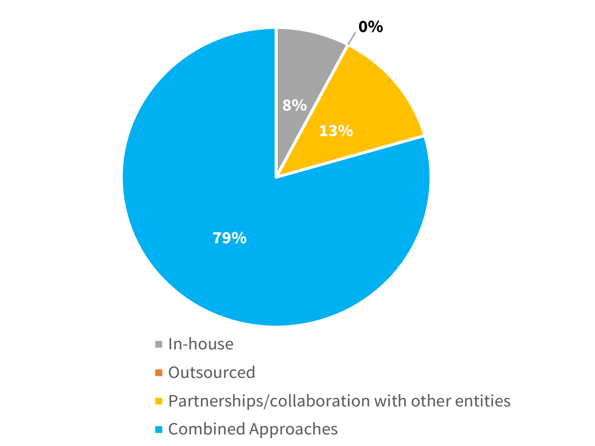


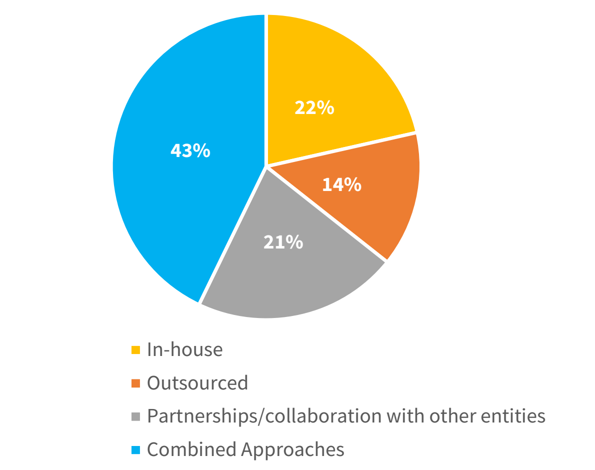
Figure 7: Banks' Approaches towards Development of Innovative Products



- Comparatively, 22 percent of MFBs responded to using an in-house development approach while 43 percent combined two or more approaches towards developing innovative products.

- All institutions noted a positive impact of the Kenya Banking Sector Charter (KBSC) on their business strategy focus on innovation, similar to the 2021 Innovation Survey. 74 percent of the institutions observed that the Charter has brought customer centricity in product development while guiding them to adopt a customer-first philosophy in their approach towards innovation.

Figure 8: MFBs' Approaches towards Development of Innovative Products



3.1.2 Product Innovation

- 77 percent of banks and 64 percent of MFBs introduced an innovative product during the period January 1 to December 31, 2022. There was an increase in MFBs that introduced an innovative product in 2022, compared to 2021, whereby 50 percent of the MFBs introduced a new product. This indicates a steady recovery for MFBs after the COVID-19 pandemic, given that in 2019, 86 percent of MFBs introduced an innovative product into the market.

Figure 9: Introduction of Fintech products by Banks

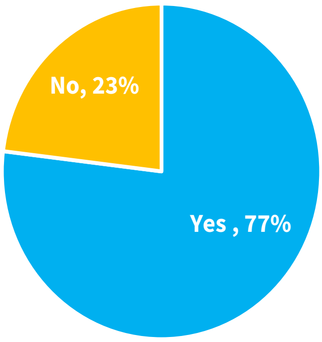
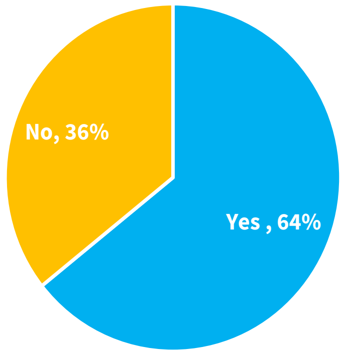


Figure 10: Introduction of Fintech Products by MFBs



- In this Survey, the functional scope of product classification was grouped into 5 areas:
  - Credit, deposit, and capital raising services.
  - Payments; clearing and settlement services.
  - Investment management and custodial services.
  - Incidental business activities; and
  - Market support services.
- Payments, clearing, and settlement services was the functional area where most banks introduced an innovative product in the period January 1 to December 31, 2022, with 64 percent of the banks innovating in this area compared to 67 percent in 2021.
- Credit, deposit, and capital-raising services was the functional area where most MFBs introduced an innovative product in the period January 1 to December 31, 2022. 64 percent of MFBs innovated in this area compared to 57 percent in 2021.
- Investment management and custodial services remained the functional area with the least innovation during the period, with 13 percent of the banks and none of the MFBs indicating they had introduced an innovative product in this area.

Figure 11: Classification of Fintech Products Introduced by Banks

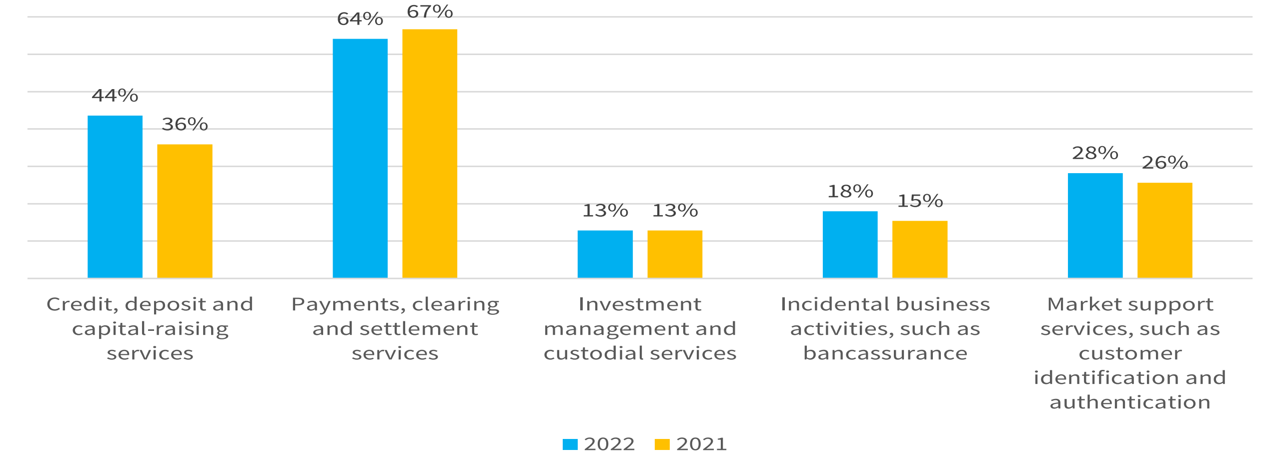
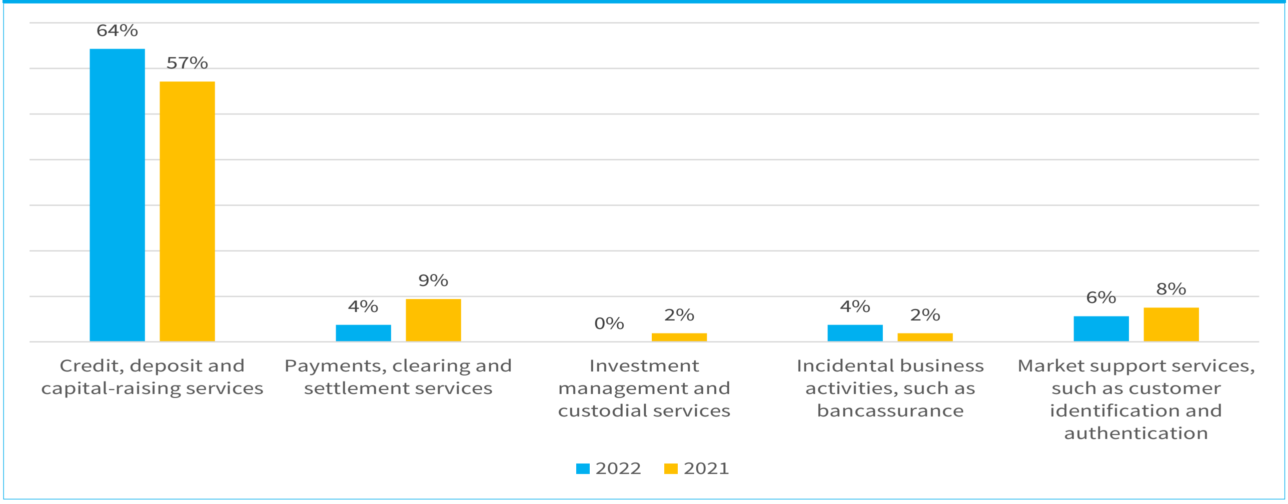
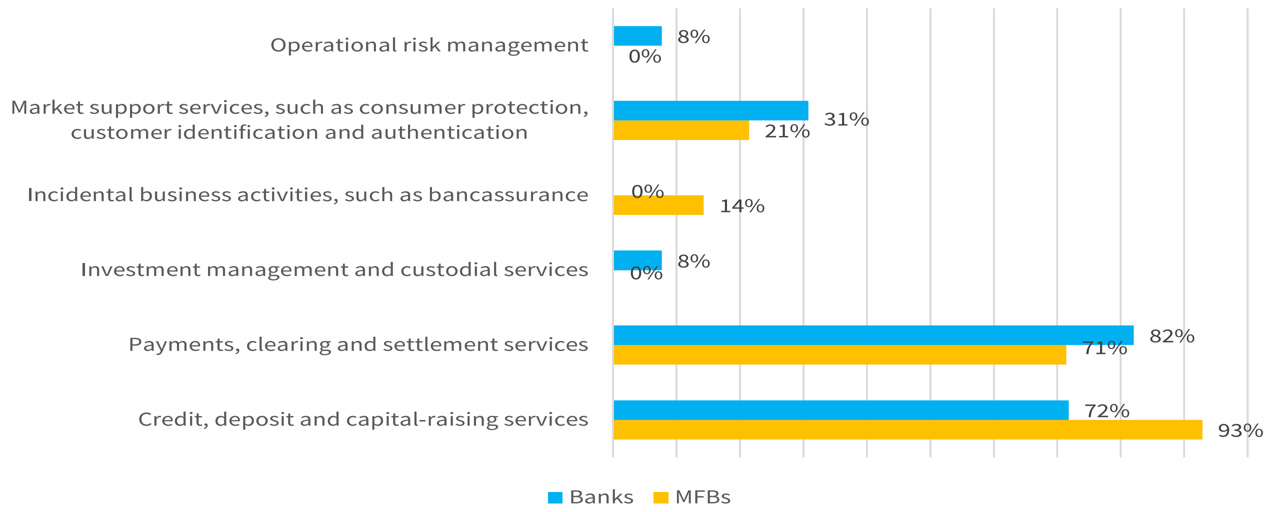


Figure 12: Classification of Fintech Products Introduced by MFBs



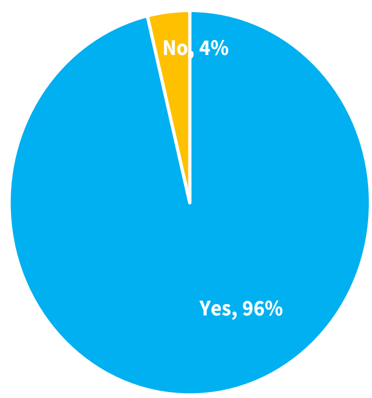
- 82 percent of the commercial banks considered payments, clearing and settlement services as the most important operations and service areas to innovate in the short to medium-term strategy compared to 71 percent of MFBs.
- Conversely, 93 percent of MFBs considered credit, deposit and capital-raising services as the most important operations and service areas to innovate in the short to medium-term strategy, compared to 72 percent of commercial banks.
- 8 percent of the commercial banks considered investment management and custodial services as the most important operations and service areas to innovate. Comparatively, none of the MFBs considered investment management and custodial services as important functional areas to innovate.

Figure 13: Functional Areas Considered Most Important to Innovate



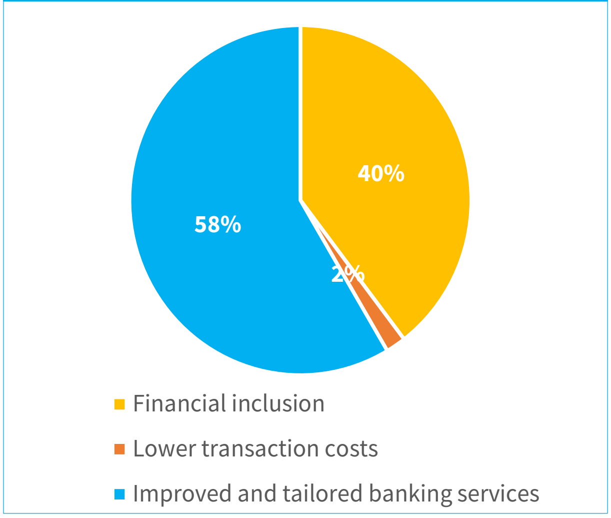
- 96 percent of the institutions have adopted or developed a mobile banking solution (app or USSD) to assist in its administration of banking and customer-relationship services.
- Only two (2) institutions (1 bank and 1 MFB) have not adopted or developed a mobile banking solution (app or USSD).

Figure 14: Institutions Providing a Mobile Banking Solution to Customers



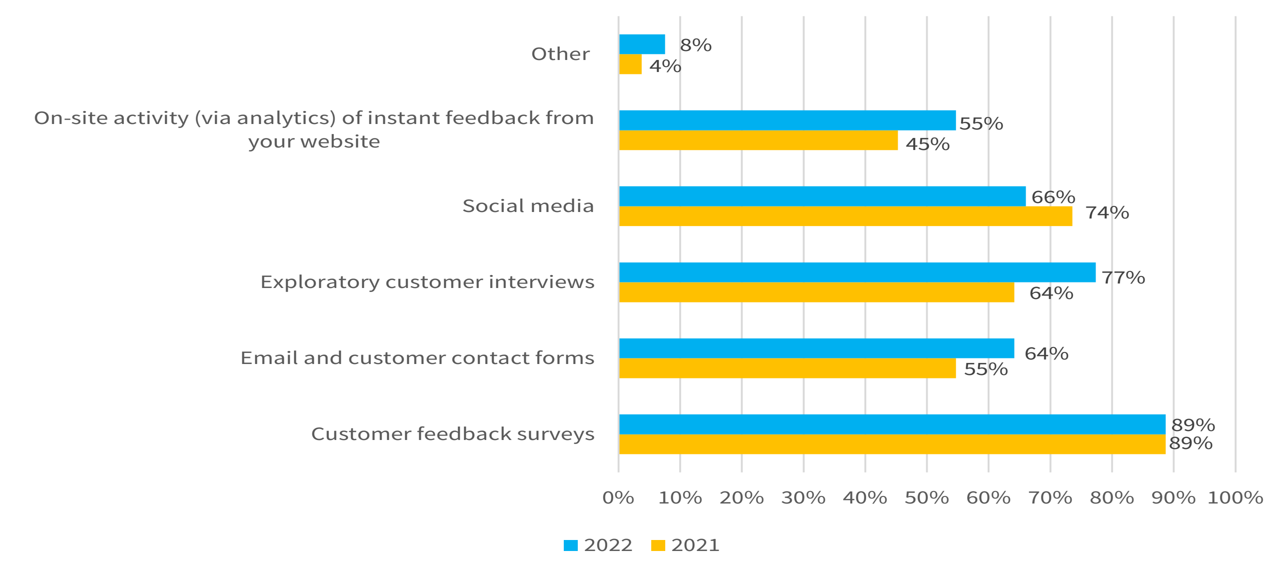
- Payment services were the most common functionality of the mobile banking solution with 51 percent of the institutions indicating that payment services were offered within their mobile solution.
- Other common services offered by most of the institutions' mobile banking solutions include:
    - Funds transfer.
    - Account opening.
    - Account management - balance inquiry, generating account mini-statements and stop payment orders.
    - Card management.
    - Transfer from/to mobile wallet.
    - Mobile credit products.
- 32 percent of the institutions noted that the credit business is the least digitized area of their institution's operations. The highlighted areas include loan application, credit appraisal, credit approval, disbursement, and repayment processes.
- Other areas of the institutions that were least digitized include:
    - Customer onboarding and account opening.
    - Branch operations.
    - Back-office operations.
    - Card management.
    - Document management.
    - Insurance.
    - Collections.
    - Reconciliations.
    - Physical asset management.
    - Securities and collateral.
    - Wealth management.
- Only three institutions indicated that all business functions were equally digitalized in line with the institutions' strategy.
- All the institutions considered financial inclusion, lowering transaction costs, and improved and tailored services as important opportunities to the institution when evaluating the benefits of product innovations to their consumers.
- 58 percent of the institutions ranked "improved and tailored banking services" as the most important opportunities when evaluating the benefits of product innovation to consumers in 2022. This was an increase from 53 percent in the 2021 Innovation Survey.
- 40 percent focused on financial inclusion, while 2 percent sought product innovations that could lower transaction costs for consumers. Notably, none of the MFBs considered lowering transaction costs for consumers as a key benefit of product innovation to consumers.

Figure 15: Institutions' Ranking of Benefits of Product Innovations to Consumers



- 91 percent of institutions used multiple channels concurrently to collect relevant customer needs and feedback, as well as offer prompt responses and guidance to solving customer complaints concerning innovative products. 9 percent (constituting 3 banks and 2 MFBs) relied solely on customer feedback surveys, exploratory customer interviews, social medial, emails and customer contact forms.
- Customer feedback surveys were the most popular means of gathering customer product needs and feedback for a consecutive year with 89 percent of the institutions using this means in 2022, similar to 2021.
- The role of technology and analytics in gathering customer needs and feedback continued to gain pace. This was evidenced by the adoption of social media channels by 66 percent of the institutions.
- Additionally, the use of instant feedback from the institution's website as a means of gathering customer needs and feedback also increased in popularity from 45 percent in 2021 to 55 percent in 2022.

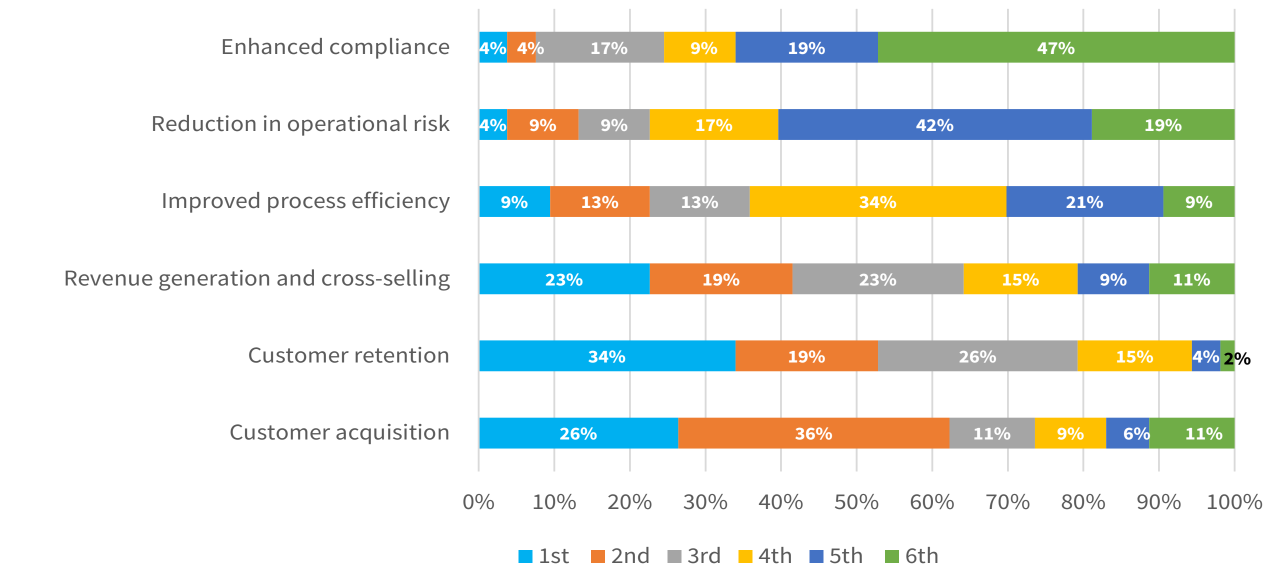
Figure 16: Institutions' Means of Gathering and Addressing Customer Needs and Feedback



- 34 percent of the institutions highlighted customer retention as the most important benefit they considered when evaluating the benefits of product innovations to the institution. This was followed by customer acquisition at 26 percent.
- Conversely, 47 percent of the institutions noted enhanced compliance as the least important benefit of product innovation to the institution.

Enhanced compliance innovation includes regulatory technology (RegTech) innovations that have improved the institutions' compliance processes by enabling automated regulatory reporting.

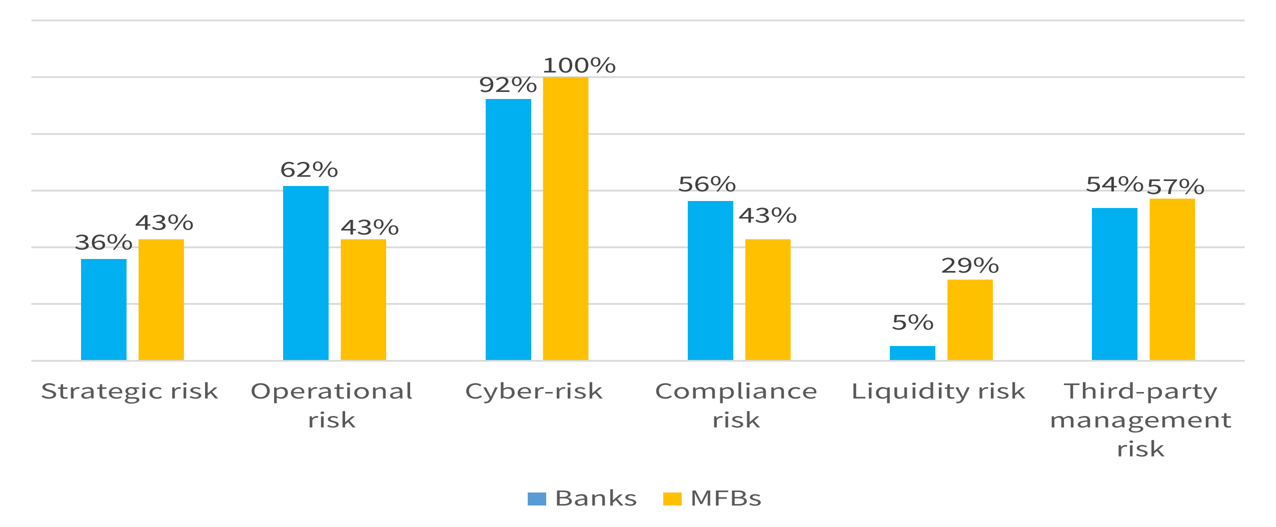
Figure 17: Institutions' Ranking of Benefits of Product Innovation to the Institution



3.1.3 Innovation-Related Risks

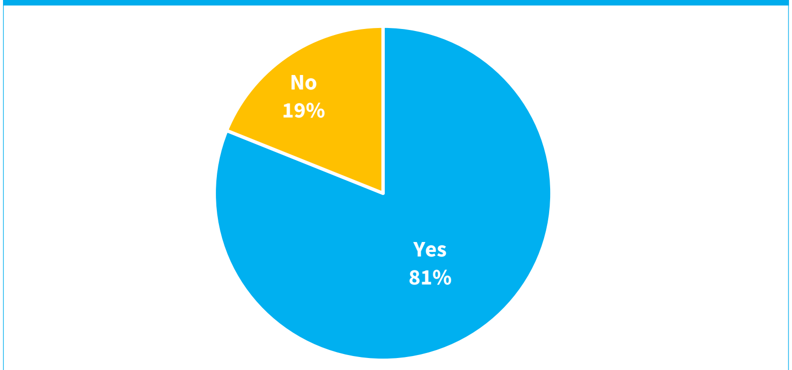
- Cyber-risk (data privacy and data security risk) turned out to be the key risk area for institutions in their innovation endeavours, similar to the findings of the survey for 2021. 92 percent of banks and 100 percent of MFBs identified it as one of the top three innovation-related risks.
- 57 percent of MFBs and 54 percent of banks considered third-party and vendor management risk as one of the top three innovation-related risks. This correlates with most of the institutions that responded to using an outsourced or collaboration and partnership approach to the development of innovative products. This is lower than 71 percent of MFBs and 67 percent of banks in 2021, indicating improvement in management of third parties.
- Consistent with the 2021 Innovation Survey, liquidity risk remained the least considered innovation-related risk for both banks and MFBs.

Figure 18: Innovation-Related Risks



- 81 percent of the respondents expressed that they dealt with negative externalities caused by their products to their consumers compared to 83 percent in the 2021 Innovation Survey. This was through the implementation of monitoring tools to improve system uptime, complaints resolution mechanism, customer feedback and training to enable customers to navigate technological challenges.
- As part of their endeavour to provide a good customer experience, institutions highlighted the existence of clear customer support and conflict resolution mechanisms.
- Institutions that did not experience any negative externalities credited this to a well-structured customer discovery and validation process to build customer-centric products and services.

Figure 19: Institutions' Experience of Negative Externalities Caused by their Innovative Product(s)

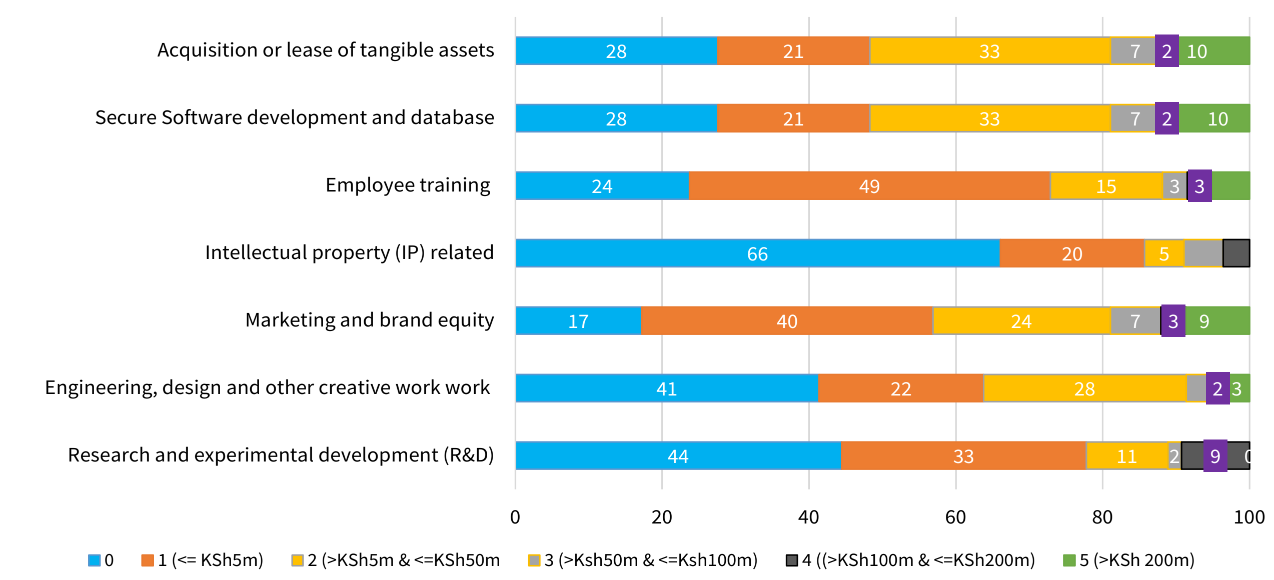


3.2 Context for Innovation

3.2.1 Innovation and Management Expenditure

- Efficiency in the use of emerging technologies to deliver services led to an increase in financial investments towards innovation.
- Based on the 2022 survey, 10 percent of the financial institutions indicated that they had spent more than Ksh.200 million on secure software development and database-related activities. This is an increase from 8 percent in 2021.
- Institutions should carry out continuous staff training throughout the product development and innovation process. However, 24 percent of the financial institutions indicated that they did not incur any costs on employee training in 2022.
- Substantive efforts are required to be channelled towards research and development when it comes to product innovation. However, 77 percent of financial institutions indicated that they had spent less than Ksh.5 million in this area, with 44 percent not incurring any cost towards this at all.
- 66 percent of the institutions did not channel funds towards activities related to Intellectual Property (IP). This is a decrease from 77 percent in 2021.
- **Figure 20** below depicts the expenditure on innovation activities by financial institutions.

Figure 20: Innovation Expenditure



- Before undertaking innovation activities, financial institutions need to consider both internal and external factors that may affect their efforts. 85 percent of banks and 100 percent of MFBs indicated that changing customer behaviour had the highest likelihood of affecting their ability and willingness to innovate going forward.
- A substantial number of banks also indicated that change in the competitive environment and new technologies (74 percent and 82 percent respectively), had a high likelihood of driving their willingness to innovate.

- Growing data and privacy risks and increasing regulatory and compliance requirements had the lowest likelihood of impacting innovation ability and willingness for banks (36 percent) while for MFBs it was the changing competitive environment (14 percent).
- **Figures 21** and **22** below depict the proportion of factors that influence institutions' ability to innovate and willingness to do so.

Figure 21: Factors Impacting the Ability and Willingness of Banks to Innovate

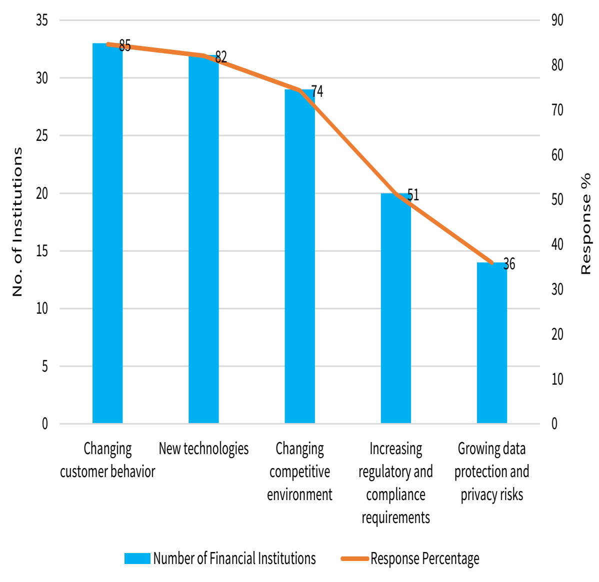
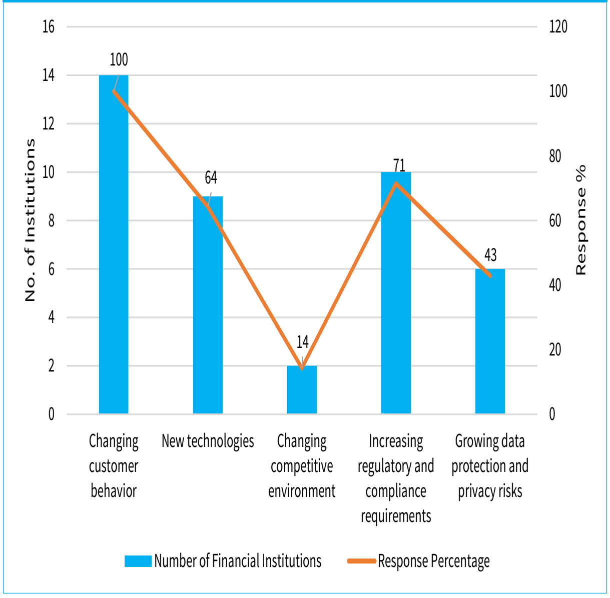


Figure 22: Factors Impacting the Ability and Willingness of MFBs to Innovate

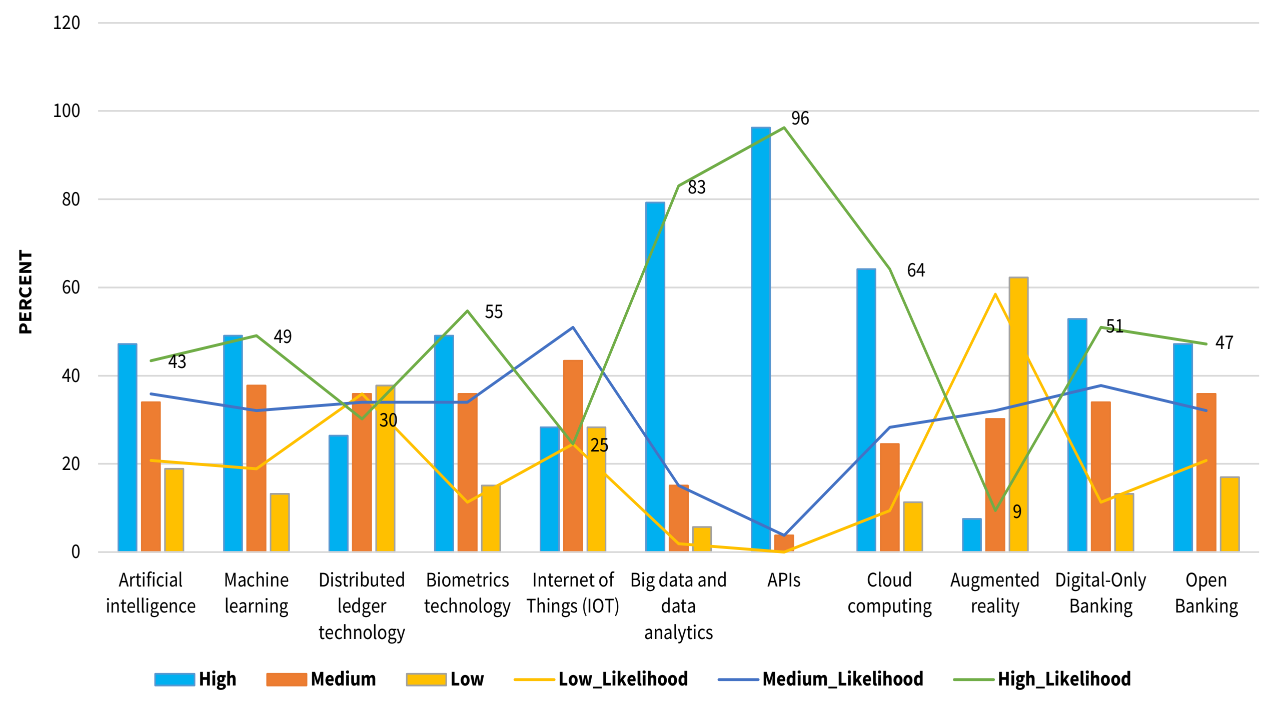


3.2.2 Importance of Developments and Likelihood of Institution Undertaking Innovation Activities

- Technology has proven itself as an essential element in the financial sector. Financial Institutions use technology to support their business processes, reduce costs, diversify income streams, and improve customer experience.
- Application Programming Interfaces (APIs), Big Data and Data Analytics, Biometrics Technology, and Cloud-Computing continued to be the major innovations whose developments are considered important by financial institutions.
- Financial institutions indicated a high likelihood of ramping up their innovation efforts towards developments in APIs in the next four years.

- **Figure 23** below depicts the trends in the importance and likelihood of undertaking innovation activities in the sector.

Figure 23: Importance of Developments against Likelihood of Undertaking Activities

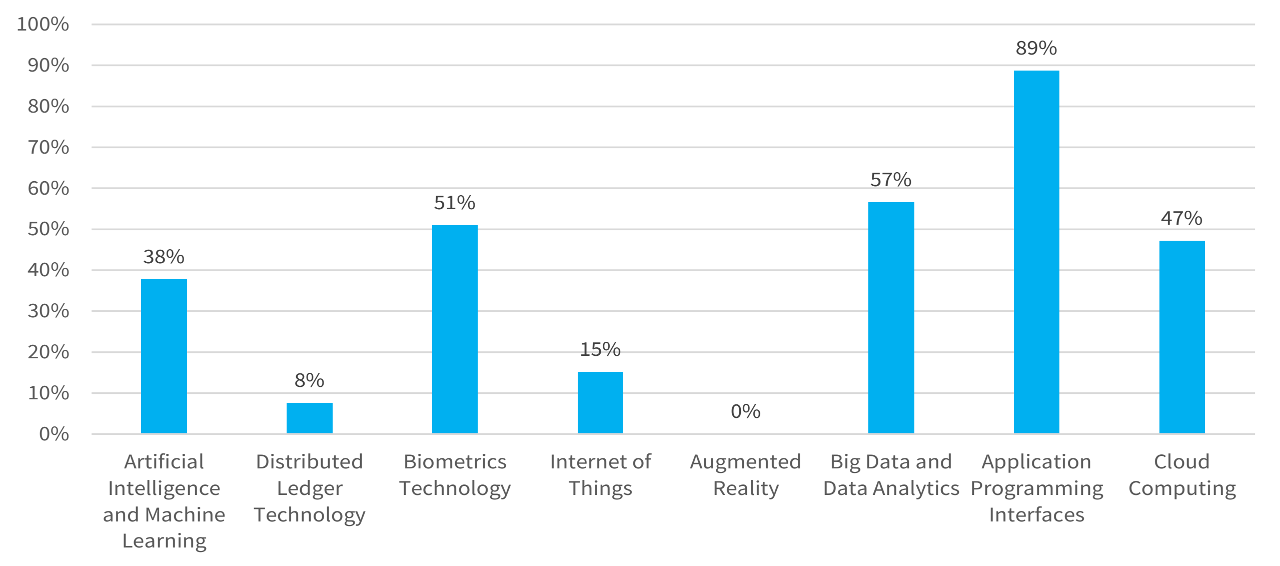


3.2.3 Technological developments that have been adopted by financial institutions in their operations and product offerings

- Financial institutions have adopted a combination of technologies that bolster their business models and provide a competitive edge among peers. The technological developments and product offerings revolve around Artificial Intelligence and Machine Learning (AI/ML), Distributed Ledger Technology (DLT), Biometrics Technology, Internet of Things (IoT), Big Data and Data Analytics, Application Programming Interfaces (APIs), and Cloud Computing.

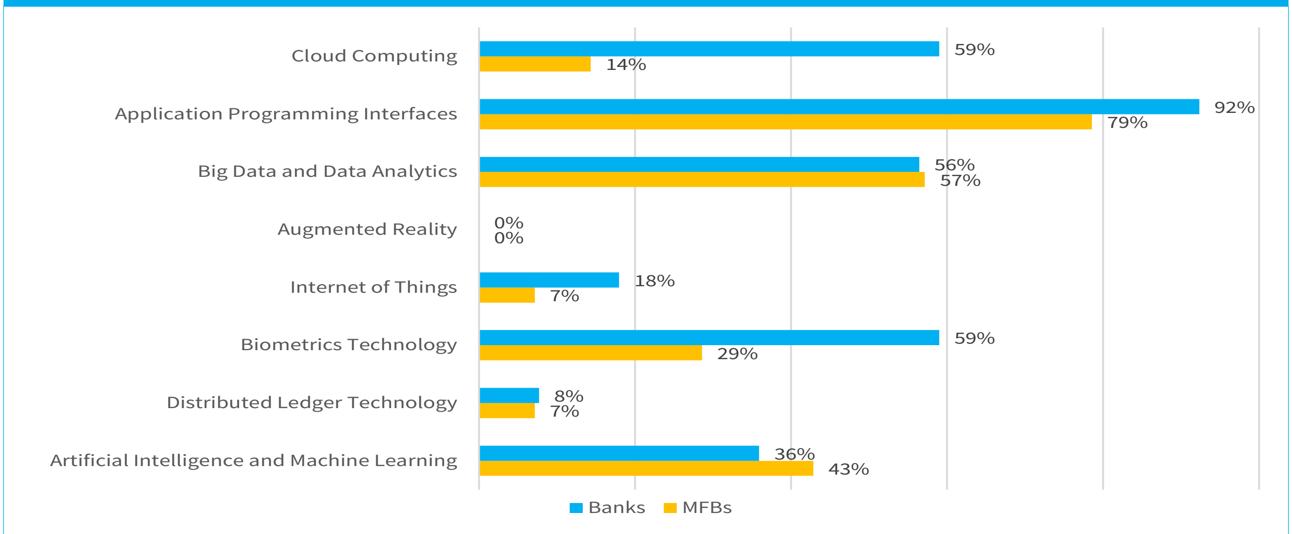
- Based on the 2022 Survey findings, APIs have been adopted by most institutions with a 92 percent and a 79 percent adoption rate by banks and MFBs respectively, which aggregate to 89 percent. This is followed by Big Data and Data Analytics, Biometrics Technology, and Cloud Computing, with an adoption rate of 57 percent, 51 percent, and 47 percent, respectively across all financial institutions. (Illustrated in **Figure 24** below).

Figure 24: Adoption of Technological Developments in Product Offerings



- Banks prioritised Cloud Computing services, with 59 percent implementing it, compared to 14 percent of MFBs who have implemented the technology.
- **Figure 25** depicts technological developments that have been adopted by banks compared to MFBs.

Figure 25: Initiatives to Facilitate Innovation Activities

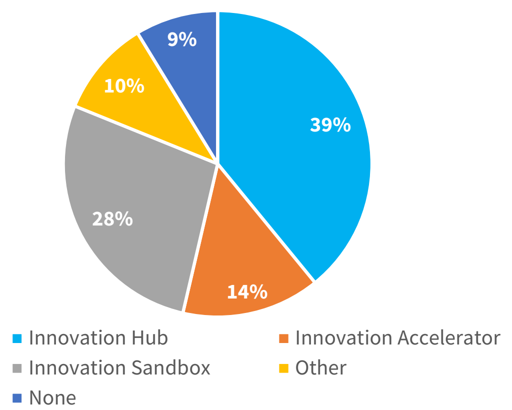


- Overall, the 2022 Innovation Survey shows that MFBs have stepped up their efforts to digitalize and bring their services closer to customers through 24/7 business access over the internet and on mobile devices. MFBs' investment in technologies is also a competitive strategy, given the proliferation of Fintechs such as Digital Credit Providers (DCPs) that offer flexible access to credit, similar to the MFBs.

3.2.4 Initiatives That Have Been Put in Place to Facilitate Innovation Activities

- Based on the 2022 Innovation Survey, 51 percent of financial institutions surveyed indicated that they had set up innovation hubs to promote innovation activities. This is a considerable increase in the number of financial institutions in innovation-related research and development activities, compared to 27 percent in 2021.
- 13 percent of the institutions reported having implemented alternative methods to facilitate innovation activities. These include the establishment of digital transformation and innovation committees, and research and development sections for weighing potential technologies vis-à-vis the strategic needs of the business.
- 11 percent of those who responded to the survey indicated that they had not taken up any initiatives to facilitate innovation. This compares favourably to the 18 percent of institutions that had a similar response in 2021.
- The distribution of initiatives adopted by financial institutions is depicted in **Figure 26** below.

Figure 26: Initiatives to Facilitate Innovation Activities



3.3 Coronavirus Pandemic (COVID-19) and Innovation

3.3.1 COVID-19 Impact on Pre-Existing Innovations

- Based on the 2022 Innovation Survey findings, 59 percent of banks and 43 percent of MFBs continued to experience the impact of COVID-19 on pre-existing innovations within the various institutions, compared to 59 percent of banks and 36 percent of MFBs in 2021. This is illustrated in **Figures 27** and **28** below.

Figure 27: COVID-19 Impact on Pre-existing Innovations in Banks

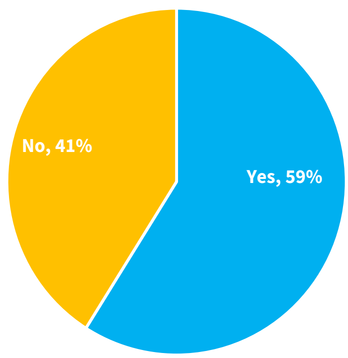
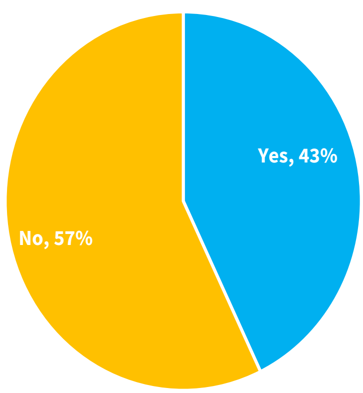


Figure 28: COVID-19 Impact on Pre-existing Innovations in MFBs



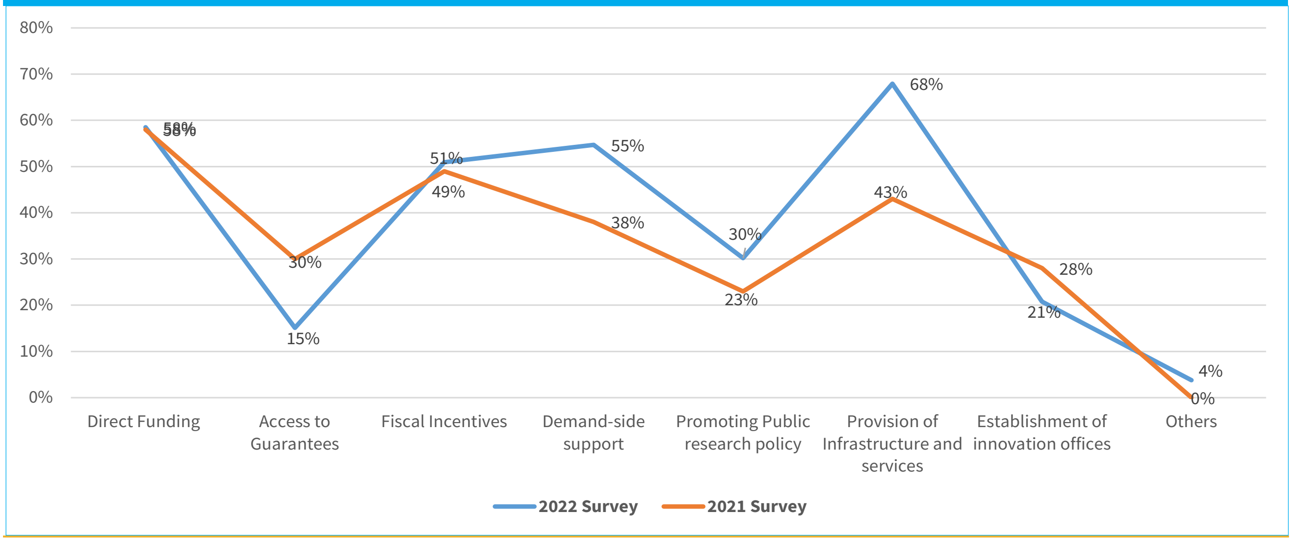
- One of the notable impacts was the catalytic acceleration of the Digital Transformation journey by most institutions, to meet the ever-changing reality of customer needs. This in turn led to increased customer penetration, usage, and activity of digital channels, and therefore an increase in digital revenue.
- Other key impacts include the following:
  - Secure Remote working environments: Enhanced agile working to support the delivery of business projects, including the introduction of Virtual Private Networks (VPNs) and improved messaging/ communication tools/channels for staff.
  - Promoting e-commerce initiatives by modernizing technology designed to facilitate online purchasing. APIs have been adopted by most institutions to support this business channel.
  - Renewed and increased focus on uptime and availability of digital channels.
  - COVID-19 raised business risks significantly, particularly on credit. This impacted the design of some of the innovations such as digital lending whereby institutions had to implement very tight eligibility and scoring models.
  - The need to re-engineer products and make them more customer-centric and easily accessible.
  - Opened doors to new services touching on sustainability programs, as well as interoperability and collaboration with Fintechs.
  - Less physical interaction with the clients and preference to interact with the bank via alternative banking channels.

3.4 Public Support for Innovation

3.4.1 Efficacy of Forms of Public Support

- The top three forms of public support based on the 2022 survey's findings included: the provision of infrastructure and services (68 percent), direct funding support (58 percent) and demand-side support (55 percent).
- Access to guarantees to facilitate third-party financial investments in the institutions' innovation activities was the least preferred form of public support. This recorded 15 percent, a decrease from 30 percent in the 2021 survey.
- **Figure 29** below represents the institutions' views on forms of public support that are considered most effective in promoting innovation activities within the institutions.

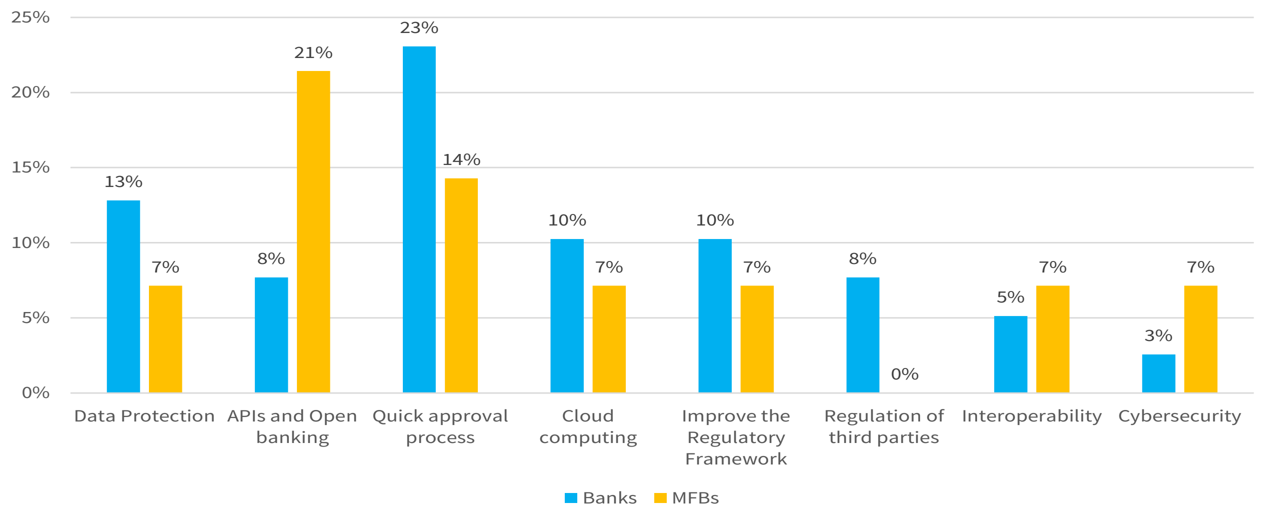
Figure 29: Effective Forms of Public Support



3.4.2 Public Policy Areas

- 23 percent of banks and 14 percent of MFBs listed the quick approval process as a key policy area to be put into consideration by regulatory agencies. Conversely, 21 percent of MFBs and 8 percent of banks identified APIs and open banking as key areas for regulatory authorities to prioritise for policy and regulation.
- 13 percent of banks and 7 percent of MFBs listed data protection as one of the public policies that regulatory agencies need to focus on.

Figure 30: Public Policy Areas



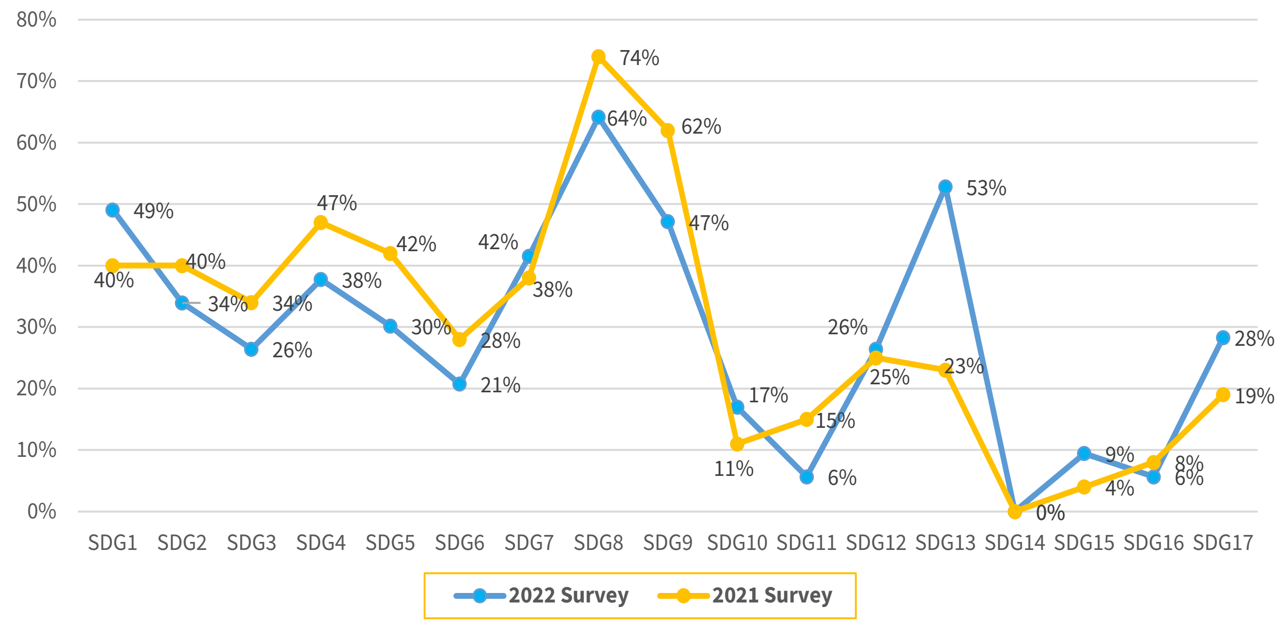
3.4.3 Regulatory Bottlenecks to Innovation

- The institutions surveyed indicated that some of the existing regulatory frameworks overseen by CBK are bottlenecks to innovation-related activities within the institution.
- Shar'iah-compliant liquidity instruments enable Shari'ah-compliant banks to obtain additional avenues for the deployment of excess liquidity.
- CBK Prudential Guidelines on Anti-Money Laundering/Combating the Financing of Terrorism (AML/CFT) have not incorporated non-face to face customer onboarding process, therefore, creating a lack of uniformity on how different banks apply Know Your Customer (KYC) standards.
- Regulatory complexity: The regulatory framework for new products/partnership approvals can at times be complex and time-consuming to navigate. This may make it difficult for banks to bring innovative products and services to market on time.

3.4.4 SDGs: Potential for Innovation-Related Activities Tied to Digitalization of Finance

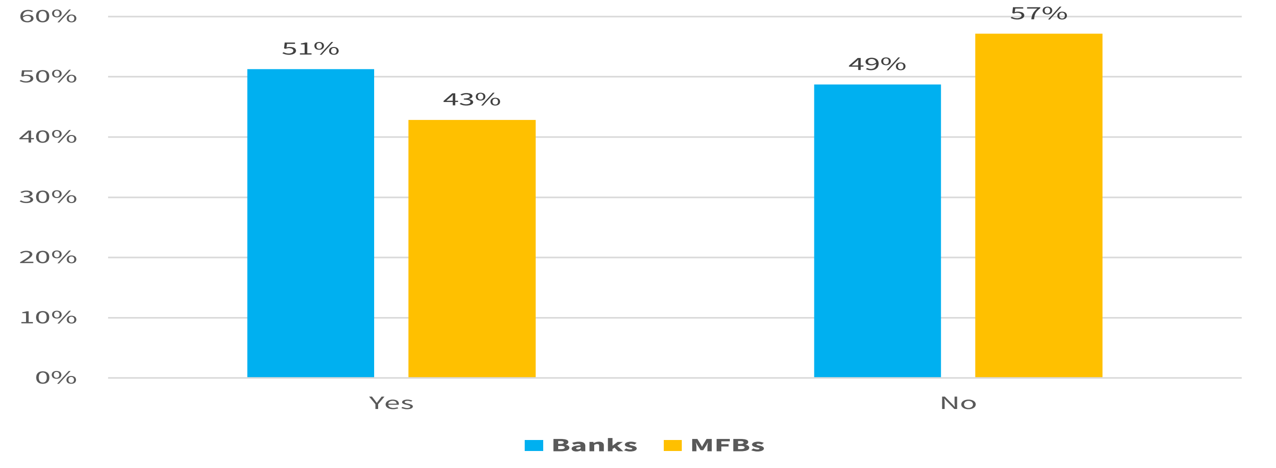
- Institutions considered **Sustainable Development Goal (SDG) 8**: Decent Work and Economic Growth as the top SDG with the most potential for innovation-related activities tied to digital finance (64 percent). This was closely followed by SDG 13: take urgent action to combat climate change and its impacts (53 percent) and SDG 1: end poverty in all its forms everywhere (49 percent) as shown in **Figure 31** below.

Figure 31: SDGs: Potential for Innovation-related Activities tied to Digitalization of Finance



- Comparatively in 2021, the top 3 SDGs with the most potential for innovation-related activities tied to the digitalization of finance were SDG 8: Decent Work and Economic Growth (74 percent), SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation (62 percent), and SDG 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (47 percent).
- CBK issued a Guidance on Climate-Related Risk Management in October 2021 for the banking sector. The Guidance is aimed at sensitizing the banking sector on the mitigation of climate-related risks and harnessing of opportunities.
- Of the financial institutions surveyed, 51 percent of the banks and 43 percent of the MFBs indicated that they had innovated or are in the process of innovating a climate change-related product, as shown in the chart below.
- Compared to 2021 survey findings, we noted an increase in the innovation of climate-related products in both banks and the MFBs from 33 percent and 36 percent respectively, indicating a steady focus on the emerging issue.
- Some of the climate change-related solutions were focused on climate financing, lending for clean energy solutions, and automation of services to reduce the carbon footprint.

Figure 32: Innovation in line with SDG 13 (Climate Action)



- The institutions surveyed indicated that digitalization of finance could be leveraged to support SDGs in the following ways:
  - Increased access to financial services: Digital finance platforms can expand access to financial services to Micro, Small and Medium Enterprises (MSMEs), and the underbanked and unbanked communities, which can help to achieve SDG 1 (No Poverty), SDG 8 (Decent Work and Economic Growth) and SDG 10 (Reduced Inequalities).
  - Enhanced financial inclusion through innovations such as women-targeted products and women-led MSMEs to achieve SDG 5 (Gender Equality) and SDG 8 (Decent Work and Economic Growth).
  - Improved transparency and accountability: Digitalization can increase transparency and accountability hence supporting SDG 16 (Peace, Justice and Strong Institutions) and SDG 17 (Partnerships for the Goals).
  - Sustainable investments: Digitalization can enable financial institutions to make more informed investment decisions, and to track and report on the impact of their investments on the environment and society, in line with SDG 9 (Industry, Innovation and Infrastructure) and SDG 13 (Climate Action).
- More efficient and effective use of resources: Digitalization can help financial institutions to streamline operations, reduce costs and enhance their overall efficiency, supporting SDG 12 (Responsible Consumption and Production).
- Green finance: Digital tools can help financial institutions assess and manage environmental and social risks, enabling them to finance sustainable projects and support SDG 7 (Affordable and Clean Energy) and SDG 13 (Climate Action).
- Digitize value chain and ecosystem e.g., mAgri App digital platform ecosystems coordinating agriculture value chains from inputs and outputs/agriculture e-commerce marketplaces to support SDG 2 (Zero Hunger).
- Digital health coupled with embedded financial products - InsureTech for digital medical insurance digital platform ecosystems coordinating healthcare value chain from inputs and outputs to achieve SDG 3 (Good Health and Wellbeing).
- EduTech for digital education/education mobile apps / digital platform ecosystems coordinating education value chain from inputs and outputs for all players SDG 4 (Education For All).

3.5 Afro-Asia Fintech Festival Assessment

3.5.1 Afro-Asia Fintech Festival 2021 Assessment

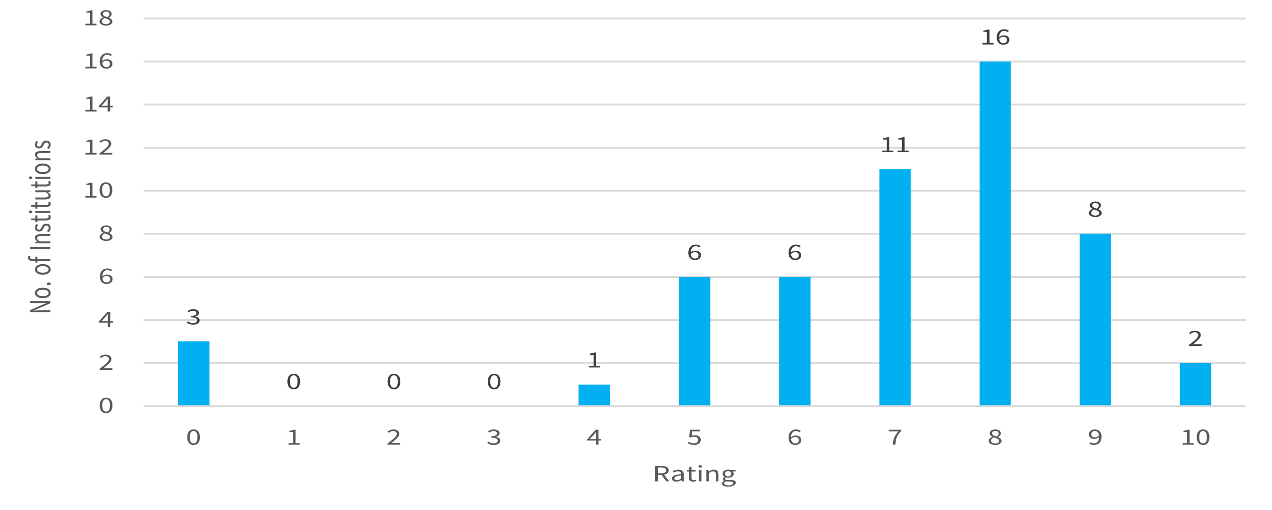
- CBK holds the Afro-Asia Fintech Festival (AAFF) to bring Africa and Asia closer together to cooperate on FinTech innovation by providing a platform for connections, collaborations, and exchange of ideas.
- Survey respondents recommended various solutions that would advance the banking sector and should be incorporated into the next AAFF. These included:
  - Fourth Industrial Revolution (4IR) technologies such as artificial intelligence (AI) and machine learning (ML) for risk assessment, customer service, and fraud detection.
  - Solutions that address access to credit for SMEs.
  - Open banking for secure sharing of financial data.
  - Central Bank Digital Currencies.
  - QR code-based payment solutions.
  - Embedded finance.
  - Green finance.
  - Real-time Know-Your-Customer (KYC) solutions.
  - Islamic banking product innovations.
  - Credit scoring as a service.
  - Big data.
- Respondents further mentioned that the AAFF should be used as a platform to discuss the following pertinent matters in the financial sector:
  - Cyber security measures to protect customers' sensitive information.
  - Financial literacy amongst customers to promote better financial decision-making.
  - The role of Fintechs in promoting the expansion of the banking sector in Kenya.
  - Development of ICT infrastructure that enhances access to finance by the underserved and unbanked population.
  - Regulation of technology that supports and fosters innovation within the banking sector.
- Institutions surveyed highlighted several ways that the AAFF can be structured to help them attain their strategic mandates. These include:
  - Focusing on thematic industry issues and opportunities, including regulatory frameworks.
  - Inclusion of micro-finance institutions (MFIs) in AAFF by providing a platform for MFIs to connect and collaborate with innovators.
  - Providing access to funding for Fintechs and financial inclusion initiatives, through partnerships with venture capital firms and development finance institutions.
  - Organizing follow-up sessions after the festival with actionable items targeting various industry segments.
  - Providing a platform for collaborations and partnerships in Islamic product innovations.
  - Curating a hybrid event to allow both in-person and online attendance.
- Survey respondents indicated the following ways in which they envisage partnering with CBK on AAFF:
  - Research and development.
  - Developing sandboxes in collaboration with CBK to nurture innovation as players in the banking sector seek to roll out innovative banking solutions to the market.
  - Collaborating in the development of risk and security frameworks for interoperability and API implementation.

3.6 Impact and Challenges

3.6.1 Success Rate of Innovation Products Developed in 2022

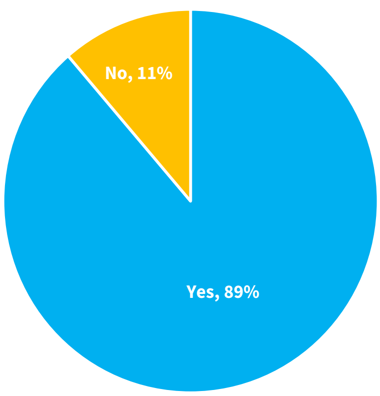
- Majority of institutions (92 percent) had a product success rate of five (5) and above, with a rating of one (1) being least successful and ten (10) being most successful, as shown below.

Figure 33: Rating of Success of Products Developed in 2022



- Of the innovative products developed in 2022, 89 percent attained their objectives, while 11 percent did not, as depicted in the chart below. This was an improvement from 81 percent in 2021, who achieved their objectives against 19 percent who did not.

Figure 34: Product Success



3.6.2 Product Innovation Challenges

- Institutions noted various challenges that they face concerning product innovation. These included the following:
  - Ever-evolving customer needs.
  - Increased exposure to cyber security risks, data exposure risks, and fraud.
  - Lack of adequate resources to support research, product development, capacity building for staff and customers as well innovation awareness creation.
  - Competition from other financial institutions and Fintechs investing in product innovation.
  - Low level of customer education and knowledge of modern technologies.
  - Restrictive regulatory requirements on the use of emerging technologies.

- Delays in project implementation due to difficulties in incorporating changes with the various vendors that the institution must partner with.
- Lack of a level playing ground presented by unregulated competitors benefitting from regulatory arbitrage.
- Competition for skills amongst financial institutions and other global players like Microsoft, Amazon, and Google, resulting in a scarcity of talent with requisite expertise and experience.
- Increased exposure to third-party vendor risks because of heavy reliance on their technology.

4.0 CONCLUSION

- Kenya's banking sector has continued to leverage technologies for efficiency and resilience.
- Beyond this, the banking sector is evolving towards distributed banking in order to offer a wide array of services through leveraging partnerships with fintechs. APIs technology is likely to be relied upon to enhance such solutions.
- The banking sector is also cognizant of the importance of addressing climate action and has increased its efforts towards offering innovative climate-related financial products and services. In this regard, CBK's Guidance on Climate-related Risk Management, issued in 2021, was a timely policy action and will steer the banking sector towards greening efforts.
- The banking sector is also prioritising, inter alia, MSME financing to to work towards SDG 8 on Decent Work and Economic Growth and SDG 1 on ending poverty.
- Due to its far-reaching potential impact, cyber risk remains a top priority of financial institutions.
- While banks continue to focus on payments, clearing and settlement services, emerging areas of interest for MFBs are financial solutions for climate action and credit, deposit, and capital-raising services. However, banks are also ramping up efforts in digitising credit. Accordingly, the CBK National Payments System Strategy for 2022-2025 will guide institutions as they innovate in the payments space.
- The 2022 Innovation Survey Report informs the impact of Fintech on the current operating models, including the emergence of new business models and evolving and emerging risks. It also provides an informed basis for evidence-based public policy decisions on Fintech going forward.

ANNEX 1

Glossary of Terms

Application Programming Interface (API) – describes a system architecture that enables interactions between different software applications via a specified set of protocols. This allows software applications to communicate with each other to exchange data directly or to access another software application's functionality, through automated access.

Artificial Intelligence (AI) – describes the activity and outcome of developing computer systems that mimic human thought processes, reasoning and behaviour.

Augmented Reality (AR) – refers to the real-time digital overlay of information over physical elements. A user's real environment is the predominant element, with extra information intended to augment the actual environment, rather than fully replacing it.

Big Data – refers to datasets that are too large or complex to be handled by conventional data architectures, including processing tools and techniques. The key characteristics of Big Data are volume (size of the dataset), variety (data from multiple domains), velocity (rate of data flow) and variability (changes to data characteristics). These characteristics are colloquially known as the 'Vs' of Big Data.

Biometrics Technology – refers to a technology that allows a person to be identified and authenticated based on a set of recognizable and verifiable physical and behavioural characteristics, which are unique and specific to them.

Cloud Computing – refers to a computing system that supports business and delivery models that enable on-demand access to a shared pool of resources such as applications, servers, storage and network security. Cloud computing is typically delivered in three forms, namely, Software as a Service ("SaaS"), Platform as a Service ("PaaS") and Infrastructure as a Service ("IaaS").

Distributed Ledger Technology (DLT) – is a technology configuration that allows records to be updated and tracked in a 'distributed' manner, as opposed to a 'centralized' configuration. The key elements of DLT are a distributed ledger, a network of participants, a consensus mechanism and cryptography.

Internet of Things (IOT) – describes communication architecture that allows devices or sensors to connect, communicate or transmit information with or between each other via the internet, thereby enabling the recognition of events and changes so as to react autonomously in an appropriate manner.

Machine Learning (ML) – describes computer systems that adapt and learn from experience through data classification, pattern identification and regression.

Digital-only Banking – describes a banking system where banking facilities are provided exclusively through digital platforms.

ANNEX 2

List of Respondents

a) Commercial Banks and Mortgage Finance Institution

1. Absa Bank Kenya Plc.
2. Access Bank (Kenya) Plc.
3. African Banking Corporation Limited.
4. Bank of Africa Kenya Limited.
5. Bank of Baroda (Kenya) Limited.
6. Bank of India.
7. Citibank N.A. Kenya.
8. Consolidated Bank of Kenya Limited.
9. Co-operative Bank of Kenya Limited.
10. Credit Bank Plc.
11. Development Bank of Kenya Limited.
12. Diamond Trust Bank Kenya Limited.
13. DIB Bank Kenya Limited.
14. Ecobank Kenya Limited.
15. Equity Bank Kenya Limited
16. Family Bank Limited.
17. First Community Bank Limited.
18. Guaranty Trust Bank (Kenya) Limited.
19. Guardian Bank Limited.
20. Gulf African Bank Limited.
21. Habib Bank A.G Zurich.
22. HFC Limited.
23. I&M Bank Limited.
24. KCB Bank Kenya Limited.
25. Kingdom Bank Limited.
26. Mayfair CIB Bank Limited.
27. Middle East Bank Kenya Limited.
28. M-Oriental Bank Limited.
29. National Bank of Kenya Limited.
30. NCBA Bank Plc.
31. Paramount Bank Limited.
32. Prime Bank Limited.
33. SBM Bank Kenya Limited.
34. Sidian Bank Limited.
35. Spire Bank Ltd.
36. Stanbic Bank Kenya Limited.
37. Standard Chartered Bank Kenya Limited.
38. UBA Kenya Bank Limited.
39. Victoria Commercial Bank Plc.

b) Microfinance Banks

1. Branch Microfinance Bank Limited.
2. Caritas Microfinance Bank Limited.
3. Choice Microfinance Bank Limited.
4. Daraja Microfinance Bank Limited.
5. Faulu Microfinance Bank Limited.
6. Kenya Women Microfinance Bank Plc.
7. LOLC Microfinance Bank Plc.
8. Maisha Microfinance Bank Ltd.
9. Muungano Microfinance Bank Plc
10. Rafiki Microfinance Bank Limited.
11. Salaam Microfinance Bank Limited.
12. SMEP Microfinance Bank Limited.
13. Sumac Microfinance Bank Limited.
14. U & I Microfinance Bank Limited.

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