

CHAMS FINTECH KNOWLEDGE SERIES

FINTECH SOLUTIONS (1)

Fintech, the application of digital technology to financial services, is reshaping the future of finance and driving rapid change throughout the financial services sector and beyond globally. Digital technologies are revolutionizing payments, lending, investment, insurance, and other financial products and services.

Fintech is an umbrella term encompassing software, mobile applications, and other technologies, aims to enhance and automate traditional finance for both businesses and consumers. It encompasses a wide range of solutions, from simple mobile payment apps to intricate blockchain networks facilitating secure transactions.

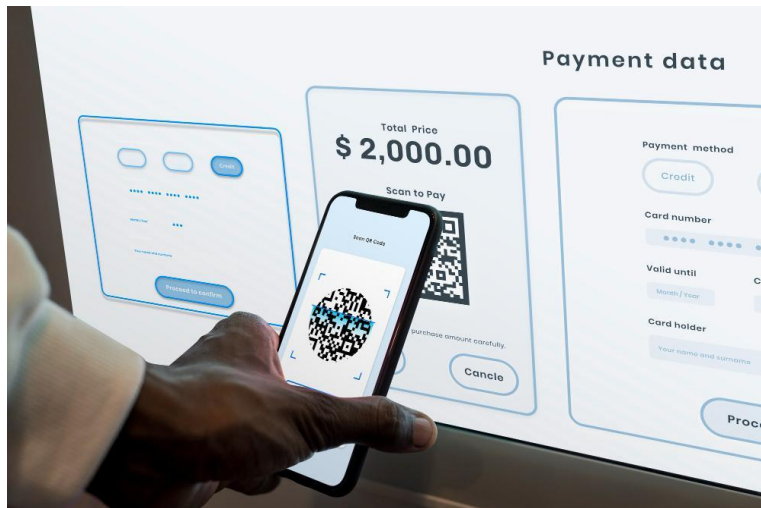
According to PwC's analysis, global cashless payment volumes are projected to grow by **over 80% from 2020 to 2025**, reaching nearly **1.9 trillion transactions**, and nearly **tripling by 2030**. The Asia-Pacific region is expected to experience the fastest growth, with cashless transaction volume increasing by 109% from 2020 to 2025 and then by 76% from 2025 to 2030. Africa (78%, 64%), Europe (64%, 39%), Latin America (52%, 48%), and the US and Canada (43%, 35%) follow in terms of growth rates.

Presently, Fintech enjoys widespread support and adoption worldwide. According to research by Globe Newswire, the fintech market size is anticipated to expand from **US \$6,588.78 billion in 2021 to US \$16,652.68 billion by 2028**, exhibiting a compound annual growth rate (CAGR) of 13.9% during the period of 2022-2028, highlighting its substantial potential.

Banks have also begun embracing fintech solutions to provide superior banking services to their customers. A 2022 study by Statista revealed that approximately 91.3% of banks are considering collaboration with fintech, while only 4% are contemplating competition or acquisition of fintech as a growth strategy for their banking business.

We are exploring the following Fintech solutions: QR Code, RegTech, Online lending and (BNPL), Neobanks, Agency Banking, Digital wallets/ E-wallets, international Remittances, Decentralized Finance (DeFi), Blockchain tech and government centralized crypto, Mobile Money, Contactless payments, Biometric Authentication, AI, and ML.

QR Code



QR Codes, short for **Quick Response Codes**, are 2D square-shaped, machine-readable barcodes that can be read and scanned through smartphones. QR codes come in modules and are used to store information. The URLs or the data contained in the code are encrypted, secure and convenient for payment processing. QR Code technology enables merchants to provide their customers with a wide range of payment options using one QR code at checkout.

QR codes have emerged as a popular fintech solution due to their convenience, speed, efficiency, security, and versatility in various financial applications. Creating another easier way for people to transact without cash and making it cheaper for merchants to receive money.

Ghana made history as the first African country to introduce a universal QR code in 2020. This development aimed to enhance the payment experience for both the payer and merchant.

Similarly, in South Africa, the Payments Association of South Africa (PASA) recognized the importance of standardizing QR codes across the sector to streamline transactions. Efforts are underway to establish these standards.

Here are some ways QR codes are deployed and integrated into other solutions in the fintech industry:

- **Seamless Payment Solutions:** Customers can scan a QR code displayed at a merchant's point of sale (POS) using their smartphone's camera or a dedicated payment app. The QR code contains payment details, such as the merchant's identity and transaction amount. Once scanned, the customer's payment app processes the transaction, deducting the amount from their linked bank account or e-wallet. QR code-

based payment systems are prevalent in various countries, such as China's Alipay and WeChat Pay.

- **Peer-to-Peer (P2P) Transfers:** Users generate a unique QR code linked to their payment account and share it with others. The recipient can then scan the QR code to initiate a transfer, thus eliminating the need for manual entry of account details.
- **Secure and Efficient Online Shopping:** Instead of manually entering payment information or relying on saved card details, customers can scan QR codes during the checkout process. The code contains transaction details, and by scanning it, customers authorize the payment using their preferred payment method, such as a mobile banking app or e-wallet.
- **Merchant Transactions:** Merchants can display a static QR code at their point of sale (POS) or generate a unique QR code for each transaction. Customers can scan the code with their mobile devices and complete the payment securely and conveniently.
- **Personalized Marketing:** QR codes can be integrated into advertisements, promotional materials, or product packaging. When users scan these codes, they are redirected to personalized offers, discounts, or additional information about the product or service, creating a seamless bridge between offline and online marketing channels.
- **Enhance Authentication and Security Processes:** For example, during online banking transactions or account access, users may be required to scan a QR code displayed on their computer screen using a mobile banking app. This additional step ensures two-factor authentication and protects against unauthorized access.
- **Loyalty Programs:** Customers can scan QR codes at participating merchants to earn rewards, redeem offers, or track their loyalty points. This approach simplifies the process for both customers and businesses, eliminating the need for physical loyalty cards or manual entry of account information.

Overall, QR codes offer a versatile and user-friendly solution in the fintech industry, providing convenience, speed, and enhanced security for various financial transactions and applications.

In 2021, The Nigeria Inter-Bank Settlement System Plc (NIBSS) launched the New Quick Response (NQR) as an indigenous payment solution for and on-behalf of the Financial Services Industry in Nigeria.

The NQR Payment Solution is a secure QR-code-based payments and collections platform designed for merchants and customers to receive and make payments for goods and services. It provides a robust platform for efficient P2B (person-to-business) and P2P (person-to-person) transactions. The account-based transaction platform is intended to unify all available closed QR code schemes in the country for consistent user experience and acceleration of digital adoption.

RegTech



Regulation Technology, or RegTech, effectively enables financial institutions to enforce regulatory requirements using technologically advanced, reliable tools and systems by dealing with tracking, reporting, and compliance-related issues. RegTech gained popularity during the 2007–2008 financial crisis.

The chief purpose of Regtech solutions is aimed at facilitating data breaches searches, cyber hacks, money laundering, and other fraudulent activities making compliance easier and regulation costs cheaper.

These solutions provide comprehensive support in minimising risks and optimizing compliance processes. Below are the characteristics of Regtech solutions:

1. Comprehensive Compliance Coverage: Regtech provides a robust range of operations to address different aspects of compliance, including risk assessment, regulatory reporting, anti-money laundering (AML) and know-your-customer (KYC) procedures, fraud detection, transaction monitoring, and data privacy.

2. Real-Time and Continuous Monitoring and Alerts: These solutions incorporate real-time monitoring management, automated alerts, and notifications that immediately identify and address anomalies, compliance issues, or potential risks. These assure prompt intervention and reduce the impact of non-compliance, therefore, helping to mitigate against risks and prevent violations before they intensify, thereby improving overall regulatory compliance posture.

3. Advanced Technology: Regtech employs the most current technologies like artificial intelligence, machine learning, natural language processing, and leveraging data analytics to

automate and streamline compliance tasks. These cutting-edge technologies enable excellent data management, analysis, and real-time monitoring.

4. Scalability and Flexibility: These solutions intend to serve the needs of financial organizations of different sizes and complexities. According to evolving regulatory requirements, There is room for adaptability and scalability as this ensures ongoing compliance and accommodates changing business needs.

5. Data Integrity and Security: This entails the administration of audit trails and data integrity retention throughout the compliance lifecycle. Regtech utilizes data analytics to process and analyze bulk volumes of financial and transactional data. These allow for better identification of patterns, anomalies, and potential compliance risks, providing valuable insights to financial institutions for decision-making and risk management.

Regtech Solutions champions data integrity and security by implementing robust encryption protocols, data storage security, access controls, and compliance with data privacy regulations.

6. User-Friendly Interface: Customizable workflows, Intuitive dashboards, and interactive reporting features enhance user experience and simplify compliance management. User-friendly interfaces are crucial to robust regtech solutions, allowing non-technical users to make use of the tools and navigate the interface effectively.

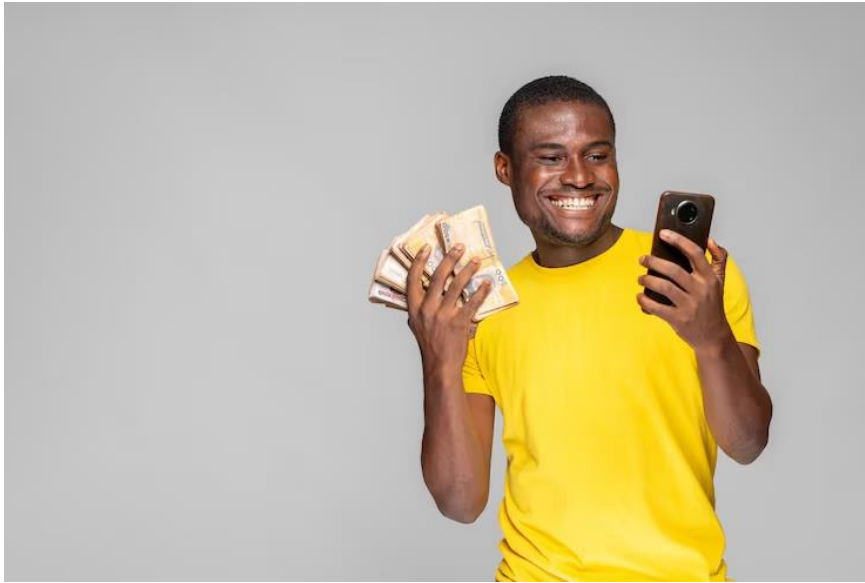
7. Regulatory Updates and Integration: Robust regtech solutions stay up-to-date with regulatory changes, providing timely updates and incorporating new requirements into their functionalities. They also offer seamless integration with existing systems and data sources to maximize efficiency and reduce implementation complexities. Regtech solutions automate the generation and submission of regulatory reports, ensuring accuracy, timeliness, and consistency. The burden of manual report preparation and the risk of errors or omissions is limited.

8. Improved Customer Experience: Leveraging regtech solutions, financial institutions can streamline onboarding processes, customer due diligence, and know-your-customer (KYC) procedures. A faster and convenient experience is achieved for customers, thereby enhancing their overall satisfaction.

9. Agility and Adaptability: Regtech solutions possess the ability to swiftly adjust to evolving regulatory requirements, enabling financial institutions to maintain compliance in a constantly changing regulatory environment. These solutions are adept at incorporating updates and modifications to regulations, thereby minimizing the time and effort needed to implement compliance changes.

The role regtech plays in empowering organizations to effectively manage regulatory compliance, enhance operational efficiency, mitigate risks, and also maintain a strong compliance posture in a rapidly evolving regulatory landscape.

Online lending and (BNPL)



Online lending and Buy-Now-Pay-Later (BNPL) are fintech solutions that have gained significant popularity in recent years, especially during the COVID-19 pandemic. These solutions provide convenient and accessible financing options for individuals and businesses, offering an alternative to traditional lending processes.

Online lending refers to the process of obtaining loans through digital platforms, often operated by fintech companies. These platforms streamline the lending process by leveraging technology and automation, making it easier for individuals to borrow money without the need to visit physical bank branches. Online lending platforms typically offer lower interest rates, faster approval times, and more flexible repayment terms compared to traditional banks. They utilize data analytics and algorithms to assess creditworthiness, allowing for quicker loan decisions and improved access to credit for individuals who may have been underserved by traditional lending institutions.

Buy-Now-Pay-Later (BNPL) is a short-term financing solution that allows consumers to make purchases and defer the payment to a future date. BNPL services, such as Klarna, have gained popularity among e-commerce consumers due to their convenience and flexibility. With BNPL, customers can split their purchases into installments or delay payments without incurring interest or fees, making it an attractive option for budget-conscious shoppers. This payment method has been widely adopted by various brands and has become a tool for building customer loyalty and enhancing the shopping experience.

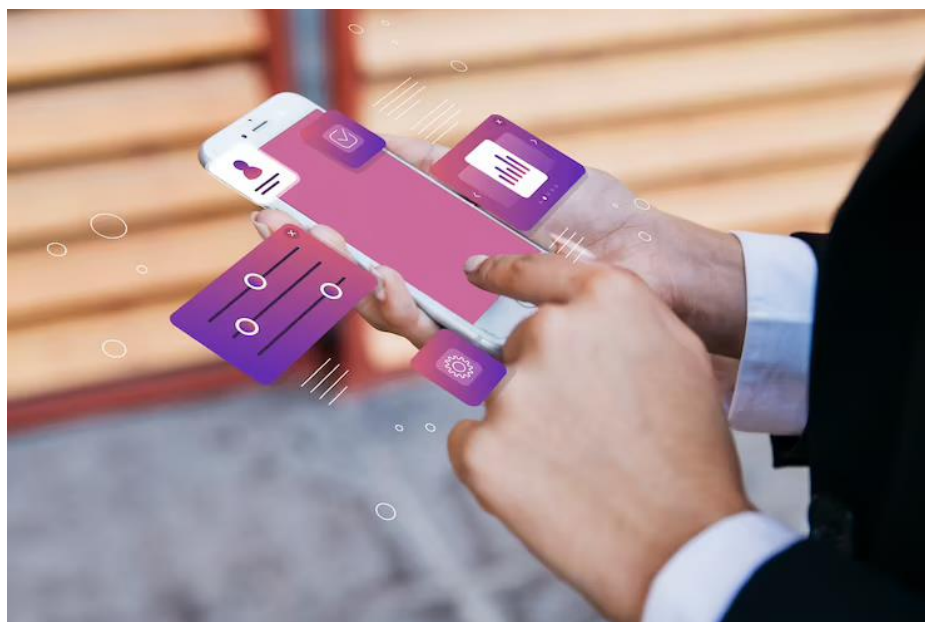
In the lending space, fintech companies provide credit facilitation by connecting small and medium-sized enterprises (SMEs) with lenders through digital platforms. These platforms simplify the loan application process, making it easier for businesses to access financing from existing

lenders. Additionally, fintechs have created crowdfunding marketplaces that allow individuals to invest directly in businesses that interest them. Crowdfunding platforms provide a channel for SMEs to raise funds by reaching a broader audience and offering rewards or incentives to backers.

Projected to reach \$3.98 trillion by 2030 and trusted by various brands, BNPL is a convenient tool for building customer loyalty via effortless shopping.

Online lending and BNPL solutions have revolutionized the lending landscape by leveraging technology, automation, and data-driven processes. These fintech solutions provide convenient, accessible, and affordable financing options, empowering individuals and businesses to meet their financial needs efficiently.

Neobanks



Neobanks, also referred to as challenger banks, are FinTech companies, often startups, that offer non-traditional banking services essentially through digital channels. They provide checking and savings accounts through mobile applications or websites without operating in physical branch locations. In the financial industry, Neobanks emerged in the market particularly since the 2010s following the Great Recession and are rapidly gaining popularity in the United States.

Neobanks' focus is leveraging technology to provide innovative solutions and convenient banking to customers challenging traditional banks models. They often incorporate features such as tracking expenses, budgeting, and achieving their savings goals, thereby assisting customers in managing their finances effectively. These digital platforms enable customers to access and

manage their accounts conveniently and efficiently, typically offering a user-friendly interface and enhanced user experience.

Compared to traditional banks, neobanks often provide advantages such as lower fees and higher interest rates on savings accounts. By operating with reduced overhead costs and leveraging technology-driven efficiencies, neobanks can offer competitive rates and attractive benefits to their customers.

As neobanks continue to gain momentum, they are projected to experience significant growth in the coming years. Current data suggests that neobanks already serve approximately 23 million customers, and this number will surpass **50 million by 2025**, highlighting and indicating the growing popularity, service adoption, market presence, increasing demand and adoption of their services.

Neobanks as fintech solutions have distinct characteristics and features such as:

1. Digital-First Approach: Neo banks are built from the ground up with a digital-first mindset / digital only model. They prioritize digital channels and interfaces for all banking activities such as account opening, transactions, and customer support. Users can easily access their banking services anytime and anywhere through mobile devices, computers or web platforms.

2. Seamless Account Opening: Offering a streamlined and frictionless account opening process, customers can easily open an account quickly through a digital hassle-free onboarding process that may involve ID verification, biometric authentication, and electronic signatures.

3. Enhanced User Experience: Striving to provide and deliver a superior user experience compared to traditional banks, Neobanks employ user interfaces that are intuitive, visually appealing, and user-friendly. This enables customers to perform banking activities efficiently and effortlessly. They often incorporate personal financial management tools, spending insights, and customized notifications to help users manage their finances appropriately and effortlessly.

4. Diverse Financial Services: Neo banks originally started with basic banking services like current accounts and debit cards, but over time many have expanded their offerings to include a wider range of financial products. These products may include investment opportunities, savings accounts, loans, insurance, and also integrate with third-party fintech services through open banking APIs.

5. Cost-Effective and Transparent: Oftentimes, Neobanks operate with lower overhead costs compared to traditional banks, this allows them to provide competitive or no-fee banking services. Typically, they maintain a transparent fee structure and provide real-time transaction notifications, ensuring customers have full clarity in all their financial activities.

6. Innovative Features and Integrations: Neo banks leverage technology to introduce innovative features that enhance the banking experience. These could include instant payments,

peer-to-peer transfers, budgeting tools, goal-based savings, card controls, and integrating seamlessly with other financial applications and services.

7. Emphasis on Security and Compliance: Despite being digital-first, neo banks give top priority to robust security measures to protect their customer data and transactions. They employ advanced encryption, two-factor authentication, biometrics, and implement other security protocols to ensure the safety of customer information. In addition, they obey all regulatory compliance requirements to gain customer trust and confidence.

In total, Neo banks as fintech solutions brilliantly utilize innovation, convenience, and customer-centricity to the banking industry. Their focus is to provide a modern banking experience that meets the needs and preferences of digitally savvy consumers. Their cost-effectiveness positions them as attractive options by offering a viable alternative to traditional brick-and-mortar banks.

Agency Banking



As defined by the Central Bank of Nigeria, Agent banking refers to the use of third parties for the provision of banking and other financial services to the public. It enables banks and other financial institutions to extend their services to locations where they may not have a physical presence.

Agency banking as a fintech solution bridges the gap between banked and unbanked customers. It allows the banks to extend their services with the help of authorized agents into those areas where it has not yet been able to set up a physical branch, or to underserved and remote areas where establishing physical bank branches may not be economically viable.

In an agency banking arrangement, these third-party agents act as representatives or extensions of the bank, allowing customers to conduct various banking transactions such as depositing and withdrawing cash, transferring funds, checking account balances, top-ups, loan repayments, bill

payments, taxes and government fees and sometimes even opening new accounts. The agents typically use technology platforms provided by the bank to facilitate these transactions.

Agency banking has gained popularity in many countries, particularly in developing economies, as a means to increase financial inclusion and provide basic banking services to a wider population. It allows customers who may not have easy access to traditional banking services to perform basic financial transactions in their own communities.

Financial institutions provide agents with the necessary technological infrastructure to perform these banking transactions. This typically includes point-of-sale (POS) devices, mobile banking applications, or other electronic platforms that are connected to the bank's core banking system. These systems enable secure and real-time transaction processing.

For banks, agency banking provides a cost-effective way to expand their reach without the need for setting up and maintaining physical branches in every location. It also helps to reduce transaction costs, improve efficiency in delivering financial services, improve customer experience and generate more customers and revenue channels.

The agent banking initiative in Nigeria has proven to be a viable tool for achievement of the financial inclusion targets set for the country.

Digital wallets / E-wallets



A digital wallet, also known as an e-wallet or mobile wallet is an electronic wallet and a virtual platform used to make online payments with a smartphone and allows users to store and manage their digital assets, such as payment cards, bank account information, loyalty cards, and more. It enables convenient and secure electronic transactions, both online and in physical stores, using a mobile device or computer. The user can link their bank accounts by adding the card details to the wallet to enjoy its services.

Digital wallets can be used for opening bank accounts, instant cash-ins and cash-outs, payment of bills, top-ups, peer-to-peer money transfers, split payments, balance inquiries, loyalty and reward programs, self-transfers, booking tickets, scheduling payments, identity verification, and so on. Digital wallets provide consumers with the ability to load and store payment methods and access funding sources, such as cards or accounts, on their mobile devices.

There are different types of digital wallets available namely:

- **Closed Wallets:** These wallets are typically provided by specific service providers or merchants and can be used only for transactions within their own ecosystem. Examples include digital wallets offered by online retailers or ride-sharing platforms.
- **Open Wallets:** Open wallets allow users to store multiple payment methods and can be used across various merchants or service providers. Examples include popular mobile wallets like Apple Pay, Google Pay, Alipay, Paypal and Samsung Pay.
- **Cryptocurrency Wallets:** These wallets specifically store and manage digital currencies like Bitcoin, Ethereum, or other cryptocurrencies. They provide a means to securely store, send, and receive digital assets in the cryptocurrency realm.

Digital wallets have gained significant popularity due to their convenience and benefits, such as:

- **Speed and Convenience:** Users can make payments or transfers quickly using their smartphones or other devices, without the need for physical cards or cash.
- **Enhanced Financial Management:** Digital wallets often provide features to track expenses, view transaction history, and manage budgets, offering users greater control and insight into their financial activities.
- **Contactless Payments:** Many digital wallets support Near Field Communication (NFC) technology, allowing users to make contactless payments by simply tapping their devices on compatible payment terminals.
- **Promotions and Offers:** Digital wallets may offer personalized promotions, discounts, or cashback rewards based on user preferences and spending patterns.
- **Reduced Fraud Risk:** Tokenization and other security measures employed by digital wallets help protect user data and reduce the risk of fraud associated with traditional payment methods.

Digital wallets employ various security measures to protect user information and transactions. These include encryption, passwords and PINs, biometric authentication and tokenization.

While digital wallets have gained popularity in many parts of the world, including several developing countries, their adoption and usage in Nigeria are still relatively limited. However, Nigeria's growing fintech industry presents a significant opportunity for the introduction and expansion of digital wallet platforms in the country.

According to a report by FIS, a financial services technology group, the use of digital wallet-based transactions experienced a 7% global growth in 2020. The report further predicts that digital wallets will surpass card-based payments and QR code-based transactions to account for over 50% of all e-commerce payments worldwide by 2024. This projection reflects the shifting consumer preference towards account-based and QR code-based transactions as they transition away from traditional card-based payments.

Overall, while digital wallet usage in Nigeria may still be in its early stages, the growing fintech industry, increasing smartphone penetration, and the government's focus on financial inclusion provide a favorable environment for the introduction and growth of digital wallet platforms. With the right strategies, collaboration between stakeholders, and addressing key challenges, digital wallets have the potential to become a more widespread means of payment in Nigeria.

International Remittance



International remittance as a fintech solution refers to the application of technology in facilitating cross-border money transfers. Fintech companies leverage innovative digital platforms, online payment systems, and advanced technologies to integrate and enhance the process of international remittance (sending money from one country to another)..

Below are some features of international remittance:

1. Digital Platforms: Fintech companies offering international remittance services leverage user-friendly digital platforms such as mobile applications or online portals. These platforms enable users to facilitate cross-border money transfers and track money transfers conveniently from their devices. Through these digital platforms, users can access a range of features and functionalities related to international money transfers. They can also initiate transfers by entering the necessary recipient details, specifying the transfer amount, and selecting the desired payment method. The platforms often provide clear instructions and intuitive interfaces to guide users through the process thereby reducing manual paperwork and time-consuming processes.

Additionally, these digital platforms offer real-time tracking capabilities, allowing users to monitor the progress of their transactions. Users can receive updates and notifications at various stages of the transfer, providing transparency and peace of mind. They can easily check the status of their transfers, view transaction history, and access digital receipts or confirmations.

The digital platforms provided by fintech remittance solutions are typically designed with a focus on user experience and accessibility. They intend to make the money transfer process seamless and hassle-free, catering to individuals who may have limited knowledge or experience with traditional banking channels.

Furthermore, these platforms often offer additional features to enhance the user experience. This may include language localization options, customer support channels, and personalized settings to meet individual preferences. Some platforms may also provide educational resources or financial management tools to help users make informed decisions about their remittance transactions.

Users are empowered with greater control and accessibility, transforming the way international money transfers are being conducted.

2. Cost Efficiency: Fintech remittance solutions often offer competitive exchange rates, ensuring that users get the most value for their money. Additionally, they generally charge lower transaction fees compared to traditional remittance channels, resulting in cost savings for both senders and recipients.

3. Security and Compliance: Fintech remittance providers adhere to regulatory requirements and compliance standards in the countries where they operate. This ensures that transactions are conducted legally and transparently, providing users with a secure and reliable service. Robust security measures are employed to protect user data and financial transactions. They implement encryption, secure authentication, and ensure the safety and integrity of the remittance process.

4. Integration with Other Financial Services: Fintech remittance platforms integrate with other financial services, such as digital wallets or mobile banking apps. This integration allows users to

conveniently manage their finances, access additional banking services, or make use of innovative features like budgeting tools or savings accounts.

5. Financial Inclusion: Fintech remittance solutions contribute to financial inclusion by offering accessible and affordable cross-border money transfer services. They bridge the gap between individuals who may not have easy access to traditional banking services and their ability to send and receive funds internationally.

CHAMS has operated as an indigenous FinTech firm, and our presence is known and felt across the sector as a leading player in the FinTech space in Nigeria. Our quest is to continue to champion the growth of the sector through innovative solutions and services that will continue to meet the needs of our tech-savvy young population who represent about 70% of Africa's population.