BND
Bank of North Dakota

BANK OF NORTH DAKOTA
RESOURCE PAPER

Understanding the Emerging FinTech Industry

APRIL 2025

Executive Summary

There are many roles that Bank of North Dakota (BND, the Bank) could potentially serve for North Dakota's financial institutions (FIs) and agencies in the emerging FinTech industry from serving as an education-and-connection resource to program management services, derisking transactions and partnerships, FinTech deposit buying and selling services, digital currency transaction management, and a wide range of other potential products and services. Additionally, BND may take advantage of FinTech opportunities to expand out of the state and leverage unique strengths to mitigate strategic weaknesses.

Moving forward, BND is prioritizing FinTech by researching, evaluating and structuring a new internal FinTech role that best aligns to its mission and strategic priorities. BND implemented an internal FinTech function in January 2025 to commence the research and investigation, ultimately providing implementation recommendations and long-term support to the effort. This department will work with North Dakota FIs and state agencies to create the most effective structure that meets their needs and fulfills BND's mission.

FinTech is highly complex with multiple interrelationships, interconnected systems, new concepts and ideas, and unexpected risk profiles. The FinTech industry continues to grow and evolve at a rapid pace with increasing strategic importance.

It is imperative that the State of North Dakota approach this holistically. BND will approach this new role aligned with a risk-balanced mindset. The Bank will be thoughtful in new endeavors, review each opportunity from a universal standpoint, and recognize that specific expertise will remain critical to successful navigation of the emerging space.

Introduction

In base form, FinTech refers to financial transactions in the digital space that allows people to access, manage, transact and gain insights into their finances. Per AI Overview, FinTech is "a term that describes the use of new technologies to improve and automate financial services for consumers and businesses." It includes, but is not limited to, crypto, bitcoin or digital currency; or it's merged with AI, blockchain or mining. Components also include expanded FI delivery channels, neo digital banks and embedded banking. It's not specifically any one of these things, but it includes all of them.

Regardless of terminology, it is without doubt that FinTech is materially impacting individuals, businesses, agricultural producers, banks and government agencies. The FinTech evolution is unlikely to go away or even slow down.

FinTech is evolving, changing, speeding up, disrupting and producing new opportunities today. Looking ahead, it will advance and grow because the demand for FinTech will continue to increase. The services it provides will be the expectation as people experience these tools through multiple channels.

The market is demanding more integration, not less, in financial services. People are not dumping their cellphones to return to rotary land lines, nor are they moving back to pen and paper over virtual tablets. They desire more seamless solutions with increased speed, less friction and improved automation. Financial services are not immune to these demands.

The banking industry is recognizing this evolution. Some banks and credit unions in North Dakota are on the forefront of FinTech development, partnership and investment; others are watching and waiting to see where they may play a role.

BND believes FinTech fits within its mission to help North Dakota financial institution partners and to explore its offerings for state agencies. The Bank's mission and vision are to promote North Dakota agriculture, commerce and industry by creating financial solutions for current and emerging economic needs – with an emphasis on emerging here. This fits.

FinTech is a complex term with numerous meanings to various people who have differing levels of understanding. BND recognizes that specific and sustained expertise is needed to successfully navigate this emerging industry and is committed to maintaining said expertise – whether it be internally or externally via carefully vetted partnerships.

For BND's purposes, and to simplify to the extent possible, differing FinTech components are categorized in this report:

1. FinTech Enhancement of Customer Delivery Channels
2. FinTech Embedded Banking & Banking-as-a-Service (BaaS)
3. FinTech Neo Digital
4. FinTech Digital Assets
    A. Digital Currency: Cryptocurrency, Central Bank Digital Currency, Virtual Currency, Stablecoins
    B. Tokens
    C. Financing with Digital Currency
5. FinTech Interrelation, Integration and Risk

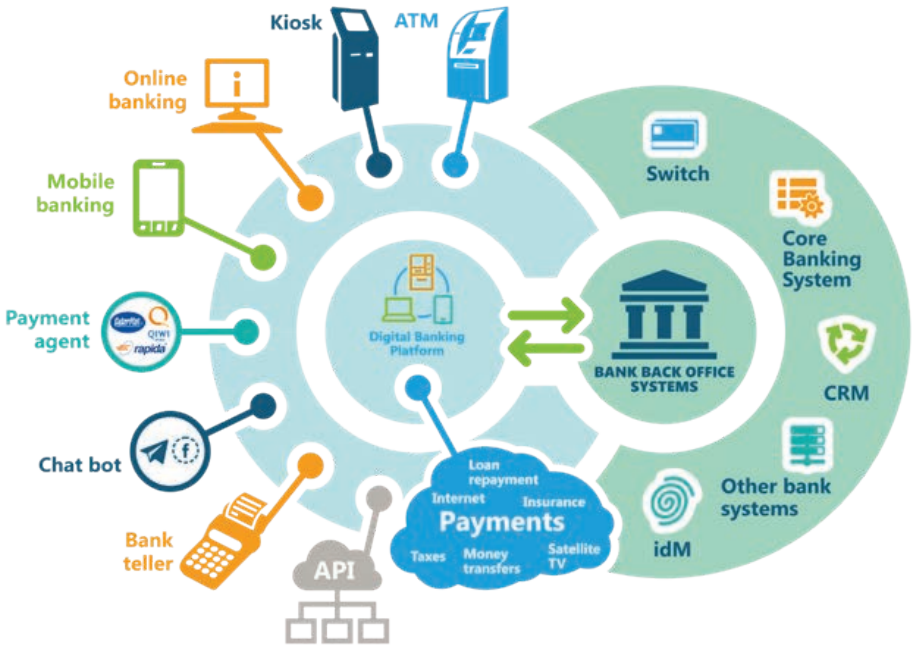
2025 FinTech Components

FinTech Enhancement of Customer Delivery Channels

Nearly 40 years ago, the first cellphones were released. Originally, the early adopters appeared to be ready to call in military airstrikes with bags carrying phones and cords running to various antennae arrays. Shortly thereafter, the first handheld devices arrived on the scene - think Blackberry, Nokia and Motorola. Flip phones followed, and shortly thereafter, the iPhone evolution replaced a room full of computers with a device that processes even more information within the palm of a hand.

As it relates to banking, nearly 40 years ago customers had only two options to contact, interact and transact with their financial institution. They could walk in, sit down and visit with a banker, or they could pick up the phone and call. Shortly thereafter, they could email. Then, came online banking websites where people could monitor the accounts online. Today, banking customer channels include not only in-person, phone and websites, but mobile apps, chat rooms, embedded products, third-party providers, artificial intelligence support and smart watch notifications.

The expanding bank customer delivery channels have resulted in a significant increase in complexity. When a customer only had phone and in-person options, it was easy for the bank staff to integrate and hand off to the next line of approval within the organization. Today, banks interact via multiple customer channels with difficult and, at times, convoluted integration.



Core Banking System - DBprofessor

Technology advancements are steadily solving for these new channel challenges.

- Loan administration systems that integrate customer information flow to decision-making trees and through documentation and administration products
- Customer relationship management systems to aggregate customer information and track critical conversations
- Artificial intelligence-enhanced chat rooms for routine customer interactions
- Internal workflow automations to better aggregate customer data amongst multiple functional units

BND is reviewing the technology available today, and will continue to do so as it emerges, to improve the customer delivery channels for state agencies and correspondent FIs. The Bank desires not to be cutting edge or bleeding edge, but to fulfill an obligation to provide services that offer the conveniences and efficiencies of doing business in today's environment.

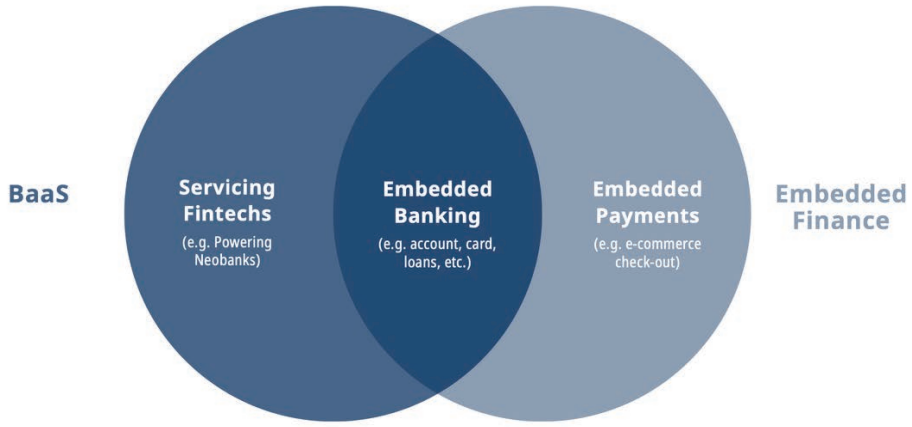
FinTech Embedded Banking & BaaS

Banking-as-a-Service (BaaS) and embedded banking are FinTech concepts that are used interchangeably. All embedded banking programs are BaaS, but not all BaaS programs are embedded banking.

BaaS refers to the ability to build and distribute banking products to customers from a third party. The third parties can pick and choose the products from the FIs or build additional products with the FIs' help. In the beginnings of BaaS, this was sometimes referred to as "Renting a Charter." The FIs would sign the agreement; however, relied on the third party for compliance and oversight of the products on their sites.

Embedded finance encompasses the integration of financial services directly into non-financial platforms or websites, allowing businesses to offer financial products without being a traditional financial institution. The four most popular types of embedded finance are: embedded lending, embedded banking, embedded insurance, and embedded payments. We are going to focus on embedded banking and embedded payments.

Embedded banking refers to offering BaaS to customers at points where other business is conducted. This allows people to complete their financial needs in one platform - a one-stop shop. Examples of this are to get a credit card from an airline at the time of purchase of the ticket online.



Embedded payments focuses on integrating seamless payment processing within a website, app, or various platform. This allows transactions to occur on a single platforms instead of redirecting the consumer to a external payment platform.

Embedded banking is a subsect of BaaS. BaaS refers to all banking services offered by a third party, but embedded banking are those third parties that embed the offering in their website to allow the customer a seamless way of transacting to buy clothes, jewelry, food, etc. For instance, Chime is BaaS but it is not embedded banking. It is not embedded to another website or offering, only financial offering. They are not a bank but offer banking services. Scheels would be an example of embedded banking; it offers a credit card on their website. Customers can put clothes in their cart, then upon checking out there will be an offer to get a credit card or use the credit card.

Both BaaS and embedded banking partnerships can be implemented to make loans or receive deposits. These can be business-to-consumer, business-to-business, consumer-to-consumer, or intermediaries or straight offers between parties.

Embedded Payments could be an embedded banking and BaaS product, or it could be a standalone product not associated to BaaS. If the payments are taken via retailer or marketplace without any other banking services being provided, this would be a standalone instance of embedded payments.

Per Statista.com's FinTech Statistics, there were over 10,000 FinTech companies registered in the United States as of 2024, with a global user base to exceed 3.5 billion. The global user base is particularly large because of the growing digital payments area.

According to FinTech Global in 2023, both embedded banking and BaaS were expected to rise over the foreseeable future. Embedded banking is expected to rise to $7 trillion by 2026 and BaaS is to exceed $38 billion by 2027. In 2022, they were at $3.5 billion and $11 billion, respectively.

The state's FIs could be getting loan volume, deposits, non-interest income or a combination of some or all these items through BaaS or embedded banking. They could run their own platforms, handle their own compliance or partner with additional parties such as program managers and software companies. The FI could be the loan provider, deposit keeper, program manager, custodial, servicer and more depending on the model.

Some of BND's partners are already entering this space, with more expected as the trend to continue.

In North Dakota, several FIs have announced new embedded banking and BaaS partnerships. These FIs include Starion Bank and DoorDash; Cornerstone Bank and Credova; Choice Bank and Lively, Current, and Mercury; and First International Bank & Trust through Kotapay and Kavinu.

FinTech Neo Digital

Per Plaid, "A neobank is a digital-first financial company that offers banking services like checking accounts and debit cards but does not have a physical location. The term neobank is often used interchangeably with FinTech bank, challenger bank, or digital bank."

The neobank trend is emerging and growing rapidly. "In 2021, neobank Chime was named one of the top 10 banks in the U.S. with more than 13 million customers. Today, it has more than 21 million users. In 2021, there were 146.4 million global neobank users. By 2026, there will be an estimated 350 million global neobank users," as reported by Plaid.

Chime is both a neobank and an example of banking as a service. Forget brick and mortar, neobanks can provide core banking services like checking and saving accounts, money transfers, overdraft protection, and financial education tools without any physical presence whatsoever. It is a bank that exists only in the digital space. Neobanks can aid in providing banking services to underbanked and/or unbanked population segments.

One of the more well-known neobanks is Redneck Bank. This is a division of All America Bank in Oklahoma. This digital-first bank was designed to captivate a niche population and garner clients from outside its traditional footprint. They can try different techniques and products with this group without jeopardizing its core customers.

FinTechs, and now many FIs, are waking up to the possibility of extending geographic market reach on a national, international, and even global scale without having to expend millions in physical location construction. A relatively small FI in North Dakota, through the right FinTech partnerships, can collaborate with a global FinTech and get its deposit account products in front of millions of potential global customers. Additionally, that same North Dakota FI can start a second neobank and get their deposit account products in front of millions more potential global customers. Talk about strategic planning!

FinTech Digital Assets

Digital Assets are increasing in viability evidenced by companies allowing digital investing, and the more recent administrative changes that permit larger roles for FIs. The increase in acceptance and interest in digital assets combined with pro-digital asset policies at the national level have prompted states to explore their role in these products.

According to CCN, there are 15 states, including North Dakota, currently looking to act on bitcoin strategic reserves, digital assets, acceptance of digital assets as payment, and blockchain.

While we can't talk about digital assets without referencing or including blockchain technology, blockchain itself is not a FinTech. Blockchain works in both the finance and non-finance worlds. Blockchain enhances FinTechs for transparency, security, and finalization of transactions.

It is beyond BND's role to pick winners or losers in the digital space, but instead to educate, provide information, and stand up viable and sustainable products for state agencies and North Dakota FIs. Each of the digital asset categories below are explained in this context.

Digital Currency

There are four types of digital currencies: crypto, central bank digital, virtual and stablecoins. While these digital currencies exist, the U.S. dollar remains the reserve fiat as the government-issued currency used for buying and selling goods. The U.S. dollar is being used in the digital space of mobile banking, people-to-people or business-to-people transfers, wire transfers, automated clearing house (ACH), remote deposit capture and mobile capture.

Digital currency is complex. Like the U.S. Dollar, digital currency is a mechanism of exchange of value. However, while the dollar can exist in both physical and digital forms, digital currency exists almost exclusively in

digital form. Also, unlike the dollar, digital currency is not widely accepted in exchange for goods leaving it up to the businesses to accept and adopt.

Cryptocurrency

Cryptocurrencies (crypto) have emerged as a decentralized digital currency. Examples include bitcoin and Ethereum. It is argued that crypto is more an investment than a currency since it is not a widely used form of payment in exchange for goods and services. Crypto has no central authority for the transactions. Instead of going through the Federal Reserve which monitors current digital banking transactions, crypto transactions are coded in the blockchain via peers or miners that validate the transaction. There is limited regulatory oversight due to encryption of the transactions.

After a crypto transaction is sent, the chances of it being reversed are unlikely. For a transaction to be reversed, the nodes, receiver and originators all must agree to the reversal, or the receiver has to voluntarily or involuntarily return the crypto to the originator.

All crypto is stored in a digital wallet. The digital wallet is a virtual app or mechanism that protects and stores the crypto. The digital wallet contains the investor's address and private keys; both are needed for crypto. The most well-known digital wallet is Coinbase.

The main use cases for crypto are investment, international transfers and anonymity for transactions. Since crypto isn't widely accepted for retail payment and it is up to each retailer to accept this type of payment, there is a limited use case as an exchange for goods and services.

The change in value since 2009 has made individuals aware of the investment capability. The latest iteration of meme coins has caught the cryptocurrency bug as of late, with Dogecoin, Trump coin and Melania coin in the news, growing over $1 million in market cap. These meme coins have made their way to the investment realm to capitalize on the potential of crypto.

On January 26, 2025, Coinbase's CEO indicated that 1 million new tokens are created weekly. With some being here today, gone tomorrow, this makes it difficult for the average investor or consumer to know what is real. As of January 2025, only five cryptocurrencies have a market cap over $100 billion: Bitcoin, Ethereum, XRP, Solana and BNB.

Central Bank Digital Currencies

Central bank digital currencies (CBDC) are virtual currencies issued and regulated by a central government. They are digital versions of a country's physical currency. CBDCs are relatively new, and as of June 2024, only four countries had gone live with their versions: China, Nigeria, Bahamas and Jamaica. Other countries are in the process of identifying and creating their own CBDC. These are similar to the stablecoins that are mentioned later in this document.

Governments believe they need a digital replacement for cash. They allow less anonymity so banking regulations such as Anti-Money Laundering (AML) Act, Know Your Customer (KYC) rules, Bank Secrecy Act (BSA), and Office of Foreign Assets Control (OFAC), among others, can be followed.

While there would be more transparency, governments believe they could decrease the fees and process the transactions with less scrutiny, provided the proper oversight. Opponents of CBDC believe they are becoming the dominant form and carrier of all currency and worry that they will make banks and/or cash obsolete.

Virtual Currencies

Virtual currencies continue to exist in smaller pockets. While cryptocurrencies are a type of virtual currency – which was previously introduced, this section focuses on nuanced or specific currencies. These are sometimes referred to as gaming currencies. These transactions have no need for a bank. You purchase the gaming currencies by using U.S. dollars. The gaming currency then is used to purchase things inside the game.

Examples include Candy Crush gold bars and Fortnight V-Bucks. It gets more in depth as some games have an exchange rate but still use dollars. A person can pay $50 to purchase $120,000 in the game. That $120,000 is then used to buy cars, guns, clothes, adventures and other items to help a person play the game. This exchange is only one way, as it cannot be converted back into cash in the real world.

Stablecoins

Stablecoins are cryptocurrencies that are tied to commodities, fiat currency or another asset to come up with a value of external reference. These stablecoins can have faster and cheaper transactions than other crypto, along with stability of value. The two most popular stablecoins are Tether and USDC. Both stablecoins have a market cap greater than $10 billion as of January 22, 2025.

Digital currencies are ever changing, but that doesn't mean the traditional ways are going by the wayside. People continue to barter as a form of currency in some areas, and they also continue to exchange in physical gold, silver or other commodities in other areas. Some continue to use physical cash in all forms depending on the country. There is also lots of interest in digital currency from state and national governing bodies.

Tokens

Tokenization is taking an underlying real-world asset and using it as a digital representation on the blockchain. Examples of these tokens include those made for art, real estate, carbon credits and precious metals. The most popular in the last four years are NFTs, or non-fungible tokens.

NFTs represent the unique ownership of physical or digital items stored on the blockchain with a value based on their unique attributes. An NFT would be like a baseball card or a piece of art. NFTs have seen prices decrease significantly since 2022, according to Forbes. While the price volatility in crypto is often talked about, the price decreases in NFTs is often forgotten. The NFT market is tracked by Forbes, with none being above a $500 million market cap (Top NFT Collection Prices, Charts & Tracker | Forbes Digital Assets).

Anything tangible can be tokenized. Another token of notable importance are carbon credits. Entire exchanges are being developed to tokenize and sell carbon credits to offset carbon footprints in industry and for individuals. This allows for easier tracking of these assets along the blockchain. The strength is being able to track the life of these assets from creation to burn. When you burn an asset, you are making it unusable or unrecoverable.

Financing with Digital Currency

An individual or entity may utilize digital currency to secure financing through the exchange of cash for tokenized collateral. It is a relatively new iteration for the industry. A differentiator is that you need a custodial to hold these assets. Kinexys by J.P. Morgan is a company that offers this service. They claim the customer gets liquidity quickly, increased control and real time transparency.

In addition to Kinexys, other companies offering this service are emerging. There are specific lenders of crypto, digital assets, tokens and NFTs. It is a growing area to allow holders access to capital. Each tout that there is an ease of settlement, transparency and liquidity as the reason to go this route.

For the lenders in this area, the returns are explained as 7.5% to 13%. These returns speak to the ease of access and increased risk profile.

FIs, with the help of their core system providers, have been evolving the set of underlying exchange mechanisms that include real time payments, wire transfer enhancements, person-to-person transfers, and more. However, there is also reluctance to fully engage on mechanisms to support digital currencies, tokens and digital financing. The hesitation stems primarily from the ongoing question of the regulatory climate which includes legitimacy and proper oversight.

For example, Satoshi Nakamoto, the person or group of people who launched Bitcoin in 2009, said there will be a set amount of bitcoin available. The stated finiteness of the currency could be argued as the sole driver of value, along with the belief by investors that a limit will remain in place and that demand will continue to exist. As time marches forward, the value of crypto, like bitcoin, continues to climb. Therefore, as the legitimacy of these currencies and tokens grows, especially with opening Exchange Traded Funds (ETF) for them, banking will likely need to embrace the evolution more than it has. If more businesses and governments adopt these digital assets as a mainstream use, the banking environment will need to change even faster.

FinTech Interrelation, Integration and Risk

Not one of these FinTech categories - embedded banking, BaaS, neobank, digital assets, channel enhancements - stands alone. They are related, integrated and dependent. They may use similar underlying systems or the same exact system to do different things. These systems are evolving each day and are making interaction frictionless for the users.

At the end of the holistic delivery channel, the customer wants it all in the device held in the palm of their hand. They don't care how it gets there if it is frictionless, meeting the customer where they are. It may get there from an internal banking channel with a FinTech enhancement that is coupled with an app-based embedded-banking partnership with a non-bank FinTech startup. The entire stream may run on the same core system, and it may handle transactions in U.S. dollars, crypto, gold, silver, etc.

The point is, this is all integrated and related and must be viewed holistically. The integrated components, their risks, and how they relate must be understood.

The partnerships that an FI enters do not affect where the risk lies. The FI typically takes on the bulk of the risk. It can outsource the performance of some duties, but the FI must oversee the duties being performed. At the end of the day, the FI is responsible for the program from the customer acquisition to closing of an account. The customers are the FI's customers regardless of whose name is on the card, platform or other service.

FinTech carries an entirely different risk profile than traditional banking. Ultimately, the FI takes on the majority of the responsibility of any partnerships and products being offered. New payment systems, transactions in potentially new currency types, integration of banking and non-banking entities, new mergers and acquisitions at all levels, and material customer volume level changes are risks for the FI. Additionally, regulatory bodies are recognizing these increased risk profiles and beginning their march to catch up with likely many new regulations on FinTech and/or banking in the future.

The technology change alone is keeping cybersecurity risk at the top of FIs' risk profiles. Throw in artificial intelligence, new non-banking partners, new markets, new products, new investments in startups, not to mention traditional banking regulations such as Bank Security Act, Anti-Money Laundering Act, OFAC, and Know Your Customer, are risks that have not gone away. Any FI, business, state, or entity entering the FinTech space should do so with a healthy respect for the new potential risks.

Conclusion

BND believes FinTech and all items listed warrant a deeper look under the hood. The environment is changing quickly.

We have dedicated resources in a FinTech department to intensely study, research and investigate the enhancement of customer delivery channels, embedded banking and BaaS, neo digital, digital assets, and interrelation, integration, and risks in the FinTech industry.

It is vital that we understand FinTech's potential effects on North Dakota state agencies and FIs. BND will identify the emerging needs and gaps that align with its mission. The FinTech department will determine the proper structure needed to support the FIs in North Dakota and state agencies. These FinTech areas are not going away, and it is BND's obligation to help with the education and implementation processes for its partners, and if it is needed, to fill the gaps with services.

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1200 Memorial Hwy
PO Box 5509
Bismarck, ND 58506-5509

Telephone: 701.328.5600
Toll-Free: 800.472.2166
TTY: 800.366.6888

bnd.nd.gov