

# Hype Cycle for Digital Banking Transformation, 2023

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Initiatives: [Financial Services Digital Business Strategy and Innovation](#)

Technology innovations are empowering bank competitors, influencing customer demand for products and services, and shaping regulators' actions globally. Bank CIOs can use this research to spotlight innovations shaping their industry and prioritize their technology investment strategies accordingly.

## More on This Topic

This is part of an in-depth collection of research. See the collection:

- [2023 Hype Cycles: Deglobalization, AI at the Cusp and Operational Sustainability](#)

## Analysis

### What You Need to Know

This 2023 Hype Cycle for Digital Banking Transformation focuses on technologies that enable banks to adapt to changing customer demands and confront new competitors in the context of a highly regulated market. Gartner sees diverse demand-side drivers and supply-side capabilities. Across geographies and market sectors, banks have vastly different business and technology priorities, risk and innovation appetites, and IT and cultural maturities. There are also huge variations in customer needs, competitor activities, fintech activities and regulatory impacts. When assessing the impact of transformative digital technologies on their institutions, it is important bank CIOs consider all the variables. Local context will be vital in explaining the real-world impact of these technologies both on the bank and its customers.

Notwithstanding those variables, this Hype Cycle highlights a range of current technologies that are deemed truly important and impactful for the banking industry as a whole. And this year we have been able to create an additional Hype Cycle that recognizes the unique impact of emerging technologies on the banking industry, which bank CIOs can use for strategic planning (see [Hype Cycle for Emerging Technologies in Banking, 2023](#)). The two Hype Cycles should be used in conjunction.

## The Hype Cycle

With the annual update of Hype Cycles, we have been able to refine the focus of the Hype Cycle for Digital Banking Transformation and incorporate three new innovations. This refinement has been made possible by moving seven existing innovations from this Hype Cycle to the second banking-focused Hype Cycle, [Hype Cycle for Emerging Technologies in Banking, 2023](#). The moved innovations are ones we considered to be better aligned to the ethos of true emerging technology.

For absolute clarity, the movement of these profiles does not imply any lessening in their importance or relevance to digital banking transformation. Rather, this is a pragmatic approach to identifying all technologies that are relevant to broader transformation efforts. The seven innovations that have been moved are highlighted below in the section “Off the Hype Cycle.”

With these adaptations in mind, the three additional innovations that have been added for 2023 are:

- Realtime Cross-Border Payments
- Composable Core Banking
- Generative AI in Banking

One innovation has undergone a name change:

- “Financial Data APIs” is now “Financial APIs”

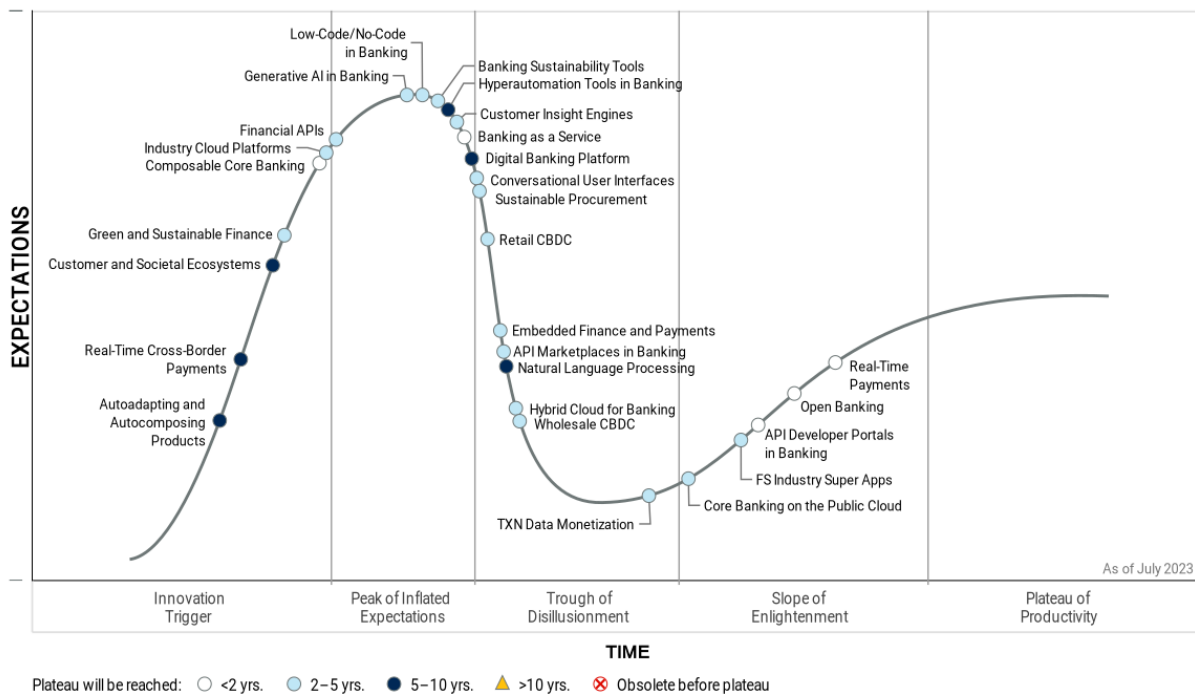
Summarizing the core areas of coverage within the Hype Cycle, we have focused on the following broad themes:

- **Open Banking, Embedded Finance, New Roles for Data and APIs** — Recognizing how these technologies are enabling new consumption and distribution models for bank products and services
- **Core Technologies and the Cloud** — Highlighting the impact of core banking and cloud technologies in enabling digital optimization and transformation
- **Digital Currencies and Payment Innovations** — Describing the new horizons for types and forms of money and payments

- **Analytics and AI** — Describing some of the major drivers and use cases for data analytics and the potential augmented and autonomous decision making in banking
- **Sustainable Finance and ESG** — Recognizing the increasing focus by end-user banks, their customers, governments, regulators and the technology provider community on this pivotal topic for the industry

**Figure 1: Hype Cycle for Digital Banking Transformation, 2023**

## Hype Cycle for Digital Banking Transformation, 2023



**Gartner**

## The Priority Matrix

The Priority Matrix offers a different perspective to the Hype Cycle view by displaying the technologies according to their transformational impact and times to maturity. This different lens on the technologies provides a dynamic view of speed of development and intensity of impact on the industry.

Fifteen technologies are defined as transformational. Real-time payments, composable core banking and open banking are all expected to mature within a two-year time frame, and should already be integrated into your bank's technology strategies. Additionally, seven of these transformational technologies will have an impact over a two-to-five-year time span as they mature and see an uptick in customer usage. These include retail central bank digital currencies (CBDCs) and wholesale CBDCs, green finance, transaction data monetization, banking industry clouds, conversational user interfaces and generative AI in the context of banking. These nascent technologies have huge potential to drive fundamental change in the banking industry.

Those with maturity out to 10 years recognize the growth of ecosystem models connecting homes, business premises and cities, and the impacts on bank product development. They also address the growth in decentralized finance models, the potential for natural language models and cross-border real-time payments.

Two other technologies stand out as reaching maturity within the next two years, and need to be part of your short-term thinking. Delivering differing levels of business benefit, high and medium respectively, banking as a service capabilities play an increasingly important role in many client conversations, as do API developer portals.

**Table 1: Priority Matrix for Digital Banking Transformation, 2023**

(Enlarged table in Appendix)

Benefit ↓	Years to Mainstream Adoption			
	Less Than 2 Years ↓	2 - 5 Years ↓	5 - 10 Years ↓	More Than 10 Years ↓
Transformational	Composable Core Banking Open Banking Real-Time Payments	Conversational User Interfaces Generative AI in Banking Green and Sustainable Finance Industry Cloud Platforms Retail CBDC TXN Data Monetization Wholesale CBDC	Autoadapting and Auto composing Products Customer and Societal Ecosystems Natural Language Processing Real-Time Cross-Border Payments	
High	Banking as a Service	Banking Sustainability Tools Core Banking on the Public Cloud Customer Insight Engines Embedded Finance and Payments FS Industry Super Apps Hybrid Cloud for Banking	Digital Banking Platform Hyperautomation Tools in Banking	
Moderate	API Developer Portals in Banking	API Marketplaces in Banking Financial APIs Low-Code/No-Code in Banking Sustainable Procurement		
Low				

Source: Gartner (July 2023)

## Off the Hype Cycle

Seven innovations have been moved from this Hype Cycle to the Hype Cycle for Emerging Technologies in Banking:

- Metaverse
- Homomorphic Encryption
- Machine Customers
- Decentralized Finance
- Blockchain Asset Tokenization

- Non-Fungible Tokens
- Blockchain

Six innovations have been dropped from the Hype Cycle. Technologies drop from the Hype Cycle for a variety of reasons. They may reach maturity, become obsolete or have decreased relevance to banking transformation as other technologies come to the fore. Some of the technologies may have fragmented and developed to an extent that they are deemed less impactful than previously. The six innovations that have dropped this year, and their reasons for removal, are:

- IoT in Banking — Now described in the Customer and Societal Ecosystems innovation
- Conversational User Interfaces — Now integrated into Natural Language Processing
- Roboadvisor 2.0 — Maturity of technology
- Chatbots — Maturity of technology
- Public Cloud for Banking — Maturity of technology
- Social Messaging Payment Apps — Maturity of technology

## On the Rise

### Autoadapting and Autocomposing Products

Analysis By: Laurie Shotton, Alistair Newton

**Benefit Rating:** Transformational

**Market Penetration:** Less than 1% of target audience

**Maturity:** Embryonic

#### Definition:

Autoadapting products adapt their structure, function, delivery mode and pricing, to reflect external context and data. Autocomposing products step further, reacting to situational data to construct — or compose — a loosely coupled package of components designed to address specific customer needs. Autocomposing products will autonomously combine based on a series of predefined, customer-led rules, leveraging subproduct components or services from multiple industry segments in real time.

#### Why This Is Important

Financial services products face a reinvention. Advances in AI, data analytics capabilities and expansion in flows of contextual data from Internet of Things (IoT) and other data generating sources will influence how customers — whether human, corporation or machine — consume products in the future. These advances in contextual technologies will require providers to make a significant change to enable financial services products that sense and respond to their environments, and to the context and situation in which they are consumed.

#### Business Impact

Autoadapting and autocomposing has the following impacts:

- Autoadapting products offer the opportunity for financial services institutions (FSIs) to develop personalized products aligned to customer needs
- Autoadapting products aim for lower customer attrition as products adapt frequently with the customer's individual needs and context at the center of that adaptation.
- Autocomposing products will likely be orchestrated and initiated by nonfinancial services enterprises, with power shifting into the hands of the customer and away from the FSI.

## Drivers

- Increased investment in integration technologies, such as external and open APIs, will enable the frictionless exchange of value and data required to support autoadapting and autocomposing products (see [2023 CIO and Technology Executive Agenda: An Insurance Perspective](#)).
- Autoadapting products offer an opportunity to increase customer relevance and reduce resultant churn for financial services products.
- Autoadapting products represent an opportunity to invoke a substantive shift from provider-defined product centrality to real-time, customer-defined service and customer centrality in enterprise thinking.
- The rise in composable architecture and thinking within enterprises, coupled with the increased role for ecosystem models for the distribution and sale of product and services, will enable the data flows, engagement points that are critical for autoadapating and autocomposing products to function.
- Technology expansion in customer points increases the touchpoints and real-time interaction opportunities across an array of devices.
- Growth in IoT machines and sensors will increase the variety, volume and velocity of customer- and machine-generated data that will shape these new product and service offerings.
- The emergence of machine customers will enable human and corporate customers to interact with autoadapting product solutions.
- The development of autocomposing products will arise from the convergence of multiple industries in order to meet wider customer needs. As such, this complexity will cause autocomposing products to lag autoadapting products by a number of years.
- Autocomposing products will rely on significant increases in the analytics capabilities and AI/machine learning (ML) modeling to underpin the composition of these new products and services. The acceleration of large language models and Generative AI could cause an acceleration in the development of autocomposing products.

## Obstacles



- Autoadapting and autocomposing products require bank and insurance enterprises to have flexible architectural foundations, core systems and product configuration capabilities to externalize products, processes, algorithms and rules.
- Traditionally architected products will not enable autocomposing to function, requiring organizations to break their products down into more microproducts or ones with totally flexible components.
- Success relies on executive foresight, vision and patience to iterate upon in order to meet customer needs and drive substantive business model change.
- Autoadapting and autocomposing products will expose and utilize more sensitive data. Therefore, enhancements are needed to security and privacy architectures and compliance and regulations will need extra scrutiny in order to fulfill the products.
- Autoadapting and autocomposing products will change the customer engagement models and test their trust in providers increasing the frequency of interactions and invoking changes on the customers' behalf.

## User Recommendations

- Host visioning workshops with executive colleagues to ascertain the enterprise's appetite for involvement in autoadapting and autocomposing product innovation and assess the potential impact on technology roadmaps, such as requiring deeper ecosystem integration to support embedded models.
- Monitor developments in machine customers that could accelerate the need for autoadapting and autocomposing products.
- Engage insurance underwriters in different sectors (for example, marine, manufacturing and energy) to ascertain new types of rapidly evolving risks that would warrant more frequent pricing and adaptation of products.
- Prepare your enterprise for product evolution by developing foundational data science and AI/ML capabilities to support new types and forms of data, models and partnerships.
- Accelerate the shift to data-led, intelligent, real-time decision making that such products will require, and specify appropriate data analytics, AI and governance capabilities to support this need.

## Gartner Recommended Reading

[How Financial Services CIOs Can Prepare for Autoadapting Smart Products](#)

[Top Trends in Financial Services Product Reinvention for 2021](#)

[Quick Answer: How Will Autoadapting and Autocomposing Products Enable Digital Business Disruption?](#)

## **Real-Time Cross-Border Payments**

**Analysis By:** Peter Ryan, Debbie Buckland

**Benefit Rating:** Transformational

**Market Penetration:** 20% to 50% of target audience

**Maturity:** Emerging

### **Definition:**

Real-time cross-border payments are payments that credit the payee in a different jurisdiction than the payer in real time with a real-time confirmation being received by the payer. This means any fraud, sanctions and anti-terrorist finance checks need to be completed in real time. As real-time cross-border payments often originate in different time zones, the recipient settlement system would need to have extended operating hours to settle the incoming payment.

### **Why This Is Important**

Global trade requires cross-border, cross-currency payments. Some examples are payments to support international supply chains, global corporate cash management or remittances from workers sending money home. Too often cross-border payments using correspondent banks are slow and expensive. Moving from correspondent banking models to real-time cross-border payments can reduce costs. Real-time cross-border payments will also enable new overlay services such as smart contracts to be introduced.

### **Business Impact**

Impacts from real-time cross-border payments include:

- Banks risk losing cross-border market share to fintechs and stablecoins offering real-time payments.

- Correspondent banks will lose fees and float (i.e., money held while the payment is processed).
- Corporate customers will move business to banks offering real-time cross-border payments for just-in-time supply chain and invoice payments.
- Workers making remittances will use banks offering cheaper real-time payments with transparent fees.

## Drivers

- Both retail and business customers are looking for cross-border payments to be as fast, safe and frictionless as domestic payments.
- As domestic payments schemes become real time (crediting the payee in 10 seconds or less) there is an opportunity to provide real-time cross-border payments by linking real-time domestic payment schemes together.
- Work to connect domestic real-time payment schemes has started. The Southeast Asian payment connectivity program will link the real-time payment systems of Indonesia, Malaysia, the Philippines, Singapore, and Thailand by the end of 2023. The Clearing House Payments Company, EBA CLEARING, and Swift are experimenting with Immediate Cross-Border Payments (IXB) to enable synchronized settlement of payments in U.S. dollars and euros.
- The Financial Stability Board (FSB) roadmap for cross-border payments has a goal of 75% of cross-border payments settling within one hour by the end of 2027.
- The global rollout of ISO 20022 formats for Swift payments by 2025 combined with the increasing adoption of ISO 20022 formats by domestic real-time payment schemes mean that payment messages from different countries are increasingly interoperable.
- Central banks, such as the Bank of England, are extending the working hours of real-time gross settlement schemes to support a goal of 24-hour real-time gross settlement.
- Alternative cross-border payment methods are emerging. Foreign workers sending money home are using alternative means of making cross-border remittances such as remittance corridors based on the blockchain or using crypto-currencies. A number of fintech providers are offering near real-time cross-border payments by linking accounts connected to different real-time domestic payment schemes together via a fintech interface.
- One of the use cases for much of the wholesale central bank digital currency (CBDC) experimentation is real-time cross-border payments settling in real-time through the exchange of wholesale CBDC.

## Obstacles

- Geopolitical differences mean agreement on the management and location of any cross-border payment hub would be difficult, as would getting agreement on which national laws govern the scheme.
- While most payment schemes use ISO 20022 formats, market format differences remain. A greater level of standardization would be required to support real-time cross-border payments. For example, not every market uses IBANs to identify accounts.
- Data sharing may not be possible cross-border, which can present difficulties with sanctions checking and anti-money laundering requirements.
- Settlement rules may be different between domestic instant payment schemes (e.g., deferred net settlement compared to real-time gross settlement).
- Fraud needs to be managed in real time as money lost cross-border is difficult to reclaim.
- Some currencies have multiple domestic real-time payment schemes, which means the routing of the cross-border payment would need to know which domestic scheme to use.

## User Recommendations

- Participate in real-time domestic payment schemes to allow cross-border payments to use them to credit the ultimate beneficiary.
- Real-time cross-border payments will require sanctions screening and AML checks when payments are sent and when they are received. You should build a roadmap to meet this requirement.
- Build a business case for real-time cross-border payments based on customer demand. This could be to support cross-border trade, to provide remittance corridors, or to support cross-border corporate cash management.
- Use payee account validation to reduce the risk of fraud.
- Participate in real-time cross-border payment initiatives to establish a leader position on cross-border payments.
- Keep payment technology roadmaps current by monitoring payment correspondent banking alternatives, like stablecoins, distributed ledgers or wholesale CBDCs. CIOs need to include payment orchestration to route payments to alternative routes in their payment strategy.

## Gartner Recommended Reading

[Top Technology Payment Trends Driving Change for Banking CIOs for 2023](#)

[Global Standards and Eager Customers: What Banking Leaders Should Know About Real-Time Payments in 2023](#)

## Customer and Societal Ecosystems

Analysis By: Laurie Shotton, Alistair Newton

Benefit Rating: Transformational

Market Penetration: Less than 1% of target audience

Maturity: Embryonic

**Definition:**

Customer and societal ecosystems describe the connections and the data flows that develop as machines, sensors and associated technologies become increasingly integrated into the domestic and work environments for both citizens and companies. These ecosystems will increasingly define the environments within which financial services products and services are delivered and consumed, and will prove pivotal to supporting new business models and revenue for financial services and insurance (FSI).

**Why This Is Important**

Innovative, industry-leading FSI CIOs are increasingly being called on to map out a vision for how technology will influence their specific market sector. FSI CEOs are pushing to grow their enterprises, but this objective cannot be achieved with existing business models, products and services. Customer and societal ecosystems describe substantive aspects of how technologies impact their customers and how FSI may support them with new products and services.

**Business Impact**

Customer and societal ecosystems will set the context in which financial services products are consumed by customers:

- They will offer FSI new ways of engaging with their customers and establishing new products and services; thus, moving beyond traditional offerings blending and orchestrating in other industry products and services with a drive to generate net new revenue.
- These ecosystems will be based on direct customer relevance, enabling FSI to align with actual consumer needs, combining embedded finance and insurance opportunities into other business models and marketplaces.

## Drivers

- The evolution of technologies embedded in people's lives and within enterprises are expanding data flows and touchpoints, creating an opportunity for FSI to develop net new products/services that sense and respond to customers in the wider context of their values.
- Business opportunities also arise from adjacent industries, developing marketplace and platform offerings that create a financial services need or product positioning opportunity that addresses the needs of the enterprise or end customer.
- Customer and societal ecosystems act as a common descriptor for a range of ecosystems and platform models that are developing across industries. These ecosystems are developing with the emergence of embedded Internet of Things technologies and sensors, autonomous machines and other connected technologies that evolve within the realm of cities, buildings, transport systems, personal devices and business environments.
- FSI can, with relevant permissions and privacy guarantees, access connected devices in a citizen's home or business to interact and source data, helping the owner to run their home or business more efficiently. The data is used to maintain the property, manage costs and keep the property secure.
- The access to data and the ability to interpret and analyze it, will allow FSI to rethink how they provide products and services to their customers. It will enable them to better understand their customers' needs and deliver their products close to where customers will actually need and use them. Ultimately, it will enable them to innovate new underlying business models.
- The application of customer and societal ecosystem thinking will enable a much deeper appreciation of the world around end customers and create relevance for future product and service offerings by creating a focus on three key core components: technology actors — digital infrastructure of sensors, machines and technology that will generate the data; business actors — enterprises manufacturing, managing or owning the technology actors; and data flows — data generated by the technology that will flow across and through these developing ecosystems.



## Obstacles

- Customer and societal ecosystems will develop outside the span of control of most of FSI. They involve technologies unfamiliar to many FSI CIOs and business alliances perceived as not within CIOs' span of control.
- To engage in customer and societal ecosystems requires enterprise bravery and a step into the unknown. Developing new product and service offerings, working with extended data sources, and different industry sectors may be considered too culturally challenging and risky for some.
- Many in FSI will be put off from engaging in this space because of real or perceived concerns over the privacy of customer data. However, the models are developing and maturing in other industries, creating opportunities for participation.
- For many in FSI, their legacy will limit their ability to participate in such ecosystems. Deficiencies in analytics capabilities may restrict their ability to meaningfully analyze any of the data output. Risk, regulations, business model and geographical differences will mean ecosystems will not develop in a uniform way across lines of business and markets.

## User Recommendations

- Test the appetite to invest in customer and societal ecosystems by running visioning workshops to engage IT and business leaders in the art of the possible, and ascertain the vision and willingness to engage in ecosystems and platform models.
- Evaluate the developments of customer and societal ecosystems across different industries. In particular, document the business and technology actors, data flows and value created from the ecosystem.
- Build a catalog of technologies that are relevant to end customers by examining the sales and utilization of different emerging technologies and sensors within the end customers' homes, businesses and lives.
- Prepare the underlying architectural strategies for customer and societal ecosystems by using Gartner's digital business technology platform framework research to develop a vision of what the architectural approach might look like for your enterprise (see [Build a Digital Business Technology Platform to Support Emerging Insurance Business Models](#)).

## Gartner Recommended Reading

[Build a Financial Services Vision for Customer and Societal Ecosystem Innovation](#)

[How Financial Services CIOs Can Accelerate Their Enterprise's Ecosystem Development](#)

[How Financial Services Ecosystems Will Change CIO Thinking](#)

[Reimagining Financial Services Digital Economics in a Time of Global Disruption](#)

## Green and Sustainable Finance

**Analysis By:** Alistair Newton, David Furlonger

**Benefit Rating:** Transformational

**Market Penetration:** 1% to 5% of target audience

**Maturity:** Emerging

### Definition:

Green and sustainable finance describes any financial product/service created to deliver positive environmental and sustainability outcomes, or address sustainability regulations. Lending costs will be influenced by the environmental footprint of the asset being funded. So funding a coal mine will incur higher funding costs than for a wind farm. And retail consumers buying a home will pay a higher mortgage interest rate for a home with low energy efficiency than for a highly efficient home.

### Why This Is Important

Green financing flourished for years in lending contexts, such as development bank financing. Now fresh impetus is added by numerous government initiatives and industry initiatives, such as multiple banks committed to the Glasgow Financial Alliance for Net Zero (GFANZ; see [Investment Bodies React to New UK Green Finance Strategy](#), International Investment). Growing regulatory and stakeholder pressures for enterprises to address sustainability issues will add further momentum. Green finance will address these pressures by pricing sustainability and environmental costs into lending and capital.

### Business Impact

Green and sustainable finance will require new approaches to managing and assessing sustainability lending risk:

- Banks will need better insight on sustainability risks in the operating environments of their customers.
- Enterprise measurement of sustainability impacts of projects will become mandatory, domestically and across multiple geographic borders.
- Pricing and risk models will need to adapt in real time to reflect operational data.
- New customer facing engagement dashboards and tools will be required by customers.

## Drivers

- Many retail and institutional funds that provide the banks with their liquidity are looking to align with stakeholder pressure for more explicit sustainable or green principles.
- Multiple levers can be utilized to encourage desired behaviors around the environment and other social endeavors. For banks providing capital and their customers consuming that capital, the most direct impact will be derived by allocating wider sustainability and environmental costs to the funds used to invest in particular assets, projects or enterprises.
- This approach was endorsed by multiple FSI CEOs as they established the GFANZ initiatives at the COP26 meetings in Glasgow in 2021, although there remain challenges in driving these initiatives forward (see [Mark Carney's Green Alliance Rides Out Stormy Waters](#), Financial Times).
- The emergence of multiple green taxonomies that start to define the assets and activities that combine to impact sustainability goals (see [Green Taxonomies Around the World: Where Do We Stand?](#), ECOFACT).
- The maturation of financed emissions as a methodological concept, such as the Partnership for Carbon Accounting Financials (PCAF) (see [Enabling Financial Institutions to Assess and Disclose Greenhouse Gas Emissions Associated With Financial Activities](#), PCAF).
- The rollout of publicly funded green investment schemes, such as the Inflation Reduction Act in the United States and the European Green Deal.
- The European Investment Bank (EIB) reported a 24% increase in green finance funding from 2020 through 2021, to support both infrastructure adaptation and mitigation (see [Multilateral Development Banks' Climate Finance in Low and Middle-Income Countries Reaches \\$51 Billion in 2021](#), EIB).
- Costs of funds for these investments are actively linked to sustainability outcomes, spreading from the development sector to mainstream investment initiatives, as highlighted by the World Economic Forum (WEF) (see [It's Never Been This Expensive to Finance a New Coal Power Plant](#), WEF). And in the retail lending space, mortgage lending is adopting these principles, as mortgage providers offer lower rates to borrowers who use the funds to buy an energy-efficient home or improve the energy efficiency of their existing home.

## Obstacles

- In [Sustainable Business and ESG Actions for Bank CIOs](#), Gartner highlighted the opportunities for new sustainably focused product developments. But many banks will only focus on short-term operational and regulatory issues, and miss product opportunities.
- Technology challenges may also limit growth. Green finance will increasingly require operational data feeds to fuel product development. Pricing and risk systems will often be deeply embedded in legacy core banking systems.
- Guaranteeing the authenticity and accuracy of the data, especially for Scope 3 emissions, will be critical in terms of the quality of outputs from those risk and pricing systems.
- Shocks and impacts from events like Russia's invasion of Ukraine and extensive economic slowdowns may lessen demand-side appetite for green financing.
- Positive environmental outcomes cannot be guaranteed. Projects fail. And greenwashing of project data can bring negative reputational, legal and financial outcomes.
- Not all FSI will be able to maintain the same path, as Vanguard's withdrawal from the GFANZ group clearly highlights (see [Vanguard Quits Net Zero Climate Effort, Citing Need for Independence](#), Reuters).

## User Recommendations

- Sense-check demand from line-of-business colleagues for the inclusion of green financing initiatives in your digital banking strategies and broader sustainability initiatives, and update IT roadmaps accordingly.
- Assess your technology preparedness for the new flows of sustainability-related data from both internal and external sources. Ensure you have adequate data management capabilities, including quality controls, analysis, integration and storage. Emerging generative AI technologies may have a role to play in this space.
- Stress-test existing pricing and risk management engines, as well as dashboards. Update toolsets and interfaces to accommodate real-time, externally sourced data.
- Recognize the dynamism of regulatory positions, data sources, customer sentiment and stakeholder activity in this space by building an adaptive architecture for your data management and reporting.

## **Composable Core Banking**

Analysis By: Don Free

**Benefit Rating:** Transformational

**Market Penetration:** 1% to 5% of target audience

**Maturity:** Adolescent

### **Definition:**

The core banking market is evolving to adapt to significant shifts in the banking industry, especially as it pertains to advanced digital business models such as BaaS and embedded finance. The key to adapting to these changes is the provision of enabling composable core technologies to increase business agility and reduce operational costs.

### **Why This Is Important**

Composable core banking systems (CBS) are quickly gaining consensus among bank CIOs as an enabler to optimize IT and accelerate digital business agility. The deployment of composable core banking systems provides an alternative to highly customized core systems that carry high maintenance costs and promote long-term CBS instability.

### **Business Impact**

The banking industry is undergoing rapid business change reliant on highly adaptable and resilient technology supports. Advanced business models such as BaaS and embedded finance depend on two distinct capabilities — fast product time to market and collaboration with partners. These requirements favor software systems that can be customized through configuration and enable high levels of interoperability.

## Drivers

- In the continuously changing business context, demand for business adaptability directs organizations toward technology architecture that supports fast, safe and efficient application change.
- The demand for active participation of business decision makers in the design of their digital experiences promotes the adoption of technology models that are accessible and useful to business experts as well as technical professionals.
- Banks' increasing adoption of public cloud for core banking systems is synergistic with banks' increasing interest in composable core banking systems.
- The need to reduce the costs of redundancy in software capabilities across applications and business units drives organizations to reusable business modularity and from there to composability.
- The increasing number of core banking vendors offering API-centric and composable technologies. CIOs can use these as building blocks for their modular business applications.
- The emerging architecture of domain-driven design advances the principles of composability to the multifunctional user experience, promoting broader adoption of composability for digital business.
- Fast-growing competence in mainstream organizations for management of broad collections of APIs and event streams creates a technology foundation for composable business technology operations.
- Composable applications enable the reuse of assets through discoverability across the enterprise.

## Obstacles

- Limited experience in composable thinking and planning in most banks complicates the design efforts and transition plans seeking the benefits of composable application architecture.
- Limited practice of business-IT collaboration for application design delays the effectiveness of composable design, which benefits from the complementary expert talents in multidisciplinary fusion teams.
- Most legacy applications can participate in composition via their APIs and event streams, but their architecture provides only minimal autonomy to simulated encapsulated business capabilities and therefore delivers limited enterprise agility.
- Lack of development and platform tools dedicated to composable application architecture limits the early success with composition to the more-advanced design teams, capable of adapting precursor technologies to their objectives.
- Despite efforts to drive overall architecture standards (e.g., BIAN, FDX), banking industry adoption remains elusive; standards are a key enabler to tap into the benefits of composable core banking systems.



## User Recommendations

- Build competence in API and event stream management to prepare to catalog, protect and administer access to the encapsulated business capability services — these are the building blocks of composable applications.
- Use low-code development and integration technologies to facilitate design collaboration between business and technology experts.
- Prioritize the formation of business-IT fusion teams to support faster and more adaptive change of business applications.
- Build an investment case for composability by identifying opportunities that address urgent points of friction that currently hinder the organization's ability to achieve short-term business goals.
- Use API-centric SaaS, where available, to practice application composition.
- Catalog the outer APIs of older applications along with the accessible APIs of external applications to support the initial stages of composable applications.
- Consider revisiting the BIAN service landscape as a means to standardize banking architecture; recent commitment to composable technology concepts is promising.

## Sample Vendors

Galileo Financial Technologies; Mambu; Thought Machine; Treasury Prime

## Gartner Recommended Reading

[Predicts 2023: Composable Applications Accelerate Business Innovation](#)

[8 Steps to Build an Effective Digital Business Case for Core Banking Modernization](#)

[Top Technology Trends Driving Change for Retail Banking CIOs in 2023](#)

## Industry Cloud Platforms

Analysis By: Jason Malo

Benefit Rating: Transformational

Market Penetration: 20% to 50% of target audience

**Maturity:** Early mainstream

**Definition:**

Industry cloud platforms address industry-relevant business outcomes by combining underlying SaaS, PaaS and IaaS services with composable capabilities. These include an industry data fabric, a library of packaged business capabilities, composition tools and other platform innovations into a whole product offering. Banking industry cloud platforms focus on compliance, standardized data and composability value drivers.

**Why This Is Important**

Cloud providers are differentiating and evolving their platforms to specific industry requirements by combining industry-specific functionality and composable capabilities to create more-compelling propositions for mainstream customers. Emerging banking cloud platforms are leveraging innovative approaches, such as composable packaged business capabilities (PBCs), PBC marketplaces, data standards and governance frameworks to accommodate faster change and platform compliance.

**Business Impact**

Broader cloud and multicloud adoption within banking will result in product differentiation and vertical-targeted solutions following defined industry scenarios and process models. This differs from the technology-oriented solutions that enterprises must configure and integrate to bank standards themselves. Banking clouds will have a lasting impact on cloud customers, blurring the lines between established cloud approaches, such as SaaS, PaaS and IaaS, and establishing whole-product offerings.

## Drivers

- As the complexities of both business and technology continue to increase, enterprises are looking for more outcome-based engagements with their cloud providers. However, such outcomes must be flexible enough to be able to adapt to the changing circumstances.
- To be relevant and to resonate with enterprise audiences, such outcomes must be business relevant, specific, measurable and tangible — a goal that is easier achieved when approached in a specific industry context.
- Currently, banking cloud platforms are largely being initiated and created by large technology providers. However, we see the basis for a more autonomous industry ecosystems evolving through collaborative efforts with cloud providers who haven't yet launched specific vertical strategies.
- Banks can gain business value from industry clouds through: shared best practices; vertically specialized go-to-market and implementation teams; compliance of the infrastructure platform with industry-specific regulations, such as GDPR or FedRAMP; analytical capabilities to integrally mine the data from existing and new applications; industry-specific add-on functionality in front- and back-office enterprise applications; and fully vertical specific solutions, combined with collections of composable building blocks available in industry cloud marketplaces.

## Obstacles

- Banking clouds are at risk of following the same path as community clouds, where providers add specific vertical functionality. Then, broken compatibility and upgradability with the parent cloud leaves enterprises on long-term unsupported or unsupportable versions of the cloud.
- Banking industry cloud adopters prefer a balance between a comprehensive industry vision and the ability to be highly adaptive.
- Industry cloud platforms can be overwhelming in terms of the breadth of functionality they cover. Customers and providers must be disciplined and validate the banking-specific value propositions in this specialized environment.
- To reach full potential, industry clouds will need to evolve into something like an ecosystem where all participants conform to the same standards and relevant frameworks. Banks can leverage these ecosystems by participating in shared (business) processes, such as procurement, distribution, payment procession, and maybe even R&D and innovation.

## User Recommendations

- Target ICPs to complement the existing application portfolio like an exoskeleton by introducing new capabilities that add significant value, rather than as full-scale replacements of largely existing functionality with more up-to-date technology.
- Assess the industry-specific features promoted by various cloud providers for the banking industry, and distinguish between real technology or functionality offerings versus marketing messages.
- Formulate rules for when to deploy ICP capabilities as a productive platform for optimization and modernization by improving existing processes, and when to actively recompose them for more differentiating transformation and innovation initiatives.
- Create a governance and management plan that provides a composable management framework for individual cloud adoption in the short term, but will allow for a multicloud governance and management approach as industry clouds mature.

## Gartner Recommended Reading

[Top Strategic Technology Trends for 2023: Industry Cloud Platforms](#)

[Presentation: What Banking CIOs Must Know About Industry Cloud Platform Adoption](#)

[Innovation Insight: What Bank CIOs Must Know When Considering Bank-Specific Cloud Solutions](#)

[Leverage Gartner's Vertical Strategy Framework for Composable Industry Cloud Offerings](#)

[Build Product Teams That Can Drive Industry Cloud Offerings](#)

## At the Peak

### Financial APIs

Analysis By: Don Free, Mark O'Neill

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

#### Definition:

Banking API aggregators provide financial data APIs that connect to multiple banks, thus simplifying banking integration for application developers. Financial data APIs provided by banking API aggregators typically include balance verification and funds availability APIs. Customers of banking API aggregators include fintechs, lenders and banks themselves.

#### Why This Is Important

Fintechs, lenders and app providers increasingly require access to bank accounts. Although open banking regulations exist in many countries that require banks to provide APIs, APIs remain unstandardized and developers often prefer to use an intermediary for simplicity. Banking API aggregators provide this capability, using banking APIs or in a customer-permissioned “screen scraping” approach. Increasingly, banking API aggregators provide emergent capabilities such as risk analysis and payment support.

#### Business Impact

Financial data APIs boost application development by simplifying access to bank data and services, but impact and usage differ among banking industry participants:

- Large banks — Prefer to directly control API access and not delegate access to banking API aggregators
- Midtier or small banks — Can avoid expensive API platforms by using data aggregators to publish financial data APIs
- Fintechs — Can leverage banking API aggregators to reduce the cost of integrating with each bank individually

#### Drivers

- A wide variety of organizations, including lenders, e-commerce sites and fintechs providing services, require access to banking data, which drives the need for banking API aggregators to provide this data. Open banking, banking as a service and embedded finance are often the source for these needs.
- APIs are now the preferred mechanism to integrate with banks due to widespread developer skills and tooling support. Banks also favor APIs due to the ability to apply security and traffic throttling.
- Many banks do not provide financial data APIs but where they do, they typically differ from each other. This drives the need for banking API aggregators to provide single APIs in front of multiple banks that may or may not have financial data APIs of their own.

## Obstacles

- Some larger banks have reacted to banking API aggregators by blocking their connections. This is because they prefer partners to use the bank's own APIs directly.
- Privacy is a concern when banking customers share their online banking credentials with banking API aggregators as a part of account linking. In jurisdictions with open banking regulations, this concern is addressed by permission-based account linking without password sharing, rather than the use of screen scraping.
- Banking API aggregators typically operate in just one country or one region; however, this is beginning to change.

## User Recommendations

- Identify and inventory the differing financial data APIs required to support various initiatives, such as open banking, banking as a service and embedded finance.
- Evaluate banking API providers if your organization requires access to banking services, such as account verification, across different banks.
- Question banking API aggregators on their security and privacy controls.
- Compare the pricing models of banking API aggregators before choosing a provider, since they vary on their pricing models.
- Establish a Chief of Information Flows or similar position to monitor and rationalize use of API provider offerings since many are expanding their transaction services.

## Sample Vendors

Brankas; Envestnet | Yodlee; Fabrick; Finicity; MX; Plaid; Salt Edge; Tink; Token.io; TrueLayer

## Gartner Recommended Reading

[How to Evaluate API Management Solutions](#)

## Generative AI in Banking

Analysis By: Moutusi Sau, Brian Burke, Alistair Newton

**Benefit Rating:** Transformational

**Market Penetration:** 1% to 5% of target audience

**Maturity:** Adolescent

### Definition:

Generative AI technologies can generate new derived versions of content, strategies, designs and methods by learning from large repositories of original source content. Generative AI has profound business impacts, including on content discovery, creation, authenticity and regulations; automation of human work; and customer and employee experiences. In banking and investment services, GenAI can take personalization to new heights.

### Why This Is Important

Generative AI (GenAI) exploration is accelerating, thanks to the popularity of tools such as ChatGPT, Google Bard and other large language models (LLMs). Many banks are actively investigating options for generative-AI-enabled applications and tools. Technology vendors and startups alike are raising funding to innovate with GenAI, and we expect this trend to continue. Expect governments to introduce regulations, so solutions that support AI trust and transparency will become an important component of the GenAI solution base.

## Business Impact

Most technology products and services will soon incorporate generative AI. Foundation models will be applied in banking for speech transcription, processing or customer service, delivering material improvements for chatbots and advanced text analytics. With synthetic data generation, it can be used in risk mitigation and compliance, such as for applications in fraud analytics and prevention. It will empower customers to make better financial decisions. However, it can also become a fraud, security and societal threat. Responsible AI, trust and security will be needed for safe exploitation of GenAI.



## Drivers

- **Communication application:** Generative AI will disrupt bank business models, influencing how customers consume banking products and services. Increasingly, these models will adapt to advise and inform customers as they make financial decisions.
- **Synthetic data for model development:** Using generative AI algorithms for synthetic data generation is improving generative modeling, especially in situations where training data is insufficient or nonexistent. In banking, synthetic data is used to expand fraud patterns, and detect financial frauds and money laundering. The Financial Conduct Authority in the U.K. generates an alternative dataset representative of the original that can't be linked back to the original (see [FCA Partners Synthesized to Tackle COVID-19 Fraud](#), Finextra Research).
- **Content search discovery and synthesis:** Search and discovery is enabled by machine learning (ML) and natural language processing (NLP) platforms that are adding generative AI capabilities for reusability of generative models. Morgan Stanley is working with OpenAI's GPT-4 to adapt wealth management training. This would enable financial advisors to search for existing knowledge within the firm and create tailored content for clients (see [How Generative AI Is Changing Creative Work](#), Harvard Business Review). Also, recently Bloomberg announced their proprietary LLM — [BloombergGPT](#) — that has been built from scratch for existing financial NLP work.
- **Marketing and sales:** LLMs are applied for effective marketing, report generation, daily commentaries or customized insights for portfolio generations, across retail and commercial banks or investment services. JPMorgan Chase has been applying generative AI to generate more effective marketing copy (see [JPMorgan Chase Announces Five-Year Deal With Persado for AI-Powered Marketing Capabilities](#), Persado).
- **Software development:** Generative AI will disrupt software coding. Combined with development automation techniques, it can automate up to 70% of the programmers' work.

## Obstacles

- Democratization of generative AI uncovers new ethical and societal concerns.
- Government regulations may hinder generative AI research, with some currently soliciting input on AI safety measures and others acting to limit deployments.
- In a regulated banking world, further restrictions will limit the use and deployment of this technology, especially for systemically important systems, or where sensitive customer data is managed.
- Hallucinations, a black-box nature and inexperience with a full AI life cycle currently preclude the use of GenAI for critical use cases, such as customer-facing client interaction tools or client-facing search engines.
- GenAI can be used for many nefarious purposes. Accurate detection of generated content, such as deepfakes, will be challenging or impossible, and increase the challenge around cybersecurity, fraud and the integrity of core systems, which will be amplified for banks.
- The compute resources for training foundation models for banking-specific models are heavy, and not affordable to the majority of banks and financial institutions.

## User Recommendations

- Identify banking-specific use cases for fraud detection, sentiment analytics, frontline staff augmentation, in front office and middle office where you can improve your solutions. Consider purchased capabilities or partnering with consultancies. Consult vendor roadmaps to avoid developing similar solutions in-house.
- Pilot ML-powered coding assistants in developer space, especially in areas of code translation, code generation, and code correction to maximize developer productivity and target legacy modernization.
- Focus on specific use cases for synthetic data, such as personally identifiable information (PII) to be applied in credit decisioning processes, to accelerate adoption.
- Mitigate generative AI risks by working with legal, security and fraud experts. Technical, institutional and political interventions will be necessary to fight AI's adversarial impacts. Start with data security guidelines.

## Sample Vendors

Alibaba Group; Amazon; Anthropic; Databricks; Google; Hugging Face; Microsoft; MOSTLY AI; OpenAI; Tencent

## Gartner Recommended Reading

[Innovation Insight for Generative AI](#)

[Emerging Tech Roundup: ChatGPT Hype Fuels Urgency for Advancing Conversational AI and Generative AI](#)

[Emerging Tech: Venture Capital Growth Insights for Generative AI](#)

[Emerging Tech: Generative AI Needs Focus on Accuracy and Veracity to Ensure Widespread B2B Adoption](#)

[ChatGPT Research Highlights](#)

## Low-Code/No-Code in Banking

Analysis By: Vatsal Sharma

Benefit Rating: Moderate

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

### Definition:

“Low-code” and “no-code” banking solutions are application platforms that support rapid application development, deployment, execution and management using declarative, high-level programming abstractions, such as model-driven and metadata-based programming languages, and one-step deployments. Low-code/no-code applications provide and support user interfaces (UIs), business processes and data services.

## Why This Is Important

Low-code/no-code applications have gained a lot of hype in banking. Promises of fast development of point solutions across value chain processes with minimal IT involvement points to a growing democratization of technology application. These applications offer a rapid way to develop applications and experiences for internal users, advisors and clients, and retain legacy systems, avoiding risky, expensive modernization projects.

## Business Impact

Low-code/no-code applications:

- Are an option for application development within and outside of IT across banks and investment firms.
- Can be generic application-builder solutions with limited or no banking content, or packaged as solutions for banking or specific parts of the value chain.
- Can be used to create common processes across legacy systems.
- Provide a more robust replacement for manual workarounds developed in unmonitored programs like Microsoft Excel.

## Drivers

- The 2022 Gartner Financial Services Technology Survey shows that interest in low-code/no-code solutions remains high, with 54% of banking and investment management respondents having already deployed, or they are in short-term planning/experimenting with low-code/no-code solutions.
- Solutions that promote efficiency and enable rapid change with minimal code have been gaining traction, in particular the rise in adoption of RPA. Low-code/no-code applications have represented an extension of this promise.
- Low-code is seen as an approach to tackle application modernization and reduce technical debt. These solutions offer banks the opportunity to build standardized persona-driven processes on top of legacy systems that lack that capability.
- Central IT backlogs are driving interest in solutions that offer shorter implementation times and reduced reliance on IT. Moreover, integration of generative AI into these low-code solutions is further democratizing application development for business users, allowing for more intuitive application building, documentation and reporting mechanisms that pull data from siloed data stores.
- Legacy systems make launching new marketable products complex and time-consuming. As a result, business users are turning to low-code solutions with the promise of more configurable product engines that can reduce time to market.
- With rapid deployment promises and ease-of-configuration statements by vendors, banks are turning to low-code/no-code solutions to respond to the challenges raised by their inefficient legacy systems.
- Low-code/no-code solutions address the business need for greater resilience, while also supporting the drive for faster technology deployment and process change.
- Banks are looking for alternatives to the incumbent core and supporting system providers, and see low-code/no-code solutions as a way of self-developing their own solutions.

## Obstacles

- The market is seeing a proliferation of the term low-code/no-code, with vendors across a spectrum of technologies adopting the term to describe the configuration capabilities of their solutions. This complicates the vendor selection process and requires more buyer scrutiny on the capabilities and differentials of available solutions.
- Many solutions lack knowledge of bank processes and rules, which requires the bank itself to define and enter the rule base. Where bank-focused solutions exist, they are often point solutions for specific parts of the value chain, and not enterprise-inclusive.
- In many cases, the solutions are no more configurable than traditional core and supporting systems that already contain the financial services knowledge and rule base.
- The positioning and selling of the solutions directly to non-IT buyers creates significant risk of purchasing duplicate software and lack of adherence to internal technology standards. The autonomy positioned to the business risks a lack of enterprisewide controls on system remits and how rules are defined.

## User Recommendations

- Avoid being led by the term low-code/no-code, and look at defining the business outcomes and functional capabilities that solution needs to provide and use that assessment to evaluate a portfolio of vendors.
- Develop a checklist to ascertain the real need for low-code/no-code solutions over traditional incumbent vendors.
- Adopt an adaptive governance approach to low-code/no-code system deployments to balance control with business agility.
- Extend the responsibilities of an enterprise architect to ensure consistency in rule and process definition to create greater reusability and consistency when deploying low-code/no-code solutions.
- Reduce software shelfware by agreeing at the executive leadership level that all signoffs for purchasing of low-code solutions need to be centralized to avoid acquiring duplicate software.

## Gartner Recommended Reading

[Tool: Banking and Insurance Use Cases to Drive Hyperautomation](#)

[4 Steps to Business-Driven Automation in Financial Services](#)

## Banking Sustainability Tools

Analysis By: Alistair Newton

Benefit Rating: High

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

### Definition:

As part of environmental, sustainability and governance (ESG) initiatives in banking, tools are being developed to help customers assess their impact on the environment and suggest corrective actions — for example, by providing a carbon footprint based on customer transactions. These differ from investment-focused indexes, which help investors pick environmentally or socially responsible investments. Most tools are customer-facing — being developed independently or via collaborative models.

### Why This Is Important

Issues of environmental and social responsibility are increasingly important to a range of banking customers. For retail customers, understanding their personal impact may be important. For SMB and business banking customers, the need is to address regulations on reporting their sustainability impacts while remaining competitive. Environmental and social impact tools are being leveraged by multiple banks to build advice-focused products and services around core payment and lending products.

### Business Impact

Business impacts of banking sustainability tools include:

- Banking is at the forefront of the growing focus on social and environmental factors. These factors are cited as key influencers on which companies customers will buy from or invest in.
- Business banking and SMB customers are increasingly asking for help quantifying the sustainability impact of their transaction banking.

- Environmental- and social-focused tools offer banks the chance to shift their customer relationships from transactional to advisory, while addressing Scope 3 regulatory requirements.

## Drivers

- These tools are aimed at helping bank customers to measure and act on the wider environmental impact of their day-to-day transactions and operations. They mainly include carbon tracking, calculators and risk management solutions.
- Some banks have announced carbon calculator tools. Example prototypes or product tools include those from Commonwealth Bank, Islandsbanki, Alandsbanken, Deutsche Bank and National Westminster Bank.
- Other banks have focused on the commercial banking space. For example, BNP Paribas in Poland invited startup companies to help it build a carbon calculator for its small and midsize enterprise and corporate clients (see [Bank BNP Paribas Is Looking for a Carbon Footprint Calculation Tool for Companies Among Startups, BNP Paribas](#)). Other banks have formally launched tools, like [Rand Merchant Bank](#) in South Africa and its ESG risk platform.
- Many are being built by nonbanks, leveraging open banking technology to link customers' payment transactions to the indexes and analyze ESG impacts. Examples include those from Cogo, Svalna, Greenly, Doconomy and Connect Earth.
- Some nonbanks have leveraged existing indexes to deliver mainstream banking products to the market. The prime example is Doconomy, in partnership with Mastercard, offering credit cards that provide both financial and environmental data for each transaction by leveraging Alandsbanken's Aland Index.
- Gartner believes this trend will accelerate as banks and other nonbanks increasingly integrate these tools into products and services, either directly or through open banking interfaces.
- It is likely that these indexes will become more aligned with accounting and regulatory standards being developed across a number of industry sectors. These standards and regulations are targeted to help enterprises quantify their wider impact on the environment and society.
- But in providing tools to help customers, the banking industry will need to avoid falling into greenwashing traps and take a realistic and transparent view on the real-world impact of this information and insight on their clients.



## Obstacles

- Sustainability tools are complex to build and maintain, and variable in their accuracy assessing impact on society and the environment.
- The data sources themselves vary hugely in accuracy and consistency — multiple providers of data add to this lack of consistency.
- While the solutions have multiplied and matured, they generally lack sufficient granularity to be of genuine use to customers. They continue to use broad working assumptions on what consumption and transactions might specifically relate to, and will need more time to develop that specificity.
- Few of the models that underpin these tools have a direct link to an ongoing future income stream. Most are predicated on this assumption, but the link is not direct or proven.
- Most immediate initiatives within many banks will focus on addressing specific regulatory requirements, or on the investment services side of the business, by analyzing ESG impacts on customers' investment portfolios. These initiatives are likely to take priority over other ESG indexes.

## User Recommendations

- Acknowledge that sustainability debates generate many divided opinions. Development or use of such tools does not involve a positive or negative endorsement of the underlying environmental or social arguments.
- The objective of the tool will be to provide better insight to customers and, for business customers, help them manage their own reporting requirements more effectively. Link business banking initiatives to other nonbanking activities provided via your application marketplace.
- These models need scale input. Look to local partnership models with other banks, environmental- or philanthropic-focused bodies, and academic institutions to develop collaborative national or regional indexes.
- Look for solutions from both banks and fintech providers, especially if you operate in a country where open banking regulations apply. Collaborations between banks and fintechs will also proliferate as they will allow banks to leverage their open banking investments.

## Hyperautomation Tools in Banking

Analysis By: Vatsal Sharma

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

### Definition:

Hyperautomation is a business-driven, disciplined approach that organizations use to rapidly identify, vet and automate as many business and IT processes as possible.

Hyperautomation involves the orchestrated use of multiple technologies, tools or platforms. Examples of these include AI, ML, event-driven software architecture, RPA, BPM/iBPMS, iPaaS, low-code or no-code tools, packaged software, and other types of decision, process and task automation tools.

### Why This Is Important

Banks and investment firms that want greater automation and to augment their workforce will increasingly turn to vendors that combine traditional automation solutions with AI and algorithms to automate processes and transaction steps. Traditional solutions include business process management (BPM) and robotic process automation (RPA).

Hyperautomation tools will help banks looking for greater agility beyond standard BPM and RPA in automating, optimizing and transforming organizations' processes.

### Business Impact

Hyperautomation tools give banks and investment firms:

- Integrated solutions, algorithms and learning capabilities to support complex decision processing, improve customer experience and augment staff capabilities
- Reduced cycle time, minimized error rates, lower process costs, improved customer satisfaction and significant ROI
- Better use of data to improve risk management, inform executive decision making, drive actions and automate or augment processes, taking over more decision-based tasks

## Drivers

- Faced with economic uncertainty, banking and investment leaders are looking at hyperautomation as a key enabler to lower operating costs and productivity improvements that would let employees focus on higher-value tasks, thereby boosting revenue.
- According to the 2022 Gartner Financial Services Technology Survey, almost 90% of surveyed banking and investment leaders indicated that they expect to increase their spending on hyperautomation tools over the next two years (from 2022 to 2024). From a business outcome perspective, 54% of banking leaders surveyed said they want to increase the level of automation in their organizations to gain a strategic advantage.
- With RPA tools now reaching maturity, banks are becoming more accustomed to automation solutions and are ready for the next stage of hyperautomation tools that will enable greater inroads into skills-based roles.
- Vendors continue to build their expertise in the banking and investments vertical, leading to the development of partially preconfigured solutions that moderately accelerate the implementation timeline.
- Moreover, some players are starting to integrate generative AI interfaces into their automation platforms, allowing for more intuitive application building, documentation and data extraction.
- Banking and investments CIOs can capitalize on such developments by taking a mixologist's approach, using a variety of tools in different combinations to drive better business outcomes. By incorporating nonintelligent tools, such as RPA and optical character recognition (OCR), alongside intelligent automation technologies, such as AI and natural language processing, banks can augment and orchestrate complex, decision-based tasks across the value chain using an array of technologies.

## Obstacles

- Many banks have captured easy wins by using RPA and BPM tools to automate parts of their key processes, but achieving end-to-end automation will require a completely different leadership mindset and governance approach, as well as a cultural shift.
- Hyperautomation tools remain a work in progress. Vendors that started from different baseline solutions (RPA, BPM and low-code) are moving ahead with tools that have differing maturity levels. Although these developments in building a portfolio of tools show progress, there is still significant work needed by vendors to make these a coherent offering that banks can easily deploy.
- Many vendor solutions still lack understanding of banking processes and rules, requiring banks to invest a lot of time and IP to configure and train the tools. Buyers must do an unbiased cost-benefit analysis before committing to a solution based purely on its marketing messages and positioning.

## User Recommendations

- Establish a mixologist approach to automation tools to avoid being overly obsessed with one technology or vendor. Start with a clear business outcome, then handpick tools (RPA, BPM, chatbots, AI and OCR) that can be combined to achieve the desired goal.
- Evaluate the vendor's capabilities across the range of technology components to ascertain if consolidated offerings are robust and fully integrated by running pilots and proofs of concept.
- Build a solid foundation in governance, skills and competencies as you plan to move from simple use cases to enterprisewide, end-to-end automation goals.
- Make a determined effort to overcome culture barriers and employee resistance by demonstrating successful prototypes and engaging the business and operations teams in selecting and implementing hyperautomation tools.
- Establish a comprehensive set of metrics aligned to business outcomes to measure and communicate the success of your automation initiatives.

## Gartner Recommended Reading

[4 Steps to Business-Driven Automation in Financial Services](#)

## Financial Services CIOs: Apply the Right Metrics To Quantify the Benefits of Automation Investments

Tool: Banking and Insurance Use Cases to Drive Hyperautomation

Avoiding the 10 Most Common Mistakes in Financial Services Automation

### Customer Insight Engines

Analysis By: Ali Merji

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Emerging

#### Definition:

Customer insight engines is a set of capabilities that helps banks analyze, govern, manage and convert customer data into meaningful analytics, personalized insights, recommendation and guidance. These can be internally built or externally sourced, often through SaaS or cloud services. By applying analytics and intelligence to customer data of all types, these capabilities serve as a foundation for analytics frameworks that help financial services firms acquire, grow and retain customers.

#### Why This Is Important

Customer insight engines allow banks to use customer data, build on raw transactional data, and expand to engagement and interaction data to overcome a lack of understanding across the customer life cycle and demand and behavior. Banks can use relevant insights to feed programs and take actions based on customers' behaviors and preferences, and then deliver them as analytical outcomes and insights through dashboards, alerts notifications or directly as actions into customer journeys.

#### Business Impact

Customer insight engines will enable banks to:

- Support customers with decision making on investing, spending, saving or borrowing more wisely.

- Provide real-time actionable insights and personalized recommendations for products and services, such as automated money management.
- Better manage fraud identification and enterprise governance risk and control.

## Drivers

- Customers are open to using new types of financial providers. While nontraditional providers do not necessarily offer the same array of banking products, it's clear the level of impact new providers have on the existing customers of traditional retail banking institutions.
- Open banking has made important datasets accessible to banks and nonbanks alike and has created clarity in some jurisdictions in its usage. Helping banks look beyond transactional data for customer insight helps in improving the overall quality of insight.
- Banks globally are compelled to create new value by transforming the customer experience, especially by using data and analytics to serve unmet customer needs faster or help customers act on an overwhelming number of tasks with minimal effort. Use cases include educating customers about savings and long-term financial wellness and suggesting specific steps to increase savings, reduce debt and improve financial outcomes. Another use case is providing timely and useful insights that keep customers informed, helping them stay on top of their financial affairs. Using real-time predictive analytics helps empower customers, initiate automated actions to help the customer stick with the plan and meet financial objectives, and provide ongoing feedback and realign actions with goals.
- The impact of technologies such as generative AI, and the emergence of intelligent agents and machine customers, will act as catalysts for banks to invest in customer insights engines.

## Obstacles

- Banks are taking various approaches to better understand their customers through data. Despite investing in new capabilities like data and analytics, most banks still lag behind their nontraditional competitors.
- The most impactful and important customer insight analytics projects often have significant resource requirements, long timelines and high complexity. This makes these undertakings challenging for banks that are just getting started with customer experience (CX).
- Current customer insight analytics engines that are purpose-built for banking can provide quick minimum viable product (MVP). However, in most cases, banks will need to adopt a buy-and-build approach.
- Some banks have taken a channel-centric approach to improve customer experience and have invested in upgrading and replacing channel capabilities. While such improvements solve immediate customer pain points with user experience (UX), banks may not have the flexibility to embed insights into the channels and processes.

## User Recommendations

- Launch and support a customer experience initiative that identifies customer needs, as well as strives to deliver the journeys and experiences people want. Ensure that any data analytics used for this purpose is aligned with the privacy and ethics mission statements of your clients.
- Run a planning workshop by engaging with stakeholders across all customer journeys, including line of business, marketing, sales, service, finance, IT and operations.
- Determine which business goals align with CX improvement initiatives that are supported by customer insight analytics capabilities.

## Gartner Recommended Reading

[Top 2023 Industry Trends Product Leaders Must Harness for Growth](#)

[Key Design Principles, Building Blocks and Functional Capabilities Needed for a Robust Digital Banking Platform](#)

[Case Study: Customer Lifetime Value-Powered Analytics \(Seacoast Bank\)](#)

## Banking as a Service

Analysis By: Don Free

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

### Definition:

Banking as a service (BaaS) can be a discrete or broad set of financial service functions exposed, consumed or offered in collaboration with or by chartered banks or regulated entities. BaaS powers business models deployed by conventional and unconventional banking market participants.

### Why This Is Important

BaaS is gaining traction from banks that both consume and deliver services, while nonbanks are primarily just consuming BaaS. Their common aspiration is establishing or enhancing direct and intermediated revenue streams. These collaborative models support customer experiences such as a broader set of products and innovative customer experiences. Nonbank participants benefit from a quick onramp to the banking market by leveraging a regulated entity's license instead of pursuing their own charter.

### Business Impact

Banks can:

- Pursue nontraditional revenue expansion through manufacturer, intermediary or distributor roles that leverage API products to serve a wide variety of BaaS participants.
- Benefit competitively with BaaS deployed in partnership with software and service provider partnerships to tap into communal markets that serve both regulated and unregulated entities.
- Consume BaaS to facilitate innovative customer services and broaden existing product portfolios.



## Drivers

- Architecture advances inclusive of APIs, microservices and event-driven architecture facilitates faster time to market, reduced operational volatility and the capacity to retire functionality when it's no longer needed. The latter, the capacity to retire functionality, also reduces the total cost of ownership (TCO) and complexity.
- API aggregators are inserting themselves into the BaaS value chain by streamlining integration and opening markets to both fintechs and banks alike. Their capacity to act as an intermediary reduces banks' scope of API development and boosts banks' business time to market.
- Software applications are evolving to support composable technologies that promote economies of access to granular business functions; critical for enabling and sustaining BaaS.
- Embedded finance is a prominent demand side driver among nonbanks.
- Banks and fintechs are increasingly motivated to collaborate and extend addressable markets as a means of offering deeply personalized products and services to their customers.

## Obstacles

- The lack of pervasive global financial services standards will inhibit frictionless and scalable commerce.
- The intermediary market of API aggregators will gain traction, but the number of providers will also grow beyond overall market demand. Since consolidation is inevitable, banks must continuously monitor the capabilities and relative viability of their API aggregators.
- As BaaS introduces multiple partners into markets that historically were supported by individual banks, it seems likely that regulatory pressures will increase to drive transparency and highlight systemic risks.
- The cardinal rule for any CIO planning to leverage IT and operational resources for any external venture must first verify that their bank and direct customers are served at the same level or better.

## User Recommendations

- Acknowledge what your bank is trying to accomplish — technology investments, strategic objectives and skill sets will differ among BaaS operating models. Cultural and organizational changes will also need to be managed.
- Align technology investments that manage API products through external marketplaces, drive fintech collaboration through ecosystems and build support for development portals.
- Analyze possible diversification of revenue streams by determining whether your capabilities and operations would support BaaS and fintech processing.
- Make sure resources critical to the operation of the bank are well-defined to support a new service offering by creating a support model specific to the venture and distinct from business-as-usual responsibilities.

## Digital Banking Platform

Analysis By: Ali Merji, Jeff Casey

**Benefit Rating:** High

**Market Penetration:** 5% to 20% of target audience

**Maturity:** Adolescent

### Definition:

The digital banking platform (DBP) consists of capabilities that enable banks to orchestrate product and service delivery within a seamless, consistent experience by combining front-end development tools, common platform services and composable business services. Capabilities are delivered via loosely coupled front- and back-end architectures built to enable composable experiences, adaptive intelligence, ecosystems and product creation.

## Why This Is Important

Banks are investing in DBPs to refine direct digital capabilities, but limiting their DBP vision to upgrading channel experience. We believe that is a limited view. A robust DBP can enable new engagement models with digital ecosystems, developing new or improving existing products and services, operational agility and speed to market. It can deliver continuous development to meet the evolving expectation of the customer, which is why DBP is still five to 10 years from plateau.

## Business Impact

Digital banking platforms enable banks to offer differentiated digital capabilities, providing personalization within digital interactions. They leverage a broader set of transaction types, new products and engagement models that create new revenue opportunities, reduce operating costs and enable banking transformation that stretches beyond just delivery channel transformation.

## Drivers

- Current digital experience and channel capabilities are designed to address customer experience only. Banks need a broad set of platform capabilities that can help create innovative products, services, partnerships, ecosystems and a new approach to deploying such capabilities to get the expected outcome.
- To keep up with the pace of continuously changing customer expectations for outcome-based experiences over discrete banking products or services, banks will need to modernize their DBP architecture.
- The developing focus on embedded finance is opening up new opportunities for banks to augment, contextualize, productize and distribute both financial and nonfinancial products in new ways.
- A robust DBP can enable new engagement models with digital ecosystems. This leads to entirely new line of business (LOB) revenue streams, such as identity, custody and insight, and other basic banking capabilities, through APIs.
- Banks are seeking to reduce dependency on legacy cores without the cost and risk often associated with a full-core modernization initiative.

## Obstacles

- Creating a DBP involves architecting various foundational components across different delivery channels and development environments, and to diverse stakeholders. This needs broad executive leadership vision as well as LOB leadership support.
- The market lacks consistency around what composes the key capabilities of a DBP. A wide variety of technology vendors advertise their solution as a DBP, creating confusion in the market when evaluating solutions.
- Banks continue to invest in fragmented applications. As a result, they cannot meet customer and employee expectations of a seamless and consistent experience across applications, especially for new modalities like immersive and conversational.
- CIOs are challenged to quantify a DBP's value (including from future demand for new capabilities) and engage with the supply side.

## User Recommendations

- Ensure that any DBP meets your bank's specific needs by identifying the primary drivers for the bank's digital banking strategy before identifying and evaluating vendors.
- Build a platform engineering function and provide executive sponsorship to implement platform engineering practices at scale.
- Deliver a broader portfolio of digital products faster and more efficiently by enabling fusion teams (business and IT in collaborative development) to build and manage solutions on a single platform.
- Replace existing, less-productive development tools and frameworks by using platform capabilities within a DBP as you rearchitect or replatform applications.
- Identify vendors that can support your platform roadmap by making them clearly specify their product engine capabilities and support for individual functionality as well as integration across customer engagement, analytics and intelligence, open banking, and ecosystems.

## Gartner Recommended Reading

[Shifting Digital Banking Platform Drivers Reinforce Need for a Platform Approach](#)

[Top 10 Technology Trends for Investment Management CIOs in 2023](#)

[Gartner's Digital Banking Taxonomy 4.0: Core Capabilities for Successful Digital Banks](#)

## Sliding into the Trough

### Conversational User Interfaces

**Analysis By:** Gabriele Rigon, Stephen Emmott, Van Baker, Bern Elliot, Frank O'Connor

**Benefit Rating:** Transformational

**Market Penetration:** 5% to 20% of target audience

**Maturity:** Adolescent

#### **Definition:**

Conversational user interfaces (CUIs) are human-computer interfaces that enable natural language interactions for the purpose of fulfilling a request, such as answering a question or completing a task. The sophistication of a CUI can vary from understanding basic queries to handling complex multiturn dialogs, so CUIs range from Q&A bots to more advanced virtual assistants (VAs). CUIs fundamentally shift the interaction medium from traditional point-and-click to natural-language-driven.

#### **Why This Is Important**

UIs provide direct control between the user and the applications they are operating. In a CUI, this responsibility shifts from application-specific controls to conversational controls, and the CUI is determining the intent and acting upon it. This makes CUIs more widespread as agent (acting) UIs for software, devices and the Internet of Things. AI-enabled CUIs can provide a single, intuitive, common interface to multiple application functions across the entire organization.

#### **Business Impact**

Training, onboarding, escalations, productivity, empowerment and responsibility all change with CUIs and need to be embraced as part of CUI projects. AI-enabled CUIs can dramatically standardize and improve the usability of a variety of applications across all business functions, such as CRM, the digital workplace and ERP, hence improving efficiency. They can also benefit customer experience when used to automate support in the form of self-service chatbots or VAs.

#### **Drivers**

- **Users' expectations and generative AI:** Users increasingly expect to be able to hold conversations with and ask natural language questions of the applications they use. CUIs are beginning to complement or even replace traditional interfaces in a variety of applications, such as search and insight engines, business intelligence platforms and productivity software, such as document and spreadsheet applications. The trend toward the enablement of interactions in natural language between users (customers and employees) and software has been significantly accelerated by the hype around generative AI and ChatGPT.
- **Conversational AI platforms:** The underlying technology supporting custom-developed CUIs (like chatbots and VAs) built on top of conversational AI platforms (CAIPs) has matured significantly in the last few years. Vendors are investing in core AI technologies, such as large language models (LLMs), to improve components such as natural language understanding. They are also expanding their capabilities to support broader use cases beyond self-service chatbots and toward broader B2C and B2E automation.
- **Search:** CUIs will be increasingly used for knowledge search and retrieval based on document ingestion. Some technologies driving this include LLM-enabled enterprise applications, such as Microsoft 365 Copilot, as well as ChatGPT-like Q&A chatbots and LLM-powered VAs. This is also causing the market to be flooded with dedicated add-ons and even new vendors.
- **Multimodal interactions:** Generative AI methods are increasing the availability of multimodal interactions, such as those based on images, videos, audio and other sensory data. As a matter of fact, beyond text, voice is emerging as a primary modality of interaction between users and CUIs. This can add a powerful enhancement to the communications. Multimodality can solve some of the problems of the current generation of LLMs. Multimodal language models will also unlock new applications that were impossible with text-only models.

## Obstacles

- Developing CUIs is intrinsically complex and requires more effort than graphical UIs. More sophistication has to be built into VAs' conversational capabilities to deal with a range of users and edge cases. CUIs' predictions about users' intents can be wrong, so the CUI designer has to keep ambiguity in mind.
- Lack of CUI personality, poor accuracy and conversational design, as well as unreliability of answers generated by LLMs, can affect user sentiments negatively and, as a consequence, adoption and ROI.

- CUIs are available from many sources, whether offered by applications, CAIPs or through separate augmentation. For example, transactional conversational AI use cases require capabilities that only platforms can provide. Q&A scenarios may also be supported by architectures primarily leveraging search and LLMs. Understanding the sophistication and the limitations of these and other approaches is not trivial. This may lead buyers to choose the wrong tooling and many CUIs to fail.

## User Recommendations

- Treat CUIs as transformative, and plan on them becoming the dominant interaction model between users and applications.
- Prioritize the requirements of your custom CUIs in terms of sophistication, integration and control. Do not underestimate the risks of building CUIs that do not meet enterprise-grade performance, accuracy and security standards.
- Develop your strategy for consolidation upon one or few conversational AI platforms or approaches, avoiding challenges that derive from the proliferation of CUIs deployed by different business units in different regions.
- Educate stakeholders around benefits and limitations of generative-AI-enabled CUIs, and encourage well-informed employees to experiment with such CUIs.
- Prepare for new roles and skills in the enterprise. Dialogue designers and AI trainers, for example, are needed to enable custom CUI initiatives. Citizen developers will acquire prompt engineering and model management skills to leverage generative-AI-enabled CUIs effectively.

## Sample Vendors

Amelia; Avaamo; Cognigy; Google; IBM; Kore.ai; Omilia; OneReach.ai; OpenAI

## Gartner Recommended Reading

[Magic Quadrant for Enterprise Conversational AI Platforms](#)

[Critical Capabilities for Enterprise Conversational AI Platforms](#)

[Competitive Landscape: Conversational AI Platform Providers](#)

[Emerging Tech Roundup: ChatGPT Hype Fuels Urgency for Advancing Conversational AI and Generative AI](#)



## Innovation Insight for Generative AI

### Sustainable Procurement

Analysis By: Laura Rainier

Benefit Rating: Moderate

Market Penetration: More than 50% of target audience

Maturity: Adolescent

#### Definition:

Sustainable procurement embeds environmental, social and governance (ESG) issues into the process by which organizations acquire goods and services. Sustainable procurement ambition ranges from risk mitigation and regulatory compliance to driving positive change across the ecosystem.

#### Why This Is Important

Suppliers represent significant risk and opportunity related to ESG performance. Significant human and labor rights risks are present in many key raw materials and manufacturing processes. According to CDP, more than 90% of greenhouse gas emissions occur in the upstream supply chain, with suppliers contributing a significant share (see [Transparency to Transformation: A Chain Reaction](#), CDP). Procurement is a key point of leverage to address these impacts.

#### Business Impact

Organizations are under increasing stakeholder pressure to enhance supply chain due diligence and reduce Scope 3 emissions. Fifty-six percent of respondents to the 2022 Gartner/SPP Sustainable Procurement Pulse Survey reported that customer retention is a key driver of their sustainable procurement program, as sustainability requirements are increasingly present in their customers' supplier selection and scorecarding processes.

## Drivers

- **Regulatory compliance:** Regulatory requirements are increasing in key markets and expanding the scope of sustainable procurement programs, including a significant increase in due diligence and reporting requirements in the U.S., U.K., Germany and Norway. In the 2022 Gartner/SPP Sustainable Procurement Pulse Survey, 58% of organizations reported that regulatory compliance is a key driver of their sustainable procurement program.
- **Sustainability goals:** Organizations' ambition to improve their impact on society and the environment is growing. For example, 41% of Forbes 2000 companies have goals to achieve net-zero greenhouse gas emissions. Procurement represents a significant opportunity to impact these goals.
- **Customer retention:** Sustainable procurement expectations are becoming a customer requirement, key to customer retention. Organizations are experiencing pressure from current and potential customers to meet increasing regulatory requirements and make progress toward voluntary sustainability commitments.
- **Resiliency:** Forty-nine percent of organizations reported resiliency and risk mitigation as a key reason for their sustainable procurement strategy. A sustainable procurement strategy proactively assesses and mitigates supplier risks.

## Obstacles

- **Internal resources:** Insufficient staff and limited internal capabilities in sustainable procurement are among the top barriers to achieving sustainable procurement goals.
- **Conflicting goals:** Sustainable procurement goals are often not aligned with purchasing decisions, creating confusion for suppliers or mitigating program impact.
- **Supplier capability building:** In the 2022 Gartner/SPP Sustainable Procurement Pulse Survey, only 21% of organizations reported being effective/highly effective at supplier capability building, which is key to driving progress with suppliers.
- **Data/Digital tools:** Procurement lacks digital tools and access to supplier data. Visibility to supplier data is particularly challenging for upstream (Tier 2 and beyond) suppliers.
- **Supplier fatigue:** Traditional sustainable procurement methods include on-site audits and supplier self-assessments, which are time-consuming and provide little supplier value. Survey and audit fatigue can mitigate suppliers' ability to deliver improvements.

## User Recommendations

- Build capability on the procurement team to prioritize sustainable procurement by investing in new talent or building the skills of procurement leaders.
- Align purchasing practices with sustainability goals by embedding sustainability requirements and outcomes into core procurement processes. Engage suppliers to cascade expectations upstream.
- Assess and monitor supplier sustainability performance using digital tools, like supplier sustainability applications, to scale the sustainable procurement program across the supply base.
- Collaborate with competitors and other ecosystem partners to align the expectations of suppliers and ease the supplier reporting burden.
- Ensure the sustainable procurement program includes remediation of issues and capability building to improve outcomes in the supply chain. Due diligence and reporting do not have an impact unless the findings are addressed and improved.

## Gartner Recommended Reading

[Survey Findings: The State of Sustainable Procurement in 2022](#)

[The Journey to Responsible Sourcing: Key Elements for Success](#)

[3 Steps for Effective Supplier Engagement in Sustainability](#)

## Retail CBDC

Analysis By: Christophe Uzureau, David Furlonger, Peter Ryan

Benefit Rating: Transformational

Market Penetration: 1% to 5% of target audience

Maturity: Emerging

## Definition:

A retail central bank digital currency (CBDC) is a digital currency issued by a central bank as an account-based system or a fiat token, and distributed via digital wallets at the central bank or at affiliated and licensed financial institutions. As it has a central bank liability, it is often referred to as digital cash. It is open to be used by the public and companies.

## Why This Is Important

Most central banks look at retail CBDCs as a way to improve financial supervision and inclusion, the effectiveness of monetary policy, reduce systemic risks and improve compliance. For banks and their clients, a retail CBDC would impact banking interfaces, ERP and treasury systems, and also lead to adjustments in product pricing and loyalty programs.

## Business Impact

Banks and their clients need to pay attention to the degree of programmability. For example, Banco Central do Brasil selected nine projects, including the use of smart contracts to support programmable money, which would impact banks' payment, risk management and loan origination operations (see [Central Bank of Brazil Chooses Nine Institutions to Study Digital Real Possibilities](#), Bitcoin.com). The programmability of a retail CBDC could deal with financial inclusion (notably for microbusinesses) driving the demand for banks' embedded finance solutions.

## Drivers

- The drivers for retail CBDCs vary per country and may have divergent impact on commercial banks; however, the objective is to retain or augment the role of the central bank in the financial services ecosystem and maintain two-tier market structures (in part as a defense against decentralized finance).
- For example, in China, the digital yuan is part of an effort to level the playing field in the digital payment space and dilute the market power of Alipay (Ant Group) and WeChat Pay (Tencent). In the Bahamas, the Sand Dollar was launched as part of creating a more resilient payment system.
- The announcements by central banks to experiment and develop CBDCs are raising interest in offline payment solutions that attempt to replicate the capabilities of cash. For example, the Central Bank of The Bahamas launched its retail CBDC in December 2020, enabling offline transactions (see [History](#), Sand Dollar).

- The development of CBDCs is also associated with the use of smart contracts to inject some programmability into payment value chains and support the design of programmable money. This enables new use cases and models such as developing rural finance (Brazil), dealing with specific commercial value chains (China). For example, Bank of China, Chengdu, uses smart contracts to manage the deposit for extracurricular school activities.
- Financial inclusion is also an important driver in markets with less developed payment and banking infrastructures, such as Bank of Jamaica's JAM-DEX and Central Bank of Nigeria's eNaira. Where a retail CBDC is used to improve financial inclusion, banks offering CBDC accounts can gain new customers and their retail CBDC payment history can be used as data for credit decisions.
- The real-time settlement properties of CBDCs are being explored to reduce administration associated with complex transactions. For example, using a smart contract in a retail CBDC to synchronize the settlement of the different legs of a property transaction.

## Obstacles

- The creation of a CBDC requires new legal frameworks and potentially adjustments to risk management and core systems.
- Retail CBDCs impact geopolitics and the ability of smaller economies to control monetary policy and risks facilitating capital flights, thus destabilizing local economies.
- Most central banks are looking at a two-tier model that involves commercial banks, who are worried about the risk of disintermediation and increasing funding costs.
- Political debates surrounding the use of programmability and traceability will delay development.
- Consumers are reluctant to change their payment habits, and customer education will also be a challenge since some targeted customer cohorts are the least literate with respect to technology and finance.
- The creation of a new CBDC demands updating existing compliance processes (anti-money-laundering/know your customer), launching new authentication and authorization services, and educating the financial services workforce.

## User Recommendations

- Prepare to launch digital wallet functionality for retail CBDCs, depending on the plans of the central bank, to capture the velocity of money (and data) in new transactional environments (machine to machine and smart cities).
- Plan to integrate the retail CBDC wallet into the existing digital banking/mobile banking capabilities.
- Plan now for a dedicated customer onboarding experience by focusing on the management of new identity document requirements initiated by the retail CBDC.
- Use retail CBDC financial inclusion initiatives to gain market share.
- Prepare for a modernization of the money management and credit scoring tools to accommodate the transactional data generated by the retail CBDC.
- Participate in CBDC initiatives that involve the use of smart contracts to drive the programmability of money and to get exposure to related regulatory considerations.
- Explore use cases that leverage the real-time settlement properties of retail CBDCs to reduce the administration costs for corporate customers.

## Sample Vendors

Bitt; ConsenSys; Giesecke+Devrient; Hyperledger Foundation; MIT Digital Currency Initiative

## Gartner Recommended Reading

[Creating Business Value From Central Bank Digital Currencies](#)

[Banking CIOs Must Prepare Now for the Programmability of Money and Data](#)

[Top Technology Payment Trends Driving Change for Banking CIOs for 2023](#)

[Define and Map Cryptocurrencies, Digital Currencies and NFTs to Future-Proof Your Digital Transformation](#)

[How to Model the Programmable Economy to Assess Digital Business Growth Opportunities](#)

## **Embedded Finance and Payments**

**Analysis By:** Alistair Newton, Christophe Uzureau

**Benefit Rating:** High

**Market Penetration:** 5% to 20% of target audience

**Maturity:** Early mainstream

### **Definition:**

Embedded finance and payments describes the integration of banking and insurance products and services within the core products that customers use and consume on a daily basis. Embedding these financial services products within day-to-day consumption enables a seamless and frictionless delivery of products to customers, but places mainstream financial services providers at risk of disintermediation.

### **Why This Is Important**

Embedded finance poses a significant threat to existing customer relationships for banks but also offers an opportunity to innovate for banks willing to adapt. Embedded finance has already supported the customer propositions for many new digital offerings, such as ride-hailing apps with integrated payment capability or buy-now-pay-later services for e-commerce transactions. However, more innovation is occurring, and banks will need to integrate embedded finance into their digital banking strategy.

### **Business Impact**

Embedded finance shifts banks from one-to-one customer relationships to utility service arrangements based on accessibility, price and user experience. New digital service and payment providers are using embedded finance to deepen relationships with unbanked and banked customers alike, with a view to expanding their product offerings. Banks can also leverage these concepts to support their banking-as-a-service capabilities, participate in ecosystems and digital platforms, and innovate with new products.

## Drivers

- On the demand side, the number of nonbank providers participating in and orchestrating ecosystems that support embedded finance are growing significantly.
- Leveraging embedded finance capabilities is suited to the business models of many nonbanks looking to add value to their existing customer ecosystems.
- Embedded finance has its roots in payment applications, but also supports multiple new forms of lending and investment services.
- Connected and autonomous vehicles are catalysts for adoption of new payment interfaces. Examples are Amazon enabling its customers to locate and purchase gasoline via Alexa in the U.S., and Mercedes-Benz embedding a wallet capability in new vehicles.
- Customers change or modify payment or financial habits as their other consumption habits evolve, so to successfully embedded finance strategy requires banks to monitor changes in consumption habits.
- Embedded finance capabilities evolve, expanding the impact of the providers, such as the shift to sharing credit histories for buy-now-pay-later customers with U.K. credit agencies.
- Embedded finance is not just for retail banking products — increasingly, business banking financial capabilities aimed at SMB and business banking customers are being embedded in customer ecosystems.

Examples of embedded finance include the following:

- The integration of Gojek's services into the DBS PayLah! platform illustrates a bank integrating a successful app in one of its solutions (in this case, it's a P2P payment solution), with multiple merchants and service providers.
- Wise and Currencycloud offer an integrated cross-border payment capability.
- Grab in Southeast Asia has established joint ventures with financial services institutions, such as Credit Saison for microlending and ZhongAn for insurance. It is now an important distribution channel for insurance companies via ride-cover insurance underwriting.
- Nonbanking groups, such as PrimeRevenue, Taulia and Tradeshift, have embedded their supply chain financing solutions into supply chain ecosystems.



## Obstacles

- Banks need to recognize that revenue from embedded finance will be generated in ways that may challenge traditional bank thinking (for example, switching revenue streams from payments to lending).
- Traditional bank relationships have been one-to-one with customers. But in the future, customers may be things or machines, and relationships may be with multiple “versions” of that customer. Many of those same banks will also be concerned that exposure to multiple new distribution partners will raise issues in terms of market reputation and ongoing risk management.
- Many banks have approached open banking with a view to regulatory compliance, rather than a catalyst to enable innovation in areas like embedded finance. Innovative mindsets are required to build the necessary ecosystems or access those orchestrated by others.
- Many banking and financial services industry (FSI) regulators have still to fully embrace the options for embedded finance, and this lack of clarity may hinder adoption by some mainstream banking groups.

## User Recommendations

- Plan now for the requirement to embed your payment and banking products and services into customer relevant third-party customer ecosystems, even if there is no immediate strategic requirement from business colleagues to do this. Competitor activity will change their minds.
- Build your embedded finance strategy in the context of your banking-as-a-service capabilities, so you can lead with areas of higher capability.
- Consider productizing your approach to APIs, and articulate the business benefits of such a product-centric approach to your executive colleagues.
- Create a new role across business and IT in order to manage the different investments and collaborative models across these developing ecosystems.
- Collaborate with your colleague in risk management teams to perform a risk analysis of the new collaborative options.
- Embedded finance is not just about distributing capabilities — examine options for your bank to consume both financial and nonfinancial components from external parties. This should form a key part of your wider digital banking strategy.

## API Marketplaces in Banking

Analysis By: Don Free, Mark O'Neill

**Benefit Rating:** Moderate

**Market Penetration:** 5% to 20% of target audience

**Maturity:** Adolescent

### Definition:

API marketplaces are platforms designed to publish and market APIs. They range from API directories and API portals provided by a single provider to commercial marketplaces. Consumers, mainly developers, use these marketplaces to discover APIs and – in some cases – purchase access to them. As banks embrace advanced business models, such as banking as a service (BaaS), API marketplaces in banking are indispensable.

### Why This Is Important

API marketplaces enable and empower organizations to share APIs with a community of developers. They facilitate the creation of an ecosystem by enabling partners to implement solutions using their APIs. This capability is tied to banks' continued BaaS and embedded finance revenue objectives. Beyond helping developers discover and share APIs between teams, bank-owned API marketplaces are on the rise to deliver business and corporate banking APIs to clients.

### Business Impact

As API providers, banks can register APIs in marketplaces to increase partnership opportunities with fintech and other banks. API marketplaces can increase developer visibility and consumer mind share, thus driving API usage and, by extension, business impact. Also, API marketplaces can facilitate ecosystem creation and are critical enablers of composable business. Ultimately, API marketplace providers may take a share of the revenue for APIs sourced through the marketplace, but this can be considered a cost of sale.

## Drivers

- Use of APIs is growing. This increases the need for marketplaces to discover the many available APIs.
- The number of banking APIs within an organization is also climbing, thus driving the need for developers to find which APIs and services are available.
- API aggregators are emerging to fulfill intermediary roles that speed and scale interactions between banks, fintech and vendors, such as Envestnet | Yodlee, MX Platform API, Plaid, Tink API and TrueLayer.
- Composable business — including composable commerce — relies on the use of API marketplaces to share APIs and packaged business capabilities.
- Increased use of low-code platforms, integration platform as a service (iPaaS), robotic process automation (RPA) and analytics tooling enables more citizen development, as APIs can be easily sourced from API marketplaces.
- Regulatory influences on API adoption are increasingly impacting the banking industry.

## Obstacles

- Overall, public API marketplaces — which provide a public directory of APIs — had disappointing results because developers are more likely to go to providers directly to sign up for APIs. This has resulted in API marketplaces approaching the Trough of Disillusionment phase. However, internal API marketplaces have had more success since they enable developers to share APIs across multiple teams.
- API portals — provided as part of API management platforms — are standard capabilities, resulting in significant customization work to create API marketplaces based on API portals.
- Broader success in BaaS initiatives will remain elusive for midsize and large-tier banks that don't advance API marketplace maturity to enable multipartner, collaborative efforts.

## User Recommendations

- Manage senior business stakeholders' expectations by ensuring they know that outcomes from placing APIs in public marketplaces are often disappointing.
- Examine billing terms to understand what goes to the marketplace provider when considering commercial API marketplaces. Since your APIs may be side-by-side with competing APIs, think carefully about differentiation.
- Establish a commercial model upfront — for example, through registration fees or revenue share — and a clear governance process for onboarding third-party APIs if you plan to build your own API marketplace.
- Ensure that you use APIs from trusted marketplaces and API service providers, carefully examining usage agreements and licensing and billing terms. In general, ensure that you govern your organization's usage of third-party APIs.
- Investigate if subscribing to an API directly from the API provider offers better pricing or usage terms than consuming the API through a marketplace.

## Sample Vendors

Achieve Internet; Backstage; Constellant; Figma; Nordea; Pronovix; Rapid; Salesforce

## Gartner Recommended Reading

[Leverage API Portals for Successful API Adoption](#)

[To Create a Successful API Marketplace or API-Based Ecosystem, Look Before You Leap](#)

[Emerging Tech: How to Buy the Right Ecosystem or Marketplace Solution](#)

[The Evolving Role of the API Product Manager in Digital Product Management](#)

## Natural Language Processing

Analysis By: Bern Elliot, Erick Brethenoux

**Benefit Rating:** Transformational

**Market Penetration:** 5% to 20% of target audience

**Maturity:** Emerging

**Definition:**

Natural language processing (NLP) enables an intuitive form of communication between humans and systems. NLP includes computational linguistic techniques aimed at parsing, interpreting and, sometimes, generating human language. NLP techniques deal with the pragmatics (contextual), semantics (meanings), grammatical (syntax) and lexical (words) aspects of languages. The phonetic part is often left to speech-processing technologies that are essentially signal-processing systems.

**Why This Is Important**

NLP enables the automated processing and leveraging of vast quantities and types of text-based information. These can include documents, literature, email, text messages, invoices and receipts. With speech-to-text, NLP can process speech, including livestreams of text and speech. As a result, NLP enables a vast array of applications and automation that was previously unachievable by machine, offering businesses significant process improvement.

**Business Impact**

- NLP is an enabler that is typically useful when built into applications that support business workflows.
- Because so many tasks involving text rely on human labor, the potential for savings and new business processes is vast.
- Business value reported from some applications using NLP, such as machine translation, are thousandfold efficiency improvements and operational cost savings.

## Drivers

- Growth in transcription and translation services.
- Language-generation applications (chatbots, text summarization) that produce natural language descriptions of tabular data, making it easier for many to understand.
- Keyword tagging in documents, making it easier to determine relevant sections or to extract other information, such as intent and entities.
- Autocorrect and autocompletion tools and services.
- Content moderation services that analyze user-generated content (text or images) to flag potentially offensive content or identify fake news in social media.
- Sentiment analysis to identify the effective states and subjective information in statements — for example, from negative to neutral to positive.
- Search improvements through better understanding of the intent of a search query or through summaries of the retrieved content.
- Text analytics and intelligent document processing (IDP) to quickly process large numbers of an organization's documents and determine compliance or legal validity.
- Advances in insight engine text capabilities combined with more-advanced NLP functionality.
- The introduction of new machine learning (ML) techniques, including transformer-based large language model (LLM) approaches, such as BERT and GPT-3. This has enabled new use cases and improvements to existing use cases, with special regard to those involving text generation.

## Obstacles

- Despite progress made in NLP methods, many subtle nuances properly processing the complex and enormous variety found in human languages are deeply influenced by cultural and other idiosyncratic conditions. Significant customization of tools and products is often needed.
- Although recent NLP methods that leverage deep neural networks have provided significant and useful improvements to many applications, some are experimental and are not yet mature.
- Support for low-resource languages. Although common languages have support for templates, data and algorithms, lesser-used languages can be difficult to develop for, and require more custom-made effort.
- Despite advances in new techniques, the hyped expectations surrounding NLP may result in unrealistic expectations, leading to disappointing results.
- Many of the new use cases of emerging NLP opportunities are poorly understood and face issues with meeting expectations or defining a clear business value to companies.

## User Recommendations

- Select the strongest and most-immediate use cases for NLP. Examples include customer service (affecting cost, service levels, customer satisfaction and upselling) and employee support (including augmenting them as they perform tasks). Another example is automation of paper- and document-based tasks (e.g., contract analysis, compliance enforcement, document generation, translation and transcription).
- Demonstrate success in initial projects by starting with modest goals. As experience is obtained, projects should iterate, and scope can increase. As enterprises enhance their NLP initiatives, new skills should be explored that better leverage new NLP methods.
- Verify the effectiveness of solutions before making significant commitments, because the quality of NLP solutions can vary.
- Evaluate master metadata implications. Ensure that language assets are considered from a master metadata management point of view to ensure reuse and portability of assets between algorithms and systems.

## Sample Vendors

Baidu; Expert.ai; Google; IBM; Microsoft; Narrative Science; NLTK; Openstream; Rasa

## Gartner Recommended Reading

[Applying AI — A Framework for the Enterprise](#)

[Applying AI — Techniques and Infrastructure](#)

[Tool: Vendor Identification for Natural Language Technologies](#)

[Use-Case Prism: Artificial Intelligence for Customer Service](#)

[Cool Vendors in Natural Language Technology for Processing Enormous Volumes of Unstructured Data](#)

[Cool Vendors in Conversational and Natural Language Technology](#)

## Hybrid Cloud for Banking

Analysis By: Vittorio D'Orazio

Benefit Rating: High

Market Penetration: 5% to 20% of target audience

Maturity: Adolescent

### Definition:

Hybrid cloud computing is public and private cloud that operate as separate entities but are integrated. A hybrid cloud computing service is automated, scalable and elastic. It has self-service interfaces and is delivered as a shared service using internet technologies. It needs integration between the internal and external environments at the data, process, management or security layers. Hybrid clouds for banks usually keep mission-critical applications and sensitive data in the private cloud.



## Why This Is Important

Adoption of hybrid cloud in banks is attractive when mission-critical applications require running behind the firewall for regulatory purposes, or the bank is willing to have them on-premises. This leads to rapid hybrid cloud adoption as bank-targeted options become available and best practices form. We expect hybrid cloud to be linked to public cloud usage that is driven by greater agility, flexibility and business resilience, although this solution is often more complex.

## Business Impact

Hybrid cloud can have a transformational impact on the business when adopted as part of the bank business strategy, as it enables:

- Selective public and private use, allowing banks to receive the desired agility and cost savings of cloud, while addressing concerns about security, privacy and regulatory compliance
- The best possible economic model and maximum agility
- Less-ambitious cost optimization with flexible application deployment options
- A coordinated use of internal and external resources

## Drivers

- Hybrid cloud can present banks with a viable cloud alternative sensitive to the concerns of banks and regulators. Public cloud projects may be hampered by compliance or other similar control challenges, and hybrid approaches can alleviate those challenges while still allowing banks to gain some of the benefit of the public cloud.
- It leads the way to a unified cloud computing model in which a single cloud is made up of multiple sets of cloud facilities and resources (both internal and external).
- Banks with mainframes found hybrid cloud an attractive option to large migration projects by migrating only what is easy to offload into the public cloud and keep the rest on-premises. Gartner's regular client inquiry shows hybrid cloud offerings tend to be more attractive to larger banks. This bank segment can justify such a level of greater complexity and risk management with its larger economies of scale, while smaller banks just wish to use the cloud to simplify their infrastructures. Therefore, hybrid cloud initiatives have seen most deployments in banks with mainframes that aim to move some of the workloads (that is, noncritical applications) off their data centers while preserving the status quo for the mission-critical applications, such as core banking.

## Obstacles

- In broad terms, the complexity of hybrid clouds is greater than for public clouds, and it is hampering its adoption compared with the public cloud for smaller banks.
- A lack of hybrid cloud offerings tailored to banks also hinders adoption, together with the increased complexity of hybrid cloud installations. These most common barriers for the public cloud adoption align with the top concerns of private cloud relative to data security.
- Although frameworks for data protection, such as the General Data Protection Regulation (GDPR), are evolutionary, in alternative enhanced interoperability, they may provide a foundation for enabling broader adoption of hybrid cloud.
- Data encryption procedures can be complex and affected by any latency issue usually related to the public cloud. Hybrid clouds work better than the corresponding private clouds when the cloud data centers do not have such lag problems.

## User Recommendations

- Establish security, management and governance guidelines and standards to coordinate the use of services with internal (or external) applications to form a hybrid environment.
- Support a hybrid IT model by coordinating hybrid cloud services with noncloud applications and infrastructure at their most relevant points of shared data and process integration.
- Seek hybrid solutions as alternatives to public cloud by bridging public and private cloud to meet security, privacy, performance and — ultimately — all regulatory requirements.

## Sample Vendors

Alibaba Cloud; GoldenSource; Google; IBM; Microsoft; Red Hat; VMware

## Gartner Recommended Reading

[Top Practices for Bank CIOs: Managing Cloud Concentration Risk](#)

[The Future of Cloud in Banking: Vision For 2027](#)

[Top Trends in the Cloud Heat Map for Banking and Investment Services for 2021](#)

[Trends for Product Leaders From the Banking Cloud Heat Map, 2021](#)

## Wholesale CBDC

Analysis By: Christophe Uzureau, David Furlonger, Peter Ryan

Benefit Rating: Transformational

Market Penetration: Less than 1% of target audience

Maturity: Emerging

### Definition:

A wholesale central bank digital currency (CBDC) is a digital currency taking the form of a restricted-access digital settlement token for low-frequency wholesale payment and settlement transactions, and to add market liquidity. It is reserved for financial intermediaries.

## Why This Is Important

Central banks and commercial banks are recognizing the need for more efficient, lower risk settlement systems and cross-border payment constructs. Wholesale CBDCs provide a broader settlement platform for new classes of digital assets, such as blockchain-based tokenized green bonds and security tokens. They also offer a new programmable tool for directing monetary policy.

## Business Impact

Transformation driven by wholesale CBDCs depends on their degree of programmability to:

- Enable atomic transactions, which roll back to a previous state in case the transaction does not successfully meet a condition, such as delivery versus payment.
- Allow settlement of digital business assets.
- Combine multiple wholesale CBDCs as part of a cross-border transaction.
- Develop commercial bank money tokenization (M1), which, combined with CBDCs, improves interbank transactional capabilities.

## Drivers

- An overarching objective is to improve the efficiency, safety and resilience of wholesale financial infrastructures (for example, securities) and develop new cross-border payment models.
- An important driver for a wholesale CBDC is how it will integrate with other wholesale CBDCs to create new global payment networks (see [Project mBridge: Connecting Economies Through CBDC](#) and [Project Dunbar: International Settlements Using Multi-CBDCs](#), BIS).
- Cross-border payments are slow and costly and subject to counterparty risk, especially for non-CLS (Continuous Link Settlement) currencies. Due to their real-time settlement in central bank money, wholesale CBDCs offer an alternative to correspondent banking cross-border payments.
- The real-time settlement properties of wholesale CBDCs would improve the settlement of new digital asset classes (for example, tokenized securities) and improve the alignment of wholesale payment systems with commercial value chains (such as via atomic transactions).
- Using wholesale CBDCs to settle multileg contracts will reduce settlement risk for financial institutions. For example, the risk of one leg of a foreign exchange contract failing (Herstatt risk) could be prevented by settling the two legs using a smart contract so that both sides settled or neither settled.

## Obstacles

- A new type of money requires policy updates; these are complex to agree upon, especially if multiple countries are involved.
- Alignment across multiple domains of expertise (economics, policymakers, regulators, tech side) is essential, but difficult to achieve.
- There are legal uncertainties over whether a central bank has the mandate to issue a new digital currency, according to the BIS (see [BIS: Countries With Emerging Economies Are Leading CBDC Development](#), Finance Magnates).
- Gartner's central and commercial bank clients see the positive aspect of programmability of money. But injecting more programmability makes it more difficult to foresee the impact on liquidity of launching a wholesale CBDC.
- From a technical perspective, programmability would mostly depend on the effectiveness of smart contracts. Such constructs lack maturity, and the talent to maintain them may not currently be available to most central banks. Also, while wholesale CBDC is not dependent on DLT, RTGS and other core systems are not necessarily modern. Integration, or at least interoperability, across technology environments may not be straightforward.
- Differences in monetary policies, as well as a lack of coordination across central banks' jurisdictions, could lead to trade and political tensions.

## User Recommendations

- Track how various central banks are integrating their CBDC initiatives, with a focus on the Multiple CBDC Bridge (mCBDC) and Project Dunbar and their initial findings.
- Brief your executive business colleagues on the use of wholesale CBDCs to settle tokenized digital assets in their overall investment and payment strategies.
- Participate whenever available in consultative investigations and proofs of concepts (POCs) involving the settlement of tokenized assets with wholesale CBDCs to understand the benefits and prepare for the challenges of programmability.
- Prepare for the integration of wholesale CBDCs with commercial bank digital money initiatives, such as Partior.
- Explore use cases that leverage the real-time settlement properties of wholesale CBDCs to reduce the administration costs and risks for corporate customers.

## Sample Vendors

ConsenSys; Hyperledger; R3

## Gartner Recommended Reading

[Creating Business Value From Central Bank Digital Currencies](#)

[Banking CIOs Must Prepare Now for the Programmability of Money and Data](#)

[Top Technology Payment Trends Driving Change for Banking CIOs for 2023](#)

[Define and Map Cryptocurrencies, Digital Currencies and NFTs to Future-Proof Your Digital Transformation](#)

## TXN Data Monetization

Analysis By: Christophe Uzureau

Benefit Rating: Transformational

Market Penetration: 5% to 20% of target audience

Maturity: Early mainstream

### Definition:

Transaction (TXN) data monetization refers to the ability to extract value from transaction data to obtain insights to improve operations, but mostly to support customer decisions and create new revenue models. This can be raw data, composite data that also includes customer details and preferences, or transformed data making use of big data analytics and artificial intelligence to derive new insights.

### Why This Is Important

Digital giants have successfully used data extraction and monetization to develop their digital financial services ecosystems. However, in most markets, financial services providers, such as banks, are still trusted to handle customers' more sensitive financial data. This creates an opportunity to use transaction data monetization to create new revenue streams via product innovations and support competitiveness while being conscious of the customers trust contract.

## Business Impact

Financial services providers have recognized the benefits of transaction data monetization. Examples include the use of transactional data to contextualize their products and services to provide insights on spending behavior, opportunities to save money or to report on the sustainability impact of a customer's spending. This changes the relationship between the bank and the customer from a transaction-focused relationship to a more value-adding one based on insight, information and advice.

## Drivers

- The global development and adoption of open banking standards equip fintechs and other entrants with new data capabilities. They are now challenging banks but also accelerating innovations in data-rich services.
- The evolution of the technical capabilities combines with the demand by customers for better visibility over their data and an ability to take action, taking into account their personal values. For example, Doconomy and Svalna provide consumers with visibility on how their transactional activity impacts the environment. Consumers are gaining greater insight on the true impact of their transactions and can take action by modifying their consumption patterns, such as the Commonwealth Bank of Australia (CommBank) customers who can offset their carbon footprint by buying carbon units (see how CommBank is working with Cogo).
- The development of AI also provides new capabilities to interact and advise customers based on data analytics, such as KBC Mobile, with its digital assistant, Kate, who provides energy-saving tips to interested customers.
- The adoption of blockchain-enabled tokenization and Web3 enable new capabilities to share, extract and monetize data, such as DeHealth.



## Obstacles

- Delivering value from transaction data is an ongoing challenge for most banks. It is especially difficult to find a relevant starting point to build a cohesive strategy to exploit such data and build new services. This is caused by the complex organizational silos through which transaction data is accessed, flows and circulates. As a result, transaction data is everywhere and nowhere in the bank, meaning banks have a lot of impediments to the flow of data across the enterprise, but often fail to have a cohesive data strategy. Achieving the benefits of transaction data monetization will require that banks revisit their governance models, as well as their thinking on what products and services should look like for their customers.
- The evolution of data privacy legislation may dissuade some financial services providers from participating.
- Deriving value from transaction data is not a short-term objective, and therefore demands new KPIs to measure the long-term business impact.

## User Recommendations

- Use ESG and sustainability-focused applications to “convert” data and drive new data monetization opportunities. Both retail and business customers show current interest in understanding and measuring their impact on the environment.
- Boost your banks’ ability to capture data from outside the banking organization and outside the transactional domain to enable bank customers to negotiate using that data with other parties. This will include data generated by IoT devices in sectors such as agribusiness.
- Prepare for future negotiation solutions by analyzing trends and technology capabilities of machine-customer-to-machine-customer transactions, and ultimately machine customers’ banking requirements.
- Explore the use of large language models (LLMs) to improve the discovery of data insights, as well as their use for customers, starting with corporates and SMBs.

## Sample Vendors

Amazon; Ant Group; Commonwealth Bank of Australia; Doconomy; Ocean Protocol Foundation; Svalna

## Gartner Recommended Reading

[Gartner's Transaction Data Framework: Compete With New Banking Business Models by Revaluing Data](#)

[How Bank CIOs Can Use Transactional Data to Create New Digital Products](#)

[Accelerate Your Banking Digital Transformation via Unconventional Payment Strategies](#)

## Climbing the Slope

### Core Banking on the Public Cloud

Analysis By: Vittorio D'Orazio

**Benefit Rating:** High

**Market Penetration:** 5% to 20% of target audience

**Maturity:** Early mainstream

#### Definition:

Public cloud for core banking is a derivative of cloud computing used by banks to source their mission-critical systems of record. The earliest deployments consisted of single-instance, shared core banking software associated with multientity or bank-specific database deployments. Today, deployments can be extremely complex and articulated, involving millions of accounts and multicountry deployments.

#### Why This Is Important

- Core banking on the cloud has been the technology of choice for the disruptors (i.e., neobanks), driven by the ability to scale on demand and reduce the initial capex outlay. Today it is considered by mature banks alike.
- Gartner predicts that by 2027 20% of commercial off-the-shelf (COTS) core banking installations will be in the cloud including some large banks whose projects are either ongoing or just started.
- This trend will converge with the greater adoption of banks for banking as a service (BaaS), as some BaaS core functions will run from the cloud.

#### Business Impact

Adopting the cloud for delivering core banking would be highly transformational and include the following impacts:

- In the longer run, adopting the cloud for core banking can build an important differentiator in the operating and business models of the bank where collaboration is the key.

- However, the most important outcome, as cited in surveys, is improved data security, largely due to the larger resources that CSPs can pour into the cyberthreat race compared to banks.
- Increased agility is also achieved by using platforms on the cloud and by leveraging the scalability that the cloud offers for computational power, storage and management of applications.
- Cost savings derive from decommissioning old data centers and mainframes while leveraging cloud scalability to avoid costs during idle times.

## Drivers

- **Agility is the main driver:** All use cases examined by Gartner include agility as the main business driver that the cloud delivers. Agility can be achieved in different ways such as by developing a shared platform for development and testing the core application across multiple countries, by becoming more scalable in the number of accounts or transactions per day without updating the hardware infrastructure or by being able to connect to a broader ecosystem.
- **Cloud-enabled infrastructure at banks:** Bank IT organizations will have to prepare for public cloud sourcing through restructuring to accommodate a distributed sourcing model that repositions IT as a broker of technology.
- **More mature cloud offerings** are driving adoption of cloud for mission-critical applications.
- **More mature and established cloud use cases** mean public cloud providers are becoming sensitive to data privacy concerns by providing regional or even in-country public cloud offerings. Today use cases include banks from any bank tier including some large global bank that is aiming for a cloud strategy that will regard 80% or more of the applications including the core system (e.g., Santander). Newly created fintechs and digital banks mainly consider the cloud delivery model for core systems while many midsize banks are already migrating to this model.

- **Migration use cases:** Gartner is aware of a few midsize-to-large banks already working to deploy this technology by adopting a more phased and long approach to shed any risk associated with such complex migrations. These banks include universal banks and piloted models by large-tier banks (specifically across emerging markets). Some of such examples are of public domain (e.g., JP Morgan Chase with Thought Machine in the U.S.), although the success and the benefit harvested by the bank are still unclear and undisclosed. This proof of concept on core banking migrations into the public cloud is the missing piece that other banks are waiting for before embracing this journey and mainly justifies the positioning of this profile in the Hype Cycle.

## Obstacles

- Barriers include network connectivity and signal latency, especially in emerging markets or when the cloud provider's data center is far away.
- Filling gaps in both internal skills and on the supply side is another frustrating aspect in managing such mission-critical initiatives at banks, as IT departments usually wish to migrate from old legacies to the newest available technology.
- The war in Ukraine and a broader instability in the world pose questions on where a bank's data is hosted and if the cloud might be a viable solution to hedge against the risk of a war.
- Most central banks have not prohibited public cloud deployments of core banking systems, and many are beginning to take a proactive role with outreach efforts to form consensus guardrails for this model. However, regulators are getting tighter on governance and risk management practices. So, compliance is often cited as the most worrying aspects of the core banking deployments in the public cloud. Latest surveys report the importance of reducing the cloud concentration risk by adopting multicloud and the compulsory request to the banks for an exit strategy.

## User Recommendations

- Initiate the public cloud conversation with regulators if there is not a policy for cloud adoption. Common central banks' behavior is to listen to the banks before issuing guidelines, and they won't establish a position absent bank demand for this deployment model.

- Submit proposals for incremental public cloud deployments of targeted market segments with lower risk data privacy profiles. Short-term SMB lending, microfinance, unbanked/underbanked and low-end retail banking markets are ideal candidates for initial deployments.
- Experiment with public cloud infrastructure to become more familiar with this deployment model. Public cloud development and test environments are increasingly used to practice prior to moving to more mission-critical applications.
- Explore the competitive landscape for public cloud providers. Start the discovery effort with core banking vendors that are promoting public cloud capabilities and the range of partners that can deliver it.

## Sample Vendors

EdgeVerve Systems; Finastra; FIS; Mambu; Temenos; Thought Machine

## Gartner Recommended Reading

[Top Practices for Bank CIOs: Managing Cloud Concentration Risk](#)

[The Future of Cloud in Banking: Vision for 2027](#)

[Market Guide for Core Banking Systems, EMEA](#)

[Market Guide for Core Banking Systems, APAC](#)

[Market Guide for Core Banking Systems, Americas](#)

[Core Banking Hot Spot: Moving the Core Into the Cloud](#)

[Core Banking Hot Spot: Use Cases for Moving to the Cloud](#)

## FS Industry Super Apps

Analysis By: Christophe Uzureau, Alistair Newton

**Benefit Rating:** High

**Market Penetration:** 20% to 50% of target audience

**Maturity:** Early mainstream

**Definition:**

Financial services (FS) industry super apps provide their users with access to a large portfolio of functionality across multiple digital commerce and/or social media, payments and FS, including lending, insurance and investment services. Most super apps initially used a core service, such as social messaging, digital commerce or a payment solution, to build a customer base and customer trust. This enables them to extract data, build new partnerships and expand their breadth of functionality.

**Why This Is Important**

Super apps such as Alipay, Gojek, Grab and WeChat Pay have demonstrated an ability to build an FS platform, acquiring customers through digital commerce and payment services as well as the data such activities generated. Such data allowed refinement of their risk management and distribution capabilities and for expansion of their foray into FS. FS institutions have made good progress in responding to the threat in terms of partnerships and product development.

**Business Impact**

Super apps, especially in APAC, are shaping the digital FS ecosystem and cannot be ignored. Banks are building new partnerships to contextualize their products and services and using embedded finance to respond to a large number of customer needs with or without launching a dedicated super app.

## Drivers

- By entering the FS industry from a payment perspective — and at a time when regulators were mandating open banking and payments and encouraging market competition — super apps have benefited from favorable regulatory environments in multiple markets.
- Superapps have built an ability to use contextual data, combined with AI and cloud computing, to design the most relevant digital functionality for their retail, and small and midsize business (SMB) customers. Their large customer base enables them to rapidly test new functionalities, and they build on transactional data and their relationship with merchants and SMBs to provide value-added services and further build acceptance.
- Banks have adopted different strategies to deal with superapps entering into FS. Some commercial banks are embedding third-party products and services into their own environment. For example, KBC Mobile is especially well-developed with regard to supporting mobility services and supporting its clients' energy-saving objectives thanks to partnerships with transport operators as well as the use of its Kate AI interface to provide advice. According to the company, more than 50% of users of KBC Mobile make use of nonbanking services.
- This approach transforms banks' own banking apps into super apps by aligning to the specific contexts of their customers. ICICI Bank in India launched ICICI iMobile Pay, a variation of its iMobile mobile banking solution, to reach non-ICICI customers by making use of financial management capabilities (e.g., managing spending across all of a customer's cards).
- Banks must recognize the differences in customer demand between a super app and their own mobile banking applications. Local markets will struggle to support multiple super apps in a single domestic setting.



## Obstacles

- As super apps expand, they face regulatory challenges, as illustrated by the People's Bank of China restricting operations of both Alipay and WeChat Pay in China. Such scrutiny is even more intense when expanding abroad. The more powerful the apps are perceived to be, the higher the regulatory hurdles they will face.
- Super apps are attempting to achieve economies of both scale and scope, and this intent is difficult to achieve when expanding to new geographies. For example, PayPal is trying to develop itself as a super app; however, in most markets outside of the U.S., it is used only as a payment solution for specific digital commerce purchases. Banks have to be careful not to disrupt the customer's banking experience by overmarketing (or overusing alerts) their non-banking services to the detriment of core services.

## User Recommendations

- Address the demands from super apps by augmenting your enterprise's financial services offerings with additional financial components sourced externally.
- Consider contextualizing customer experience, where your local market will support the demand, by using nonfinancial capabilities and components to build a connected ecosystem to help customers address a particular problem or issue.
- Accelerate your engagement with customers (small and midsize businesses and retail customers) by prioritizing partnerships and integration with super apps that give you access to new data inputs for your risk and credit management practices.
- Risk-assess potential collaborative models with super apps. Prepare for new delivery models enabled by APIs to support new potential partners in handling regulatory requirements and making use of their capabilities.

## Sample Vendors

Alipay; GoTo; Grab; ICICI Bank (iMobile Pay); KakaoPay; KBC Mobile; WeChat Pay

## Gartner Recommended Reading

[How Banks Can Take On Super-Apps](#)

[Embedded Finance Is Driving Innovation and Differentiation in Banking](#)

[Embedded Finance Use Cases for Your Digital Transformation](#)

## Take Control of Your Digital Acceleration by Focusing on How Value Flows Through Ecosystems

### Accelerate Financial Ecosystems to Keep Up With Digital Giants

#### API Developer Portals in Banking

Analysis By: Don Free

Benefit Rating: Moderate

Market Penetration: 20% to 50% of target audience

Maturity: Early mainstream

#### Definition:

API developer portals in banking provide the capacity to document, configure and manage usage of APIs for application-to-application communications.

#### Why This Is Important

- API developer portals provide an advanced approach to connect and manage APIs of partner solutions embedded within bank business processes. They're also used to maintain internal APIs.
- Accelerating internal developer portal usage and adoption is crucial to banks. These portals promote awareness and centralize documentation, which increases ease of use for internal developers and third parties.
- API developer portals are foundational for banks with open banking aspirations.

#### Business Impact

APIs play a key role in boosting banks' digital business initiatives, and API developer portals promote and optimize API consumption and performance through both functional and technical documentation and tools.

## Drivers

- Transparency and self-service access are increasingly important characteristics for successful API development and usability.
- API resources are broadening within banks, and the distributed management of these software assets will intensify complexity, drive duplication and increase total cost of ownership (TCO); API developer portals help address these issues.
- The API developer portal is a foundational technology and a prerequisite for API marketplaces that support the pursuit of higher-order business models such as banking as a service.
- Internal communication and collaboration are fundamental attributes that promote successful API programs.
- API developer portals may also be adapted for usage by low-code platforms.

## Obstacles

- Low internal developer portal adoption rates and decreased trust will promote siloed behaviors and erode innovation.
- Complex navigation and various versions of APIs diminish usage rates among developers.
- Assumptions that internal developer portals are intended only for developers will diminish value.
- Lack of a broader standards strategy and adoption by banks can lead to additional requirements for extended API transformation and corresponding development costs.
- A lack of oversight on API reusability inclusive of documentation and where APIs are used hinders standards implementation and increases the potential for higher technology debt.

## User Recommendations

- Increase developer portal adoption and credibility by making developers successful by, for example, building skill sets and providing tools to drive efficiency.
- Drive user adoption through marketing efforts that recognize developers and showcase use cases that contribute to business value and have the potential to be reused.
- Include the developer portal as part of your overall application development strategy, and integrate it within application development centers (onshore and offshore).
- Use a “standards first” approach for applications and APIs such as the Financial Data Exchange (FDX) and the Banking Industry Architecture Network (BIAN).

## Sample Vendors

Achieve Internet; Axway; Google; IBM; Pronovix; Salesforce

## Gartner Recommended Reading

[Leverage API Portals for Successful API Adoption](#)

## Open Banking

Analysis By: Alistair Newton

Benefit Rating: Transformational

Market Penetration: 20% to 50% of target audience

Maturity: Mature mainstream

### Definition:

Open banking enables access to data and services across ecosystems of third-party financial service providers, banks and their customers via open APIs. Open banking initiatives are the formal embodiment and integration of open banking principles and technologies to deliver against a bank's digital banking and technology strategy. Open banking initiatives may range from transformative through to simple regulatory compliance.

## Why This Is Important

Many banks initially focused tactically on open banking technologies, addressing regulatory requirements as the priority. However, increasing numbers of banks view open banking as a means to innovate and integrate it into business strategy. Banks with transformative ambitions are using it to drive collaboration with fintechs, deliver product innovation and support agile business processes. Whether they enable regulatory compliance or support high levels of integration and innovation, open banking initiatives should be central to bank CIOs' thinking.

## Business Impact

An open banking strategy will enable banks to position their ecosystem and API-focused technology investments in the context of the overarching business strategy, which:

- Will help CIOs and senior business executives align open banking strategies with digital banking initiatives, enterprise architectures, infrastructures and operations innovation.
- Is essential to create the platforms, marketplaces, app stores, and ecosystems necessary to create new value and revenue for the bank.

## Drivers

Open banking initiatives take two distinct paths as either regulatory-led, which requires banks to open their customer data to third-party applications, or market-led, with individual or groups of banks focusing on open banking to drive digital transformation. Thus:

- Global adoption of open banking regulation is accelerating with multiple countries in the APAC region, the GCC region and across Central and South America.
- Regulatory-driven open banking is still seen by many banks as a challenge to their position and enabling fintech challengers at their expense.
- Initial open banking initiatives focused on the portability of payment data — now innovations in the payment context are growing in importance.
- Innovative open banking banks offer developer portals to enable access APIs to integrate banking products into third-party applications or services. Developer portals are now extremely common among those banks driving innovation through open banking.

- Transformative open banking can allow banks to create a marketplace that supports consumer, SMB and corporate customers, either by providing nonbanking services or allowing deep integration of the bank's own products into the back-office environment of the customer.
- Increasingly, Gartner is seeing this approach translated into wider banking-as-a-service and embedded finance strategies.
- Open banking strategies in some geographic markets where open banking initiatives are more developed will reach the Plateau of Productivity within two years. However, due to significant global variations in adoption, the creation of a well-defined open banking strategy will take two to five years to reach the Plateau of Productivity.

## Obstacles

CIOs will struggle to support true digital transformation without a number of open banking initiatives:

- Recognizing the impact of disintermediation and regulatory changes, executives are looking to their CIOs for guidance on how to leverage technology to address these challenges.
- In response, IT leaders have begun to explore open banking strategies in partnership with the business, and while progress has accelerated, in many institutions, a more expansive view on the innovation opportunities would be beneficial.
- Transformational open banking strategies will challenge many deeply held beliefs and approaches in a bank. These include business capabilities (such as identifying and recruiting business ecosystem partners), people and culture (such as hiring talent with experience building and supporting APIs), information and technology (such as building a digital platform) and business ecosystems (such as turning competitors into customers).

## User Recommendations

CIOs should create an executive strategy team composed of risk, compliance, marketing, IT and business leaders responsible for an open banking strategy, and:

- Identify the strategic context. Platform business can reduce banks to invisible, back-end utility service providers unless they change their business strategies. Doing nothing is not an option.

- Define future business objectives, goals and strategies, like, “We will compete by providing higher-quality tools and by sharing data, algorithms and transactions.”
- Create strategic principles, such as, “We will empower business ecosystems to create new value for our customers,” and, “We will expose business services to be shared internally and externally.”
- Identify measures of success and KPIs such as the conversion rate of customers to business ecosystem partners or percentage of SLAs met.
- Identify risks and issues, such as culture risk, ensure that the strategy is subject to constant review and sense-checking, and create a mitigation strategy.

## **Real-Time Payments**

**Analysis By:** Peter Ryan, Alistair Newton, Debbie Buckland

**Benefit Rating:** Transformational

**Market Penetration:** 20% to 50% of target audience

**Maturity:** Early mainstream

### **Definition:**

Real-time payments are payments that credit the payee nearly instantaneously within a financial system. Real-time payment networks normally provide 24/7 access, enabling payers to make a payment at any time.

### **Why This Is Important**

Real-time payments are increasingly being used to move money and make financial systems more efficient. They create a foundation upon which both banks and nonbanks can build new and innovative payment services. Overlay services, such as Request to Pay, provide the potential to challenge traditional payment methods and offer consumers and businesses a simplified user experience.

### **Business Impact**

While bank revenue from float and card issuance is impacted by real-time payments, real-time payments allow innovators to compete with payment offerings from fintechs and digital giants. They give banks and e-commerce providers an alternative to card rails for payment value chains.

Real-time processing of fraud, AML and authentication is required to prevent loss and ensure compliance. However, overlay services present an opportunity to create products and services that drive new revenue streams.

## Drivers

- Governments are seeking to remove inefficiency from national payment systems to reduce costs and improve options for consumers and businesses. Businesses can improve operational cash flow by removing clearing/float related to payments.
- As the use of cash declines, governments are looking for real-time payments to make their economies more resilient by enabling people and businesses to be paid on time.
- Governments want to make financial systems more competitive by increasing access through open banking regulations. As seen in India with Immediate Payment Service (IMPS) and in Europe with Payment Services Directive 2 (PSD2), such regulations enable nonbanks to facilitate payments and create new value chains.
- Overlay services can provide the foundation to create new revenue streams for banks and fintech companies. These services provide additional value to consumers and businesses by making payments an integral part of broader offerings. Request to Pay is an example of an overlay service applicable to both businesses and consumers.
- Banks need access to payment infrastructures that will enable them to compete effectively with fintechs and digital giants.
- As real-time networks are implemented and older methods become obsolete, the unit cost of processing a payment between bank accounts can be reduced for participants. These new networks can be used to process multiple payment types. For example, Standing Orders are sent as Faster Payments in the U.K.
- The simplicity of real-time payments from a customer experience perspective has led to customer demand for real-time payments and increased adoption. The ease of adoption by consumers can also be addressed by the government with the use of national-level addressing overlay services (e.g., New Payments Platform [NPP] in Australia).



## Obstacles

- National initiatives can take time to implement. Private enterprises may also enter the market first with a network (e.g., RTP from The Clearing House in the U.S.), creating a fragmented market.
- A bank's payment infrastructure often requires renewal to connect to real-time networks and process in real time. Additionally, supporting tools, such as AML and fraud platforms, are often batch-based. They must be updated to understand new patterns and support real-time intervention.
- In an attempt to protect traditional payment income streams, businesses may delay implementation of real-time payments, devaluing the system as a whole. Regulators can set implementation deadlines to overcome this, as was done in the U.K.
- Payment economics are typically volume based. Value to the national system is delayed until adoption is ubiquitous.
- The underlying business case for individual banks to invest in a real-time payment network is often difficult to justify on a short- to medium-term basis.

## User Recommendations

- Implement real-time payments with the launch of national networks, such as FedNow Service, rather than waiting to gauge market adoption. Establishing a leader position through early adoption provides earlier revenue while protecting payment market share from nonbank competition. Position connectivity to centralized real-time payment infrastructure as a key strategic initiative to secure enterprise-level investment support.
- Foster payment and overlay service innovation by aligning with your organizational fintech strategy and collaborating across business and IT to understand how payment-related services can meet changing customer expectations.
- Keep payment technology roadmaps current by monitoring leading markets (e.g., India and Asia), tracking emerging regulations, and engaging with partners to drive new products and services that sustain market competitiveness.
- Scrutinize the real-time payment user experience. Simple and secure implementations will remove barriers to user adoption.

## Gartner Recommended Reading

[Top Technology Payment Trends Driving Change for Banking CIOs for 2023](#)

Quick Answer: Why Banking Leaders Should Have a Strategy for the Launch of FedNow

Global Standards and Eager Customers: What Banking Leaders Should Know About Real-Time Payments in 2023

## Appendixes

See the previous Hype Cycle: [Hype Cycle for Digital Banking Transformation, 2022](#)

### Hype Cycle Phases, Benefit Ratings and Maturity Levels

**Table 2: Hype Cycle Phases**

(Enlarged table in Appendix)

Phase ↓	Definition ↓
<i>Innovation Trigger</i>	A breakthrough, public demonstration, product launch or other event generates significant media and industry interest.
<i>Peak of Inflated Expectations</i>	During this phase of overenthusiasm and unrealistic projections, a flurry of well-publicized activity by technology leaders results in some successes, but more failures, as the innovation is pushed to its limits. The only enterprises making money are conference organizers and content publishers.
<i>Trough of Disillusionment</i>	Because the innovation does not live up to its overinflated expectations, it rapidly becomes unfashionable. Media interest wanes, except for a few cautionary tales.
<i>Slope of Enlightenment</i>	Focused experimentation and solid hard work by an increasingly diverse range of organizations lead to a true understanding of the innovation's applicability, risks and benefits. Commercial off-the-shelf methodologies and tools ease the development process.
<i>Plateau of Productivity</i>	The real-world benefits of the innovation are demonstrated and accepted. Tools and methodologies are increasingly stable as they enter their second and third generations. Growing numbers of organizations feel comfortable with the reduced level of risk; the rapid growth phase of adoption begins. Approximately 20% of the technology's target audience has adopted or is adopting the technology as it enters this phase.
<i>Years to Mainstream Adoption</i>	The time required for the innovation to reach the Plateau of Productivity.

Source: Gartner (July 2023)

Table 3: Benefit Ratings

Benefit Rating ↓	Definition ↓
Transformational	Enables new ways of doing business across industries that will result in major shifts in industry dynamics
High	Enables new ways of performing horizontal or vertical processes that will result in significantly increased revenue or cost savings for an enterprise
Moderate	Provides incremental improvements to established processes that will result in increased revenue or cost savings for an enterprise
Low	Slightly improves processes (for example, improved user experience) that will be difficult to translate into increased revenue or cost savings

Source: Gartner (July 2023)

**Table 4: Maturity Levels**

(Enlarged table in Appendix)

<i>Maturity Levels</i> ↓	<i>Status</i> ↓	<i>Products/Vendors</i> ↓
<i>Embryonic</i>	In labs	None
<i>Emerging</i>	Commercialization by vendors Pilots and deployments by industry leaders	First generation High price Much customization
<i>Adolescent</i>	Maturing technology capabilities and process understanding Uptake beyond early adopters	Second generation Less customization
<i>Early mainstream</i>	Proven technology Vendors, technology and adoption rapidly evolving	Third generation More out-of-box methodologies
<i>Mature mainstream</i>	Robust technology Not much evolution in vendors or technology	Several dominant vendors
<i>Legacy</i>	Not appropriate for new developments Cost of migration constrains replacement	Maintenance revenue focus
<i>Obsolete</i>	Rarely used	Used/resale market only

Source: Gartner (July 2023)

**Document Revision History**[Hype Cycle for Digital Banking Transformation, 2022 - 25 July 2022](#)[Hype Cycle for Digital Banking Transformation, 2021 - 15 July 2021](#)**Recommended by the Author**

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8 Steps to Build an Effective Digital Business Case for Core Banking Modernization

Tool: Cloud Computing Use Cases for Banking and Investment Services, 2023

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Table 1: Priority Matrix for Digital Banking Transformation, 2023

Benefit ↓	Years to Mainstream Adoption			
	Less Than 2 Years ↓	2 - 5 Years ↓	5 - 10 Years ↓	More Than 10 Years ↓
Transformational	Composable Core Banking Open Banking Real-Time Payments	Conversational User Interfaces Generative AI in Banking Green and Sustainable Finance Industry Cloud Platforms Retail CBDC TXN Data Monetization Wholesale CBDC	Autoadapting and Autocomposing Products Customer and Societal Ecosystems Natural Language Processing Real-Time Cross-Border Payments	
High	Banking as a Service	Banking Sustainability Tools Core Banking on the Public Cloud Customer Insight Engines Embedded Finance and Payments FS Industry Super Apps Hybrid Cloud for Banking	Digital Banking Platform Hyperautomation Tools in Banking	

Benefit ↓	Years to Mainstream Adoption			
	Less Than 2 Years ↓	2 - 5 Years ↓	5 - 10 Years ↓	More Than 10 Years ↓
Moderate	API Developer Portals in Banking	API Marketplaces in Banking Financial APIs Low-Code/No-Code in Banking Sustainable Procurement		
Low				

Source: Gartner (July 2023)

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Phase ↓

Definition ↓

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