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Role of APIs for the future of Open banking in the USA

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Abstract - The term Open Banking as we know it today originated from the regulations put by the UK and EU to securely allow banks and financial institutions to exchange customer data and information. While the EU came up with distinct laws that regulate the practices of open banking with the PSD2 and the GDPR, the US has yet to come up with a formalized set of laws on practices, there is a lot of momentum in this space with the CFPB is expected to propose a set of guidelines on the consumer financial data rights, which is a step in that direction. The market in the US however is more than ripe to unleash the power of Open banking and it is at the cusp of breaking free with a plethora of fintech startups already established in their space, driving significant volume of financial transactions through their platforms which is nothing but open banking.

The traditional financial services companies are now at a varying level of maturity on how to leverage the transformative power of open banking to their advantage. Instead of simply competing head-to-head with their fintech counterparts in terms of service offerings Briones et al [1]. This paper explores an approach as to how traditional financial institutions, including banks and insurance companies can leverage a new technological approach to build their open banking capabilities that will place them in the driver's seat to reap all the benefits that the new era of technology powered services has to offer.

Key Words: **Open Banking, open Insurance, Open Finance, APIs, fintech, BAAS, CFPB, GDPR, PSD2**

1.INTRODUCTION

"Open banking is a banking practice that provides third-party financial service providers open access to consumer banking, transaction, and other financial data from banks and non-bank financial institutions through the use of application programming interfaces (APIs)" - Investopedia. PSD2 was introduced in 2013. PSD2 is a European regulation for electronic payment services. It seeks to make payments more secure in Europe, boost innovation and help banking services adapt to new technologies. - BBVA2

Soon after the introduction of PSD2, the new set of regulations progressively took effect from the beginning of Jan 2018. These regulations created a fundamental shift as to how banks and other financial institutions exchange data. The existing technologies of data exchange between banks and financial institutions were minimal. Banks would operate as highly regulated closed-door institutions with minimal access to open payments. wherever they were open, they lacked the safety net of securely accessing personal identifying data and transmitting through the network in an encrypted way [2]. The PSD2 was followed by the introduction of GDPR by the EU parliament in 2014.

The introduction of GDPR created a paradigm shift in how banks and financial institutions would collect personal identifiable data, store them, and share them with other financial institutions. While it not only gave consumers the right to control what data is being collected by the financial institutions, but it also firmly laid out the consequences of the breach of data privacy practices [3]. While it was a big change in all the processes involved by the financial institutions to collect, process and store and share data , it created a foundation for a stable platform which the consumers can trust and laid the groundwork for establishing solid data governance practices to be created and adopted by financial institutions.

2. Challenges with the existing technologies

So with the introductions of regulatory forces to govern the use of data, financial institutions has taken myriad different ways to make data available to third party institutions and other providers mostly using outdated approaches that were simply not ready to cope up with the challenges of building capabilities within large organizations that allows to safely and securely expose data to third party services securely and stand the test of scale and complexity[4].

There were common protocols that existed that allowed computer systems to share data securely over internet , but no comprehensive tooling was available to conceptualize these mere protocols into comprehensive frameworks that can enable the building of such web-services as capabilities that banks and financial institutions can leverage to build web-services as building-blocks of capabilities that can be built incrementally with fundamental services serving as capabilities that can be used internally and externally.

2.1 Well established protocols of data transfer

Apart from erstwhile techniques such as mainframe copybooks, File transfer protocol (FTP) and later secure file transfer protocol SFTP dominated the space of data transfer, but such techniques were not compliant with real time data transfer approaches and lacked in security and granularity of data. Later web-services became more of a de-facto standard of communication between distributed commuter systems. While Web Services were relatively easy to construct, every computer programming language came up with its own stack of tools to build and expose web-services. Evidently standardization emerged with programming language agnostic specifications were laid out with the introduction of Simple Object access protocol or SOAP and organizations were able to establish communications in a Realtime between several distributed systems using the SOAP protocol irrespective of the technology stack used to build the home-grown or market-based products [5]. SOAP was the de-facto protocol for decades and Service oriented architecture with a rich catalog of web-services emerged as the best-practice approach for communicating between distributed computer systems.

While SOAP is still used across the world simply because so many legacy financial systems have been built on its foundations, another protocol REST (representational state transfer) emerged as a lightweight alternative with HTTP (hypertext transfer protocol) as its root. Over the course of time, REST became more popular than SOAP because of its lightweight, stateless architecture that is able to scale very easily and now since the last couple of decades , it has almost become the standard of communication between computer systems over the Internet[6].

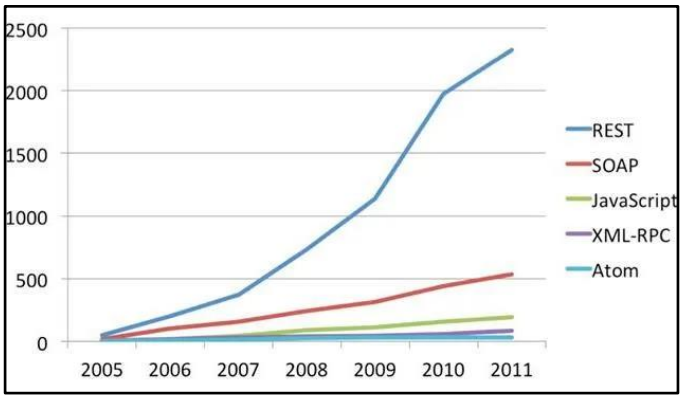


Chart -1: Adoption of REST vs SOAP[2]

Screen-Scraping is a prevalent technology in the US within financial organizations to access customer data, but it has significant challenges. Customer Data Privacy is not well protected with Screen scraping technologies. It is difficult to build fine-grained access controls around data also policies around rate limiting can throttle speed of access.

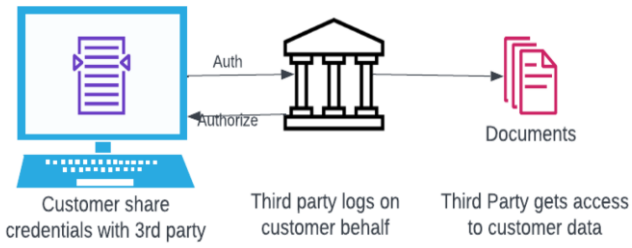


Fig -1: Screen Scraping technology.

Banks understand that there is a better technology available to allow customers to securely provide third parties access to data while retaining the full access to permissions and maintaining full visibility to the request pipeline. This approach is with the use of APIs. APIs exposed by the bank will allow all third parties to establish a certificate of credibility and establish a permission set directly with the Bank. Then banks can provide granular access to third parties while retaining full visibility into the access limits.

3. Open Banking in the US is driven by market forces

Although open banking regulations are still in their final stages and not yet been released by the regulatory agencies. Open Banking Market size was valued at USD 20.2 billion in 2022 and is projected to register at a CAGR of 20.5% between 2023 and 2032. (GM Insights 2023). In the United States, Open Banking is transforming the financial landscape by enabling secure and seamless sharing of financial data between banks, financial institutions, and third-party service providers using application programming interfaces (APIs) [7]. This initiative fosters innovation, competition, and consumer choice in the financial services sector. It empowers consumers with control over their financial data, facilitating personalized financial advice, improved money management tools, and access to a wider range of financial products and services. Although not yet mandated by regulation as in some other regions, Open Banking in the US is driven by market forces and evolving consumer expectations, leading to enhanced transparency, efficiency, and tailored financial experiences for consumers.

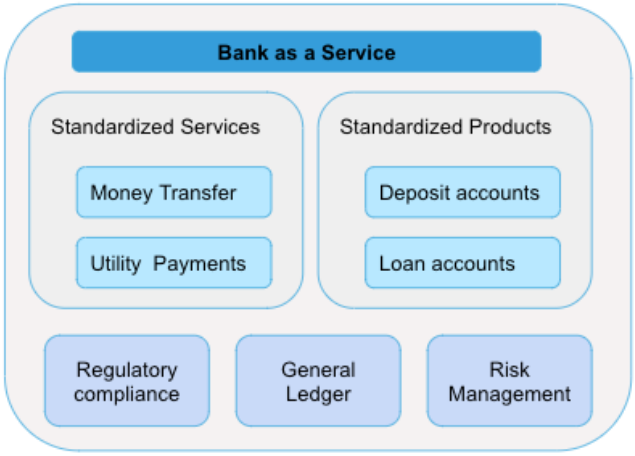
4. Current Landscape of US open banking

Banking-as a service is a way to capitalize the infrastructure and the knowledge that a bank has already in place.

- Banking-as-a-Service (BaaS) describes an ecosystem in which licensed financial institutions provide access to their services to non-banking businesses [8]

- The most ubiquitous technology available to do this at scale is using APIs.

- APIs create a win-win scenario, where the Banks can capitalize their expertise and Fintechs can provide bundled service offerings without having to re-invent a whole ecosystem of banking.



Today's world presents unprecedented economic challenges and opportunities. If a Product or Service is NOT a part of an organization's competitive differentiation, organizations are now inclined to decrease bottom line expenditures by responsively outsourcing that to peers who are better at it. FinTech's are looking to grab this opportunity to build innovative solutions with an expedited go-to-market strategy that can help organizations build competitive differentiation and thereby grow its topline revenue [9]

4. Democratization of Banking

To democratize innovation, banks should be able to expose internal services in a secure way

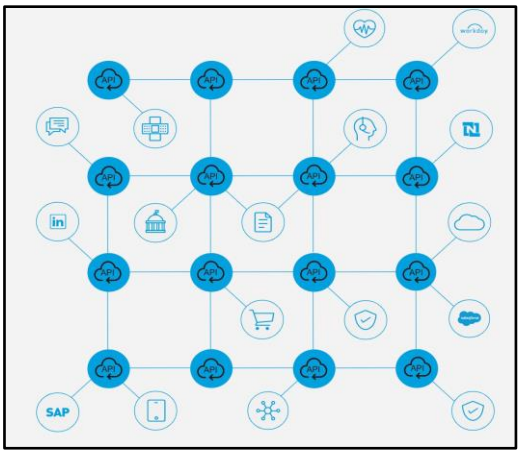
- Organize capabilities into atomic units and expose them as service a.k.a APIs.

- Processes should be completely independent of underlying data and customizable as per business needs of individual organizations [10]

- Embrace for elasticity of demand and make provisions of hosting these services in a cloud infrastructure that is scalable on demand.

- Allow for customization based on internal and regulatory requirements.

- This will help to create a network of APIs which serves a unit of a feature and can be considered as a building block that provides reusability.



5. How banks can build on a competitive advantage with Open Banking

Banks should be able to define the Lifetime Value (LTV) of the customer and position the offering accordingly.

- Service should be decoupled from the core business model.

- Should be able to scale up or down based on demand.

- Should be customizable to a certain extent, based on the offering and type of service.

- The service should be differentiated to generate an identity of its own [11]

- Secure a position in the FinTech marketplace.

Financial Institutions should be able to price out the offering considering.

- The total cost to serve should only consider the variable cost of service and not be an inhibitor that includes the total fixed (establishment cost) . This can initiate a downward spiral of demand with a prohibitive high cost of doing business.

- Pricing the features based on the perceived value, which is the sum of all the value delivered through the service offering based on alternative competitive services available in the market.

Building a Monetization Model for APIs

API monetization is a strategic approach to generating revenue from an API. It involves defining the value proposition of the API and determining the best way to

charge for its use [12]. The considerations for an API monetization model cover a wide range of factors, from understanding the target market and API capabilities to choosing a pricing model that aligns with customer expectations and business goals. Here are the key considerations for an API monetization model:

- Value Proposition: Understand the unique value your API provides. This involves identifying the problems it solves, the efficiency it offers, and the unique data or services it provides access to. This value proposition should be compelling to your target customers.

- Market Demand: Assess the demand for the API in the target market. This includes understanding the needs and pain points of potential customers, as well as the competitive landscape. High demand and low competition can allow for premium pricing models.

- Customer Segmentation: Identify and segment your potential customers based on their needs, usage patterns, and willingness to pay. Different segments may require different API features or pricing models.

- Pricing Strategy: Choose a pricing strategy that aligns with your API's value proposition, market demand, and customer segmentation. Common strategies include:

  - Freemium: Offering basic API functionalities for free while charging for premium features.

  - Pay-as-you-go: Charging based on the amount of API calls or data consumed.

  - Subscription: Offering access to the API for a recurring fee, which could be tiered based on usage limits or feature access.

  - Tiered Pricing: Providing different levels of API access at different price points, based on features, rate limits, or support levels [13].

- Cost Analysis: Understand the costs involved in providing the API, including development, maintenance, support, and infrastructure costs. Pricing should cover these costs and align with profit margin goals.

- Legal and Compliance Considerations: Ensure that your API monetization model complies with all relevant laws and regulations, including data privacy laws and industry-specific regulations.

- Technical Infrastructure: Ensure that your API infrastructure can support the chosen monetization model, including capabilities for tracking usage, managing access, and billing customers.

- Integration and Ease of Use: Make it easy for customers to integrate and start using your API. This includes clear documentation, developer support, and flexible integration options.

6. Results and Observations

- **Traditional Banks**

Traditional banks in the USA are gradually embracing open banking through partnerships with fintech firms and by developing their APIs to share data securely with third-party providers. Their methodologies often emphasize security and customer privacy, seeking to maintain customer trust while innovating. Traditional banks vary in their approach to open banking, with some pioneering the initiative by creating proprietary API platforms, while others adopt a more cautious stance, slowly integrating third-party services as consumer demand grows.

- **Fintech Companies**

Fintech companies are at the forefront of driving open banking in the USA. They leverage APIs to create innovative financial services and products that offer enhanced customer experiences, such as personalized financial advice, better loan rates, and more efficient payment systems. Fintech companies tend to be more aggressive and innovative in their approach compared to traditional banks, often pushing the boundaries of what can be achieved through open banking.

- **Regulatory Bodies**

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7. Build an API Economy within the enterprise

Building an API economy within an organization involves creating a strategic approach to develop, manage, and monetize APIs in a way that promotes innovation, collaboration, and revenue generation. The API economy is driven by the exchange of value between API providers and consumers, leveraging digital assets to create new business models and opportunities. Here are key steps organizations can take to build a successful API economy:

■ **1. Define a Clear API Strategy**

● Identify Objectives: Understand how APIs can support business goals, whether by enabling new revenue streams, improving operational efficiency, or enhancing customer experiences.

● Assess Assets: Inventory digital assets that can be exposed as APIs to internal and external developers.

■ **2. Foster an API-First Culture**

● Encourage Innovation: Promote an API-first approach in product development, encouraging teams to think about how APIs can be used to extend functionality and reach.

● Training and Education: Invest in training developers and business teams on the benefits and best practices of API design, development, and management.[15]

■ **3. Develop and Design High-Quality APIs**

● User-Centric Design: Design APIs with the end-user in mind, focusing on simplicity, usability, and documentation.

● Standardization: Adopt industry standards and best practices for API design to ensure interoperability and ease of integration.

■ **4. Implement Robust API Management**

● Infrastructure: Deploy a scalable API management platform to control access, monitor traffic, and analyze usage patterns.

● Security: Implement strong security measures, including authentication, authorization, and encryption, to protect data and ensure privacy.

■ **5. Create an API Marketplace**

● Catalog and Discovery: Provide a centralized catalog where internal and external developers can discover and access APIs.

● Community Building: Foster a community of developers around your APIs by offering resources, support, and forums for collaboration.

■ **6. Monetization and Business Models**

● Develop Monetization Models: Identify appropriate monetization strategies for your APIs, such as subscription fees, pay-per-use, or freemium models.

● Value Proposition: Clearly articulate the value proposition of your APIs to potential consumers, focusing on how they can drive business growth or efficiency.

■ **7. Regulatory Compliance and Standards**

● Compliance: Ensure that your APIs comply with relevant legal and regulatory requirements, especially concerning data protection and privacy.

● Adopt Open Standards: Whenever possible, use open standards to promote interoperability and ease of integration across different platforms and systems.

■ **8. Leverage Partnerships**

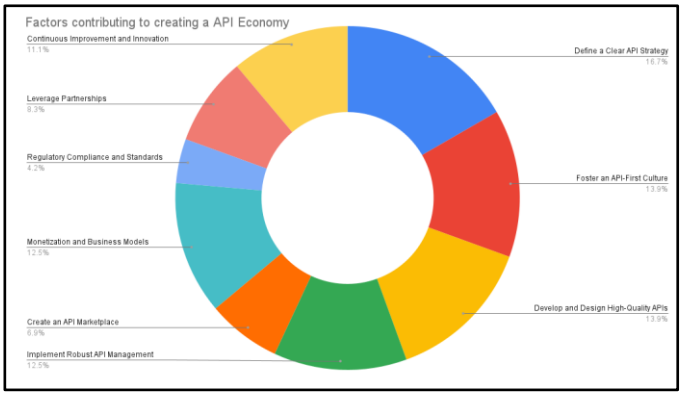
● Strategic Partnerships: Form partnerships with other organizations to expand your APIs' reach and functionality.

● Ecosystem Development: Encourage third parties to build on your APIs, creating a vibrant ecosystem that adds value to your digital assets.

■ **9. Continuous Improvement and Innovation**

● Feedback Loops: Establish mechanisms for collecting and acting on feedback from API users and stakeholders.

● Iterative Development: Continuously improve API offerings based on user feedback, market trends, and technological advancements.



8. Conclusion

The role of APIs in shaping the future of open banking in the USA is pivotal, marking a transformative journey towards a more accessible, efficient, and innovative financial ecosystem. As digital conduits that facilitate secure and seamless data sharing between financial institutions, third-party providers, and consumers, APIs stand at the core of open banking's promise to enhance customer experience, drive competition, and foster

financial inclusion. With their ability to enable real-time data exchange and support new financial products and services, APIs are instrumental in unlocking the potential of open banking. They not only empower consumers with greater control over their financial data but also catalyze the creation of personalized banking experiences. As the regulatory landscape evolves to support open banking initiatives, the strategic deployment of APIs will be critical in ensuring the robust growth, security, and sustainability of the open banking ecosystem in the USA. The future of banking, characterized by openness and collaboration, is thus inextricably linked to the advancement and integration of APIs, heralding a new era of financial services that are more inclusive, innovative, and customer centric.

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