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The Platformization of Banking: The Case of Flowe

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Introduction

Over the last few decades, digitalization has revolutionized most walks of living, including the ways we shop and pay. The diffusion of mobile devices along with the increasing sophistication of digital technologies and the advent of platforms as widespread organizational arrangements of the digital era have established the conditions for the disruption of entire industries. In what follows, we report a case that shows the digital transformation which the financial service industry is undergoing. Flowe is an Italian innovative startup owned by Banco Mediolanum Spa. Founded in 2020, Flowe counts more than 670k users and 50 partners, a substantial record achieved in a short time frame and amidst a global pandemic. Flowe is an open banking platform and a for-profit company which operations are closely associated with the pursuit of social and sustainable goals. The company can provide for payment services and issue loans in compliance with applicable laws and regulations. However, the company does much more than that. It brings the philosophy of openness, innovation, and sustainability to the banking sector and complements traditional banking operations with a mix of new service offerings, educational aims, gamified experiences, and traditional service provision.

To understand the establishment of Flowe, its unique ways of doing business and the disruptions it introduces in the banking industry, we first review the main changes that have recently occurred in the sector. It might be worth observing from the outset that it would have hardly been possible to conceive a bank "running on a mobile app" until a few years ago. The financial service industry and the banking sector, a historically highly regulated and protected environment, have been shaken by the introduction of new technologies, new forms of interaction and inter-organizational collaboration and new regulation. In particular, the introduction of the PSD2, the European Directive on Service Payments, has been crucial for the sector. It made possible the participation of new actors such as tech startups and digitally born organizations which, as much as Flowe does, brought new technologies, new business practices and services in what has been and, in some essential respects, still remains a very traditional and heavily regulated industry. The regulation essentially invites traditional players to conform to principles of openness and transparency in the management of banking accounts with third-party providers through Application Programming Interfaces (APIs) and introduces new authorized actors such as Payments Initiation Service Providers (PISPs) or Account Information Services Providers (AISPs).

Fintech, as it is now called, has emerged as an industry-wide practice from the introduction of new technologies and regulation and the innovative practices of new entrants to financial services. The term broadly refers to all the companies that use the Internet, information infrastructures such as cloud computing, mobile devices and software to deliver services such as mobile payments, insurance and asset investment management. Fintech players have in common the quality of being disruptive, bringing new services, business models and patterns of collaboration. Essentially, new practices of collaboration develop in a novel environment in which data belonging to financial institutions are not any longer exclusively held in corporate silos but can be shared

across the ecosystem with others Fintech players to foster innovation and the provision of new services.

Opening the data repositories of banks and asking them to share customer data through APIs has brought about what can be conceived as the *platformization of banking* (Ozcan et al., 2019). We adopt this term to refer to the transformation of the business of banking over the last few years from an operative model dominated by vertical and supply-chain value networks to a platform logic. Platformization refers to a paradigmatic shift from a "pipeline" model of production, whereby a focal actor (e.g., the bank) basically controls the entire value chain, including partners and suppliers, to a model of production whereby key exchanges and value creating processes remain external to the focal organization (Alaimo and Kallinikos 2022; Parker et al., 2016). Platform-firms orchestrate rather than control the process by managing the participation of external partners. Digital technology is central to the change as it supports the continuous exchange of valuable resources and assets such as data through APIs and the management of such exchanges via platform-based functionalities and platform infrastructures. The platformization of banking is therefore closely associated with the pervasive diffusion of such a model and the technologies that support it along with the emergence of new platform-based ecosystems.

The case of Flowe is exemplary in this respect. Flowe is a banking and payment platform which enables social and economic exchanges between different parties that, without its intermediation, would remain unconnected. Yet, it is also at the centre of an ever-evolving ecosystem of relations whereby what is exchanged is knowledge and social goods such as awareness of environmental issues or social responsibility. In this respect, Flowe is different not only from banks but also from the mainstream of Fintech companies as far as it seeks to link its operations with broader societal and cultural orientations such as the care for the climate change and the natural environment. The case of Flowe illustrates the profound shifts in value creation mechanisms that digital transformation is bringing to the banking and payments industry and the economic and cultural boundary crossing that such transformation enables.

The Emergence of The Fintech Industry

A brief overview

In the last 30 years, the application of digital technology to financial services has led to the emergence of a new business domain called, *Fintech*. By using the latest technologies, Fintech has made possible the digital transformation of the financial industry and the creation of new products and services. Fintech is an umbrella term indicating "*technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services*".[1] Certainly, the rise of Fintech worldwide is influenced by some bigger trends such as the digital transformation of wider regions of the economy and society driven by the adoption and dissemination of digital technologies and devices[2] and the increasing operational and business importance of data. As a result, the market penetration of online fintech services such as online payments, has now reached the 42.8% of the total population[3]. In this respect, Fintech has already acquired the dimensions of a nearly mature industry, showing at the same time ample potential for further development (see Exhibit 1, 2).

At its outset, the term Fintech was used to refer to the technology applied to the back-end operations of financial institutions. Nowadays the term describes a wide range of services, such as instant money transfers or the ability to receive credit without any intermediation of a bank, and applies across all finance industry segments, from banking to asset management or crowdfunding. For example, Peerform is a fintech startup which provides peer-to-peer lending services. The Peerform marketplace lending platform is dedicated to helping dependable borrowers[4]. The platform matches high-medium rated borrowers with institutional investors bypassing a traditional intermediation, thanks to its capability to leverage data and algorithms for the identification and selection of the borrowers. Another example of innovative business model is provided by Digit[5], a fintech startup of savings and investment management that makes saving money simpler thanks to digital technologies. Fuelled by machine learning for tracking spending and income patterns, Digit incrementally moves small amounts of money into dedicated saving accounts set by users. Differently from what has happened so far, the innovators do not only originate from the same sector. New fintech players may come both from the financial industry or may be unrelated to finance and come from high tech, as is the case with Amazon or Google pay, which have

1. Financial Stability Board https://www.fsb.org/wp-content/uploads/R270617.pdf.
2. Internet penetration hits 60.5% of global population on monthly basis, while smartphone penetration reaches 58.2% (see Exhibit 1 and 2). At the same moment, the connection speed is improving as are subscriptions for broadband contracts, supporting Fintech solutions adoption.
3. https://www.statista.com/study/44525/fintech-report/
4. https://www.peerform.com/how-it-works/
5. https://builtin.com/fintech/fintech-companies-startups-to-know

leveraged their technological capabilities to enter the payments business and disrupt the ecosystem. Whether they are new startups or tech giants, fintech players do have in common the deployment of digital technologies and the intensive use of data to build innovative business models (as with crowdfunding or alternative lending platforms). Additionally, their innovations are geared towards a logic of micro-services and business segments that the traditional financial industry covers poorly, or not at all.

In a report on the state of Fintech worldwide, CB Insights (2020) provides a brief classification of business areas covered by *Fintech*. The most relevant of these are:

- *Payments*: This area includes companies engaged in offering payment services, card issuing, money transfers and expenses tracking. The segments, indeed, may be further split into various niches. For example, digital payments involves both payments made over the Internet and the related providers, such as PayPal or Alipay, or mobile payments at point-of-sale (POS) via application, such as in the case of Satispay. Money transfer and remittance services allow cross-border peer-to-peer transfers that occur on a regular basis or not, as with the online players such as Transferwise, CurrencyFair or Western Union. TransferWise, for instance, offers a cost-effective way for money transfers with a business model built on charges based on the currency from which money is sent and the payment method chosen.

- *Banking*: This area is prevalently made by startups that were digitally born or that digitize bank traditional services for credit and debit. A straight example of this kind of players is N26, the first fully digital European bank that revolutionized banking experience through its cutting-edge technology infrastructure and business model that relies on no physical branches as it is common with traditional banks. Other players may not appear as pure banks, despite offering the traditional services of initiating payments, making transfers, or having a deposit account. The latter is the case of Flowe, which as we will see later in the case, is an open banking platform that connect financial and non-financial resources, offering a unique set of services for their users.

- *Alternative Lending*: The area is composed by companies providing new solutions for either individual or business lending. In this area fall players dedicated to crowdlending and marketplace lending. Crowdlending platforms support individuals or small companies to raise money for their business via an online brokering platform, as for example Mintos[6] does. Mintos is a European startup where borrowers can apply for a loan on Mintos marketplace. Then, loan

6. https://crowdfunding-platforms.com/mintos-review

originators evaluate the risk of the applications and afterwards they offer the products to investors on the marketplace. The platform provides a monthly interest plus the repayment of the capital at the end of the loan. On the other hand, marketplace lending platforms offer the capability for an individual to obtain credit on a marketplace without any intermediation, choosing among various willing investors, depending on their preferences in terms of risk and interest rates. A good example of this service is the platform provided by Younited credit, where people can ask for a loan for diverse reasons including the purchase of a car.

- *Wealth Management*: This area is made by companies involved in offering personal investment and analytics tools and platforms, leveraging the application of robo-advisors. This category of providers offers automated online portfolios according to the risk appetite of investors. The main advantage lies in the passive role of investors in monitoring the portfolio, as the monitoring and checking is outsourced to various technological applications. An example is Nutmeg, an online investment company that makes investment on behalf of their customers.

Additional areas include *Insurance*, where companies sell or distribute insurances digitally or offer data analytics solutions; *Capital Markets*, where companies offer financial markets analysis, sales & trading, and infrastructure tools for financial institutions; *Small Medium Businesses* where companies offer tailored solutions for small and medium businesses; and *Real Estate*, where new players offer service in mortgages lending, transaction digitalization and financing platforms.

We focus specifically on the banking segment. So far, banking industry seemed to have bypassed the digital disruption mostly due to its high entry barriers, tighter regulation and low competition. With new technologies such as Internet and smartphones and the changes introduced by novel regulation, many challenger-banks, also known as "*neobanks*", have emerged (see Exhibit 3). The availability of services and the easiness of access through smartphones also made customers more aware of the new options and less loyal to traditional banks. Users now continuously switch between services providers. According to the 2019 Global Financial Services Consumer Study by Accenture, half the users expect to be offered services that go beyond the standard financial services[7]. Likewise, half stated to have interests about personalized financial advice tailored to their needs. Also, 80% of users are willing to share data with the institutions as long as they can gain benefits in the service.

The latter point is very relevant as it effectively explains a broader trend that refers to open data. Open banking, as it is referred to, has, together with the more general introduction of technologies in the financial service, revolutionized the industry. While fintech refers broadly to the use of

7. https://www.accenture.com/_acnmedia/PDF-95/Accenture-2019-Global-Financial-Services-Consumer-Study.pdf#zoom=40

technology for financial services, open banking is associated with the broader context of open data. Open data on the one hand and fintech on the other, make the disruption in the banking industry very interesting as they are pushing towards new business models oriented towards the logic of digital platforms.

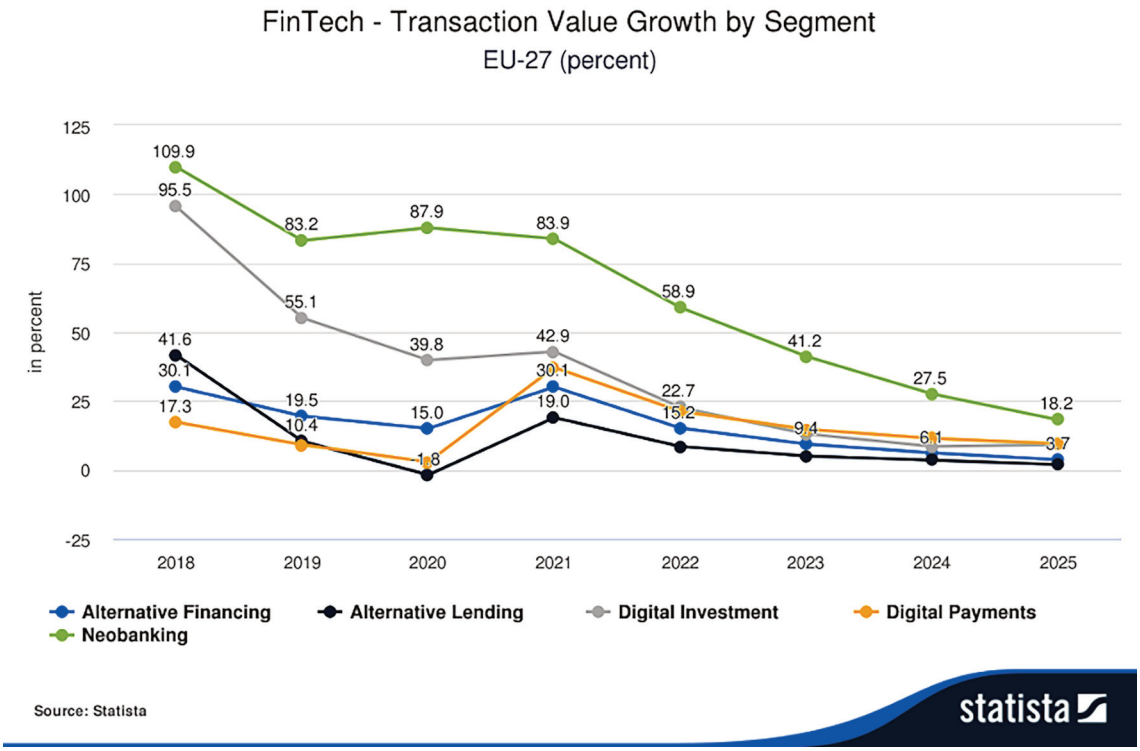


Exhibit 1
Source: Statista Fintech report 2021

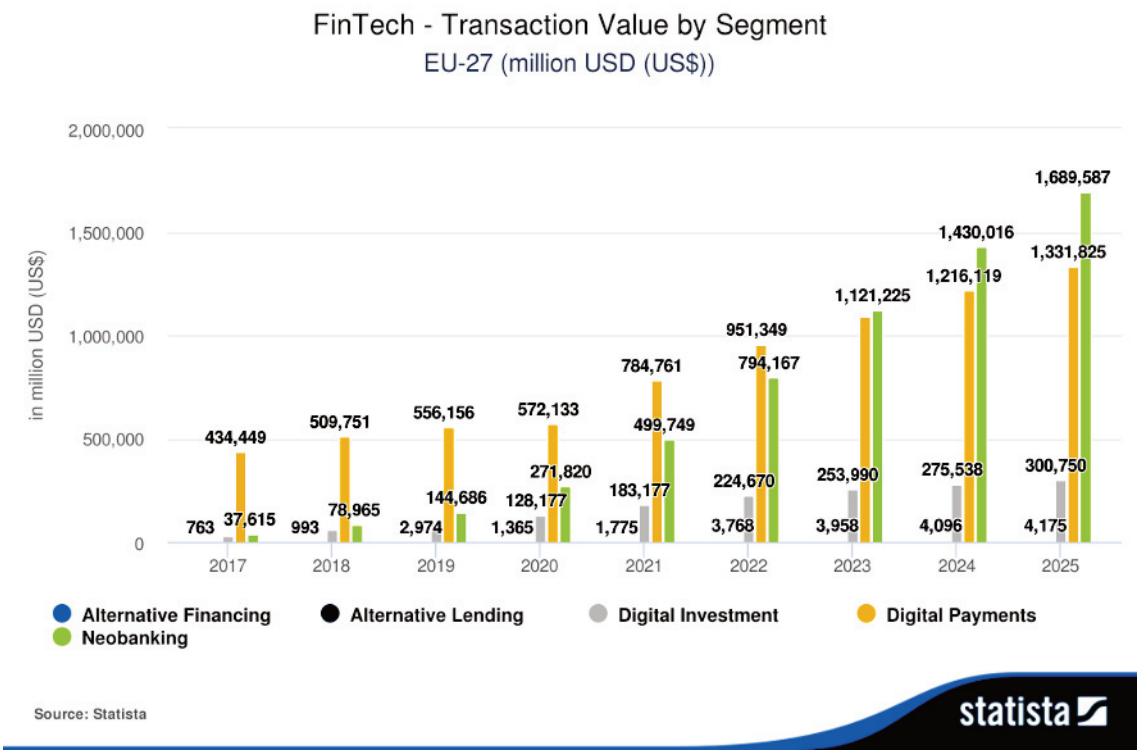


Exhibit 2
Source: Statista Fintech Report 2021

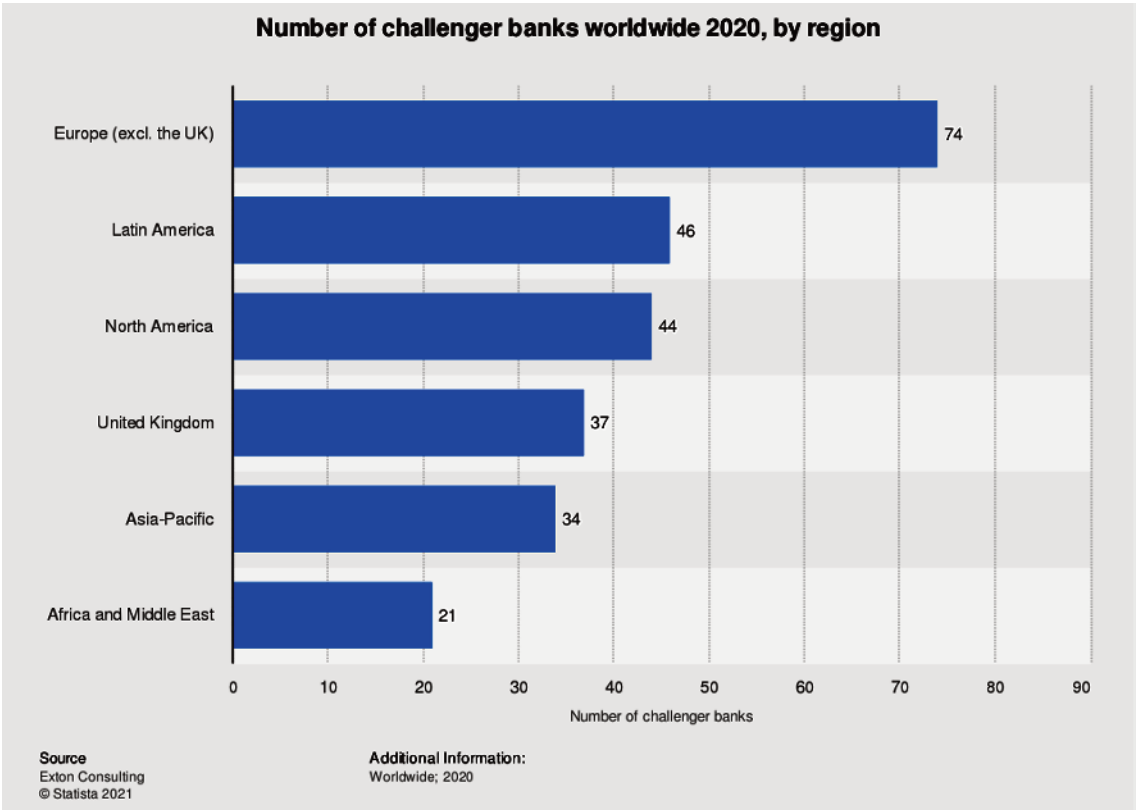


Exhibit 3
Source: Statista Neobanking report

Open Banking and Open Data

In the new digital economy, data represent one of the worthiest assets for companies. Businesses across domains nowadays are all supported by the use of data and the possibilities they open for the discovery of new patterns and new ways of producing value. The different dynamics and pervasive mechanisms digital data exhibit can be partially traced back to their being non-rival goods, that is, goods that can be used and re-used many times in different contexts without being depleted. Data re furthermore editable and updatable and they can be constantly changed, recombined, and continuously updated. Finally, data are subject to low cost of replication (Brynjolfsson and MacAfee 2014; Kallinikos 2007; Varian and Shapiro 1999). Because of these inherent properties, complex data-based services can be created across multiple industries, making data a value-producing and value-carrying media (Alaimo and Kallinikos 2022; Alaimo, Kallinikos and Aaltonen 2020).

If we accept the proposition that the data collected by companies represent an indispensable source of value, and that sharing data does not deplete their worthiness or usability, then it follows that sharing data outside the boundaries of a given company can represent an entire new point of departure for the creation of high value-added services across organizations. The notion of open data is based on these assumptions. It is additionally supported by a rich discourse which is committed to the suitability of data sharing for a variety of reasons, (including the quest for transparency to the public in the case of governments and the establishment of a fair competitive conditions for value creation that empower consumers) and advances collaboration between different organizations, as in the case of open banking.

Whereas the term Fintech describes an industry-wide change emerging from the application of digital technologies and devices to the delivery of innovative financial services, Open Banking instead signals a specific trend within the industry which requires the "opening" and sharing of data on the assumption that doing this would create a rich ecosystem where third parties collaborate, innovate and exchange valuable data-resources. As also Microsoft, Linklaters, and Accenture state[8]: "*Open banking is another important stage in the digital transformation of the financial services industry, yet it differs from previous stages in some fundamental ways. It is part of a wider movement to open up data to allow users greater flexibility and access, while also building new services and industries atop that data.*"

Simply put, open banking is "*a process in which customers authorize their banks to share their financial data with third-party providers (TPPs), and also – for multi-banked customers – among banks.*[9]" In this context, this implies that user data can freely circulate among financial institutions and, more broadly, among a wider range of third-party providers that support the creation

8. https://www.microsoft.com/cms/api/am/binary/RE489V8
9. https://www.microsoft.com/cms/api/am/binary/RE489V8

of additional services and give rise to new ecosystems, leading to the overall improvement of customer experience. Open banking offers to the industry the opportunity to upgrade itself, building new partnerships with players that have been so far distant from banking services. Following the review of the proposed definitions by banks in UK mandated to implement the Open Banking Initiative and the main regulatory standards available to date, O'Leary et al. (2021 define Open Banking as: "*An initiative which facilitates the secure sharing of account data with licensed third parties through Application Programming Interfaces (APIs), empowering customers with ownership of their own data. The initiative aims to increase competition in retail banking by developing innovative products and services which will bring increased value to customers.*" Despite the possible advantages to customers, the overall impact of open banking on the sector is more ambiguous as the trend is still in its infancy. It should be clear that some players see open data and open banking more favourable than others. Obviously, open banking may bring specific advantages to those that are in the position of getting more value out of data.

Overall, open banking is important because it marks a new stage of the digitalization in financial services while, at the same time, threatens the incumbent position of the traditional banks. It represents an upgrade of the customer experience of financial services by establishing the conditions for developing cutting-edge services that are empowered by new technologies on the part of fintech startups or financial institutions and the emergence of new business models. There are three relevant underlying conditions which have made possible the industry-wide implementation of the open banking strategy; these are 1) the adoption of a new regulatory framework, 2) the diffusion of new technologies, and 3) the diffusion of platforms and alternative business modes. The catalysts in Europe have been the PSD2 that came into force in 2016 and was implemented in 2018 by member States, and the Open Banking Initiative in UK (2017). The regulative frameworks aimed at changing the rules of the game, increasing competition and efficiency in the market and offering better services and integrated experience.

In the sections that follow we first focus on the most prominent regulatory frameworks and then we present an overview of Application Programming Interfaces (or APIs) as they are one of the most important technological developments supporting open banking.

1. Regulatory frameworks of open banking

At the European level, the European Parliament and the Council of the European Union assert that the goal of PSD2 is "*to make payments safer, increase consumer protection, foster innovation and competition while ensuring a level playing field for all players*[10]". The new directive came into

10.https://www.europeanpaymentscouncil.eu/sites/default/files/infographic/2018-04/EPC_Infographic_PSD2_April%202018.pdf

force on January 12th, 2016, while was implemented by member States in January 2018. It replaced the 2007 Payment Service Directive (PSD) because of the progress digitalization made in recent years in Europe and the emergence of new players and new services that were not covered by the existing regulation. It is a framework which covers a wider field than open banking as it addresses improvements in the entire payments industry. The PSD2 is a comprehensive regulatory framework for open banking and, more broadly, for payments services. Since it is mandatory, it applies to all the institutions falling under its umbrella. Among the key major points addressed by the regulation there is the recognition of new players which are now regulated at EU level. Regulation on new players aims to reduce entry barriers in an industry that has been protected by regulation for a long time while improving the customer experience and the competition in the industry. Moreover, these players have the right to access customer accounts to make payments on their behalf and offer new services based on data made available via APIs technology (more on this later). These new players can be classified as follows (Farrow 2020):

1. *Account Information Services Provider* (AISP): a TPP (third-party provider) that enables access to account data held by customers to aggregate information and offer money management services or view all accounts held by a person in a single interface.
2. *Account Servicing Payment Service Provider* (ASPSP): They are essentially banks that provide and maintain the underlying payment accounts within the regulatory framework.
3. *Payment Initiation Service Provider* (PISP): TPPs authorized to perform a payment initiation service at the behalf of the customer despite not being the account custodian.
4. *Card-based payment instrument issuer* (CBPII): a TPP that can issue credit/debit cards and initiate a payment on behalf of the client.

A second relevant point covered by the regulation is that it mandates payments account providers to allow access to third parties based on open data standards without the need of any specific contract. At the same time the directive also entails obligations that apply to both parties involved in data sharing. A final point concerns broader security measures for online payments which are strengthened through Regulatory Technical Standards on Strong Customer Authentication (SCA) and Common and Secure Communication (CMS) rules. The goal here is to reduce fraud risk in electronic transactions and to guarantee consumer protection. The authentication procedure must be based on at least two of the three pillars: knowledge (e.g., password), possession (e.g., mobile, card), inherence (e.g., fingerprint, face id). The Directive establishes a clear and comprehensive set of rules that have the intention of guaranteeing third-party providers access to the industry.

In UK, already in 2017, the Capital Market Authority mandated the nine leading banks to make their customer data available to third-party providers. The market authority introduced these measures with the goal of strengthening competition, innovation, and to foster profound changes in the industry that seems to have been stagnant and passive for too long according to the inves-

tigation conducted by the market authority. At the beginning, the measures were only made mandatory for the identified major banks but were extended to include all financial players once PSD2 came into force. The peculiarity and relevance of the UK framework lies in the fact that back in 2015 industry leaders were assigned with the task of creating an Open Banking framework and an open API standard to foster a common base of awareness with respect to the open banking trend. As some academics describe, this process has effectively contributed to make the UK a more mature environment from a regulatory perspective. The need to create a common reference standard stems from the fact that collaboration and data sharing in the financial industry is bound up with several security issues. The Open Banking Working Group therefore released a framework for Open APIs "*which includes Data, API and security standards along with governance model*" (Premchand & Chouldry, 2018). Data standards include the rules by which data are described and recorded, as well as agreements on representation, format, definition, and structure. API standards cover the details of the design, development, and maintenance of an API while security standards are those mechanisms agreed upon to access data with the goal of reducing many of the frictions associated with data sharing and materially support higher customer and third-party adoption (Open Data Institute, 2016).

Both PSD2 and CMA Order 2017 are designed to improve the competitive banking environment, enhance payments services, and ensure trust and security for end users. While the benefits to end users are obvious – lower prices, better services, and low switching costs – Farrow (2020) argues that *Account Servicing Payment Service Provider* (ASPSPs) also benefit from many opportunities. First, openness will bring greater awareness and more account switching, allowing different operators to be able to grow. In addition, partnering with third-party providers (TTPs) to create innovative new services can translate into increased account switching. Finally, beyond regulation, new revenue streams are possible by monetizing high-value information exchange to third-party organizations, even outside the financial industry.

2. *Application programming interfaces*

The main technology underpinning open baking are Application Programming Interfaces (APIs). APIs are a gateway for computer systems to talk to each other, share data and extract value from them. For the first time, banks are stripped of their role as gatekeepers of client data and accounts, thanks to the technology of APIs and its underlying technological advances by which the exchange of data is made possible. APIs can be thought of as an "*electrical socket*" (Zachariadis & Ozcan, 2017) where other parties can connect and consume electricity, just as smartphones do. Revolution in APIs standards made simpler their implementation also in banking, as with Representational State Transfer (RESTful), a standard developed in 2000s. APIs are among the technological pillars of open banking. If open data are the fuel of this paradigm, APIs are the engine allowing a vast and complex system to run. From an economic standpoint, an API can be thought

as a contract-less technology with third parties that through use reinforces trust that in turn encourages further use, and so on in a virtuous circle. APIs are not new as they are involved in the functioning of many internet-based applications coordinating data exchange among the most disparate actors and devices. A simple example to understand the role of APIs is the weather application installed in smartphones, which works only by plugging in an API of a weather forecast provider to access real-time data and therefore build its own in-app service.

APIs are receiving particular attention following the new European Directive, as they open the gate to new frontiers in the banking industry and effectively take the place of many of the tasks that were earlier controlled by traditional players. A distinction between internal and external APIs is useful to understand the various applications, cases, and their benefits. When internal, an API is used within an organization to enable the connectivity between different organizational units and the sharing of data with the aim of increasing effectiveness and efficiency of processes as well as the overall performance of the business. In contrast, an external API manages the sharing outside of the boundaries of a given organization and allows all the connected partners and third-parties operators "*to consume organizational data and lead to cross-selling and upselling opportunities down the line*" (Zachariadis & Ozcan, 2017). It is important to bear in mind that an external API exercises control on the players who can access and use the technology.

Jacobson at al. (2012) provide a distinction based on a different perspective. Rather than external and internal, they focus on public versus private APIs. The former refers to API available to everyone with minimal or no contractual constraints, while the latter refers to APIs whereby the usability to third parties is subject to more stringent contractual agreements. It follows that, for instance, a private API can be used both internally within the company for efficiency reasons and externally to connect with its ecosystem of suppliers, partners, and users.

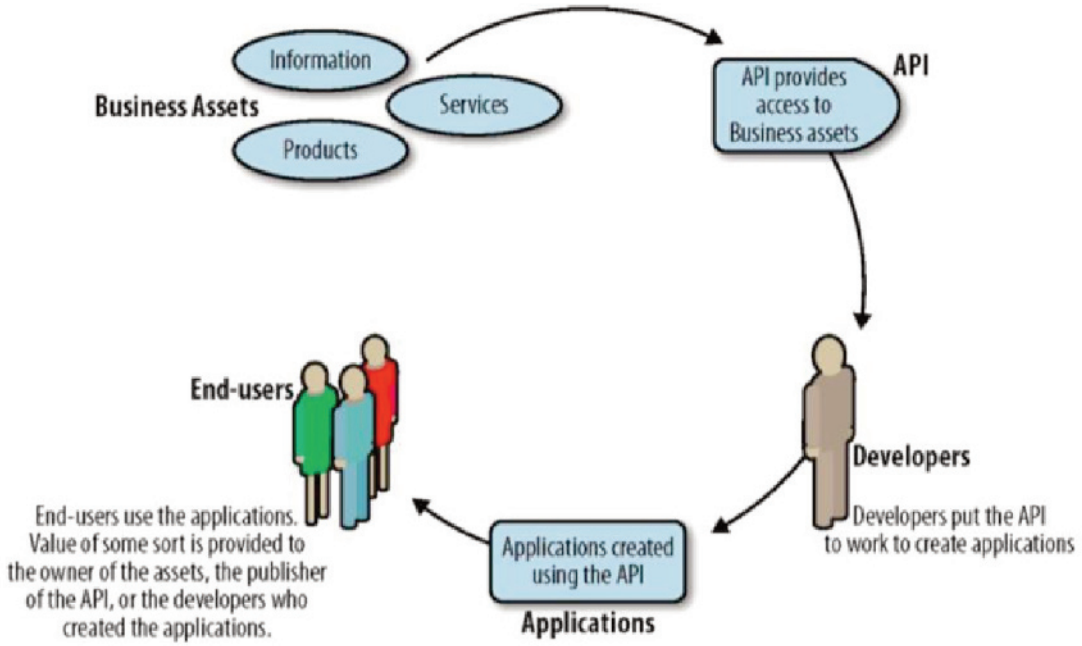


Exhibit 4. APIs value chain Source: Jacobson et al., 2012.
The picture provides a clear representation of the value chain of the now called API economy. From the top, business assets are information, products, and services that are made available and usable by the APIs. These assets are shared with the provider, who designs the API for the target audience. It should be specified that usually the provider is like the owner of the assets, whereas other times the subjects are different and in the case of the provider has also the task of designing reward mechanisms both for himself and for the business assets owner. After the API is designed, it is offered to developers who build new applications based on the available business assets, and finally offered to end-users. A good strategy must create value for all parties involved in the value chain and consequently fails when the links between the parties are too weak or poorly implemented (Jacobson et al., 2012).

When it comes to banking, it's worth noting that APIs have already been used in recent years. Empirical studies suggests that so far efforts have been focused mostly on the development of internal API usage to reduce costs and increase efficiency. For example, the 2019 Global API Open Banking Survey[11] conducted by McKinsey shows only 7% of cases APIs were leveraged for outward

11. https://www.mckinsey.com/industries/financial-services/our-insights/banking-matters/cutting-through-the-noise-how-banks-can-unlock-the-potential-of-apis

integration. It has been only very recently with the application of novel regulatory frameworks and the emergence of platforms and ecosystems that innovation has sprung[12].

According to Premchand & Chouldry (2018), there are at least five ways APIs along with open data and open banking can create value in the banking ecosystem. The first benefit is to simplify the creation of new apps by developers who consume the data that APIs make available, as in the case of account deposit aggregators. The second benefit lies in giving the capability for banks and Fintech to jointly create new products and strengthen the overall value proposition of the industry. Third, banks can also be consumers of APIs and not just providers, thus enhancing their services by consulting customer data. The fourth benefit is related to the user experience and is increasing customer engagement by educating clients on new innovative and user-friendly solutions. Finally, open banking trend provide new revenue streams, as third-party consumption is not always free. Therefore, banks can monetize in a new fashion sharing data with companies from other industries.

The paradigm of open banking based on the regime of sharing data through APIs has laid down the conditions for the *platformization of banking*.

12. https://www.mckinsey.com/industries/financial-services/our-insights/data-sharing-and-open-banking

Flowe: Better People Create a Better World

Company overview

Flowe is an Italian innovative startup owned by Banco Mediolanum Spa founded in June 2020. It is a benefit corporation, which means a company officially recognized by law that pursues social and sustainable impact goals, made explicit in its Statute, in addition to a classic profit statement. It is independent from the parent company with which, however, there is a close-tight relationship. Indeed, Flowe President is Oscar Di Montigny, Chief Innovability, Sustainability and Value Strategy at Mediolanum. From a regulatory standpoint, Flowe is an electronic money institution and subjected to Bank of Italy regulation and authority. As such, Flowe can provide for payment services and issue loans in compliance with applicable laws and regulations[13]. From a financial perspective, Flowe is an Italian payment account provider linked with a Mastercard payment card. It offers the common financial and payment services of a payment account, therefore allowing to initiate online payments, send money to other users and process payment operations. Furthermore, as a native digital payment account provider, Flowe provides user-friendly tools to manage personal savings through the functionality of Drops, digital boxes that create a separated saving account wherein users can allocate financial savings. Last, but not least, Flowe provides a user-friendly sharing expenses service for splitting group expenses among participants.

Upon user request, the startup issues a physical debit card in partnership with MasterCard made at 85-90% by wood (see Exhibit 5). Releasing the card, you can plant your own tree to contribute to the reforestation in Guatemala and offset CO2 emissions, thanks to the partnership with an Italian startup called ZeroCO2. The platform is also able to notify users about their CO2 footprint through a service named Ecobalance. This service is provided by Doconomy, a startup whose algorithm can convert a euro transaction in an estimated emission of CO2. Here too, the platform does not only operate passively, but offers the user the opportunity to offset these emissions by planting more trees and supporting Guatemala refosteration.

13.https://www.bankpedia.org/termine.php?c_id=20725

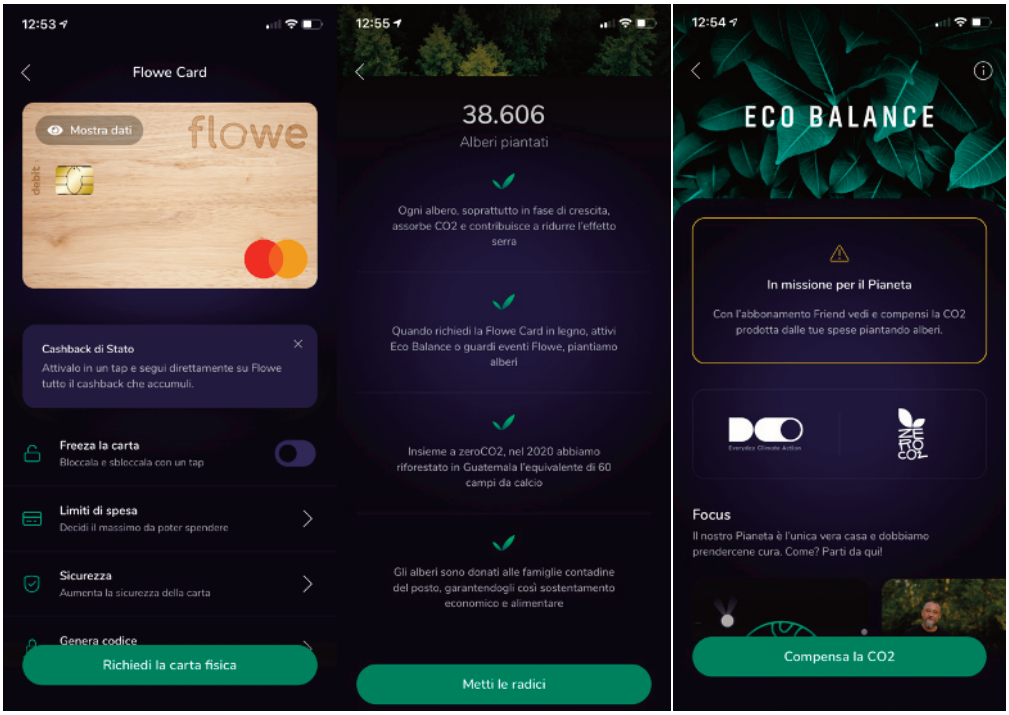
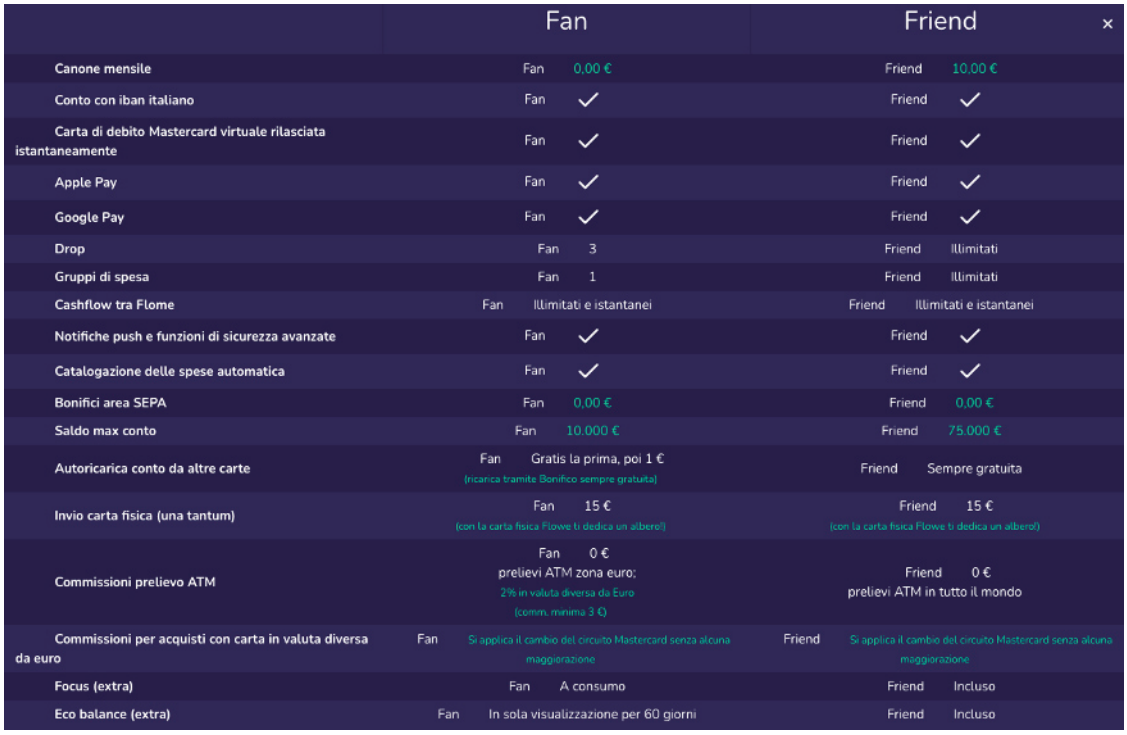


Exhibit 5. An overview of the main services in Flowe. From the left, the virtual card and the panel of management for the users. In the middle is displayed the section where users can request for planting a tree. When Flowe release the physical card, a new tree is plant automatically and donated to the users. On the right, Ecobalance service is displayed, it's explanations and an interaction button for starting to offset purchase emissions.

Flowe offers two solutions for the onboarding of new clients:

1. Fan: By signing up on the app, new clients automatically have access to a Fan account and the related services. This solution has no monthly fee but provides limits on the maximum balance of the account, on the number of drops that can be activated (Exhibit 3), on shared spending groups allowed (Exhibit 1) and other features peculiar to the platform.
2. Friend: Users can choose a Friend plan upon a monthly subscription of 10€. This plan includes no limits of those ones described above, while unleashes all the features and services of the platform (see Exhibit 6 for a comparison). For example, the Ecobalance service is on a 60-day trial basis for Fan accounts, while included in the Fan plan.



	Fan	Friend
Canone mensile	Fan 0,00 €	Friend 10,00 €
Conto con iban italiano	Fan ✓	Friend ✓
Carta di debito Mastercard virtuale rilasciata istantaneamente	Fan ✓	Friend ✓
Apple Pay	Fan ✓	Friend ✓
Google Pay	Fan ✓	Friend ✓
Drop	Fan 3	Friend Illimitati
Gruppi di spesa	Fan 1	Friend Illimitati
Cashflow tra Flome	Fan Illimitati e istantanei	Friend Illimitati e istantanei
Notifiche push e funzioni di sicurezza avanzate	Fan ✓	Friend ✓
Catalogazione delle spese automatica	Fan ✓	Friend ✓
Bonifici area SEPA	Fan 0,00 €	Friend 0,00 €
Saldo max conto	Fan 10.000 €	Friend 75.000 €
Autoricarica conto da altre carte	Fan Gratis la prima, poi 1 € (ricarica tramite Bonifico sempre gratuita)	Friend Sempre gratuita
Invio carta fisica (una tantum)	Fan 15 € (con la carta fisica Flowe ti dedica un albero!)	Friend 15 € (con la carta fisica Flowe ti dedica un albero!)
Commissioni prelievo ATM	Fan 0 € prelievi ATM zona euro; 2% in valuta diversa da Euro (comm. minima 3 €)	Friend 0 € prelievi ATM in tutto il mondo
Commissioni per acquisti con carta in valuta diversa da euro	Fan Si applica il cambio del circuito Mastercard senza alcuna maggiorazione	Friend Si applica il cambio del circuito Mastercard senza alcuna maggiorazione
Focus (extra)	Fan A consumo	Friend Incluso
Eco balance (extra)	Fan In sola visualizzazione per 60 giorni	Friend Incluso

Exhibit 6. A comparison between the plans. Here is possible to see that the main difference mainly lies in unlocking 100% of features offered by the platform.

Organization blueprint

Flowe is not structured in departments or functions, rather it is arranged by "perspectives" (See Exhibit 7). At the centre of all perspectives there is "*the sun*[14]", that is Culture Studios. This is Flowe's heart: a group of people who are in charge to continuously design Flowe culture and spread authenticity all over the organization. "*Around the sun planets run*", so for Flowe the planets are Experience Design, Value Ecosystem, Happiness & Services, Augmented Intelligence (see Exhibit 7). Experience Design is composed by researchers, user experience and interfaces designers, and developers. They provide for the best digital experience a user can obtain. Differently from a traditional organization, they are requested to design the value blueprint for the entire ecosystem. Happiness & Services is a sort of customer care centre and deals primarily with customers relationships and Flowe digital presence, as well as with the strategic integration of Flowe with external partners. Finally, Augmented Intelligence is the area where AI and new technologies are leveraged and made available to employees and clients to empower the ecosystem

14.https://www.temenos.com/community/success-stories/flowe-success-story/

exchange and the organization workflow. The term augmented rather than artificial has been chosen since Flowe believes in humans and stand for supporting their work through new tools without ever replacing people[15]. The ethical aspect, in fact, seems to be a crucial concern for the startup.

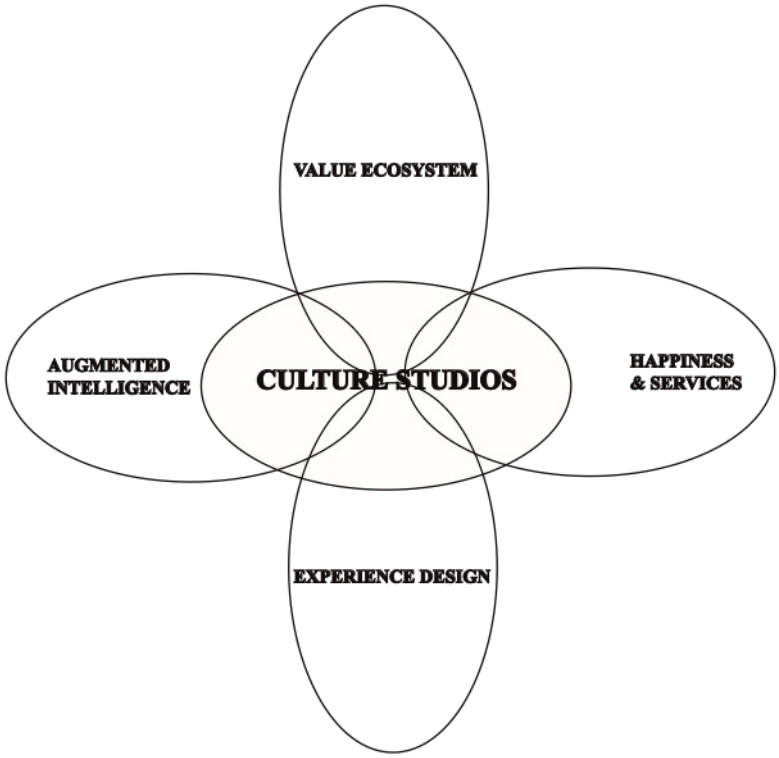


Exhibit 7. Organizational blueprint sketch

15.https://www.temenos.com/community/success-stories/flowe-success-story/

Better-being economy

Flowe is a new challenger in the Fintech world and is ostensibly committed to banking industry, but it is also much more than that. The company has designed its own new market and activity sphere by crossing four industries, namely, Finance, Entertainment, Education and Gaming, and combining elements from all of them. The organization aims to be a different player in the financial industry. Flowe is not only an online and fully digital bank, like the digital bank N26. Instead, it is trying to go beyond the financial business advancing a new value paradigm named "better-being economy". As Ivan Mazzoleni, Flowe CEO, stated: "*Better-being economy relates to both physical and mental well-being, but also to one's own personal growth in various areas*[16]".

This paradigm encompasses two value dimensions, We and Me, underpinning the two main purposes of the innovative startup. The first purpose is "*Educating the NextGen in the themes of Innovability*", that is Innovation and Sustainability. The term Innovability has been pioneered by Oscar Di Montigny and other strategy practitioners to better describe the merging of the two planes. In a nutshell, it calls for a new and conscious kind of Innovation which cannot be thought or planned as standing apart from Sustainability. According to Flowe, Innovation is the strength while Sustainability is the lighthouse. Sustainability embodies the values people believe in, whereas Innovation is the effective expression means that can and must push Sustainability towards new levels of consistency and action plans. Flowe is a pending BCorp, Carbon Neutral Certificated and Plastic Free Certificated. Still, the company promotes a proactive behaviour about environmental and social issues, thereby it makes real impact actions and keep track of them in a dedicated section of the website. A useful example in this perspective is provided by Revolution, a week-long event that Flowe organized in partnership with ZeroCO2 on Earth Day in April. During the week, Flowe held a nationwide plastic collection and dedicated a day to tree planting. It also held a 'Sustainability Pills' webinar between 19 and 21 April, while undertaking an education project in Italian schools on sustainability issues[17].

The second purpose representing the individual better-being states: "*Promoting and increasing awareness about your economic and social well-being, while educating young people to handling financial resources*". This is a crucial aspect in Flowe since the assumption of the "better-being paradigm" is that better people create a better world. So, the social duty taken on by the company is to foster consciousness and spread an entrepreneurial mindset among young people. Mindset is key to boost the world since it's "*the glasses which we look at it*[18]". Cast in this light, it is more proper to define Flowe as a "better being plat-firm" devoted to constantly improve an innovative

16.https://www.flowe.com/wp-content/uploads/2021/05/relazione-di-impatto-2020.pdf.
17. https://www.flowe.com/revolution/.
18. https://stream24.ilsole24ore.com/video/economia/ivan-mazzoleni-ceo-che-sa-gestire-paradosso/ADHf4QPB

banking service for people that care about sustainability, self-well-being and social evolution. Up to now, Flowe onboarded more than 670k users and 50 partners, a record achieved in a short time frame during a global pandemic and witnessing the huge commitment of the company throughout the first year of activity. "*We empower people to live a meaningful, sustainable and happy life*" is Flowe's mantra. Therefore, it must be clear the company is not just a bank. "*Flowe is a vision of the world, a brand activist who want to make a better world where people are aware about their own environmental, personal, and financial resources*[19]".

Flowe ecosystem approach to value proposition

Flowe is an ecosystem of people and partners who share the same vision and values. As an ecosystem, most of the value is generated outside of the organizational boundaries. According to Flowe, equilibrium in complex systems is met through plenty of different forces pointing to the same direction. Delivering such a structured value proposition means running a whole ecosystem made up of distinct actors, spanning from back-end technological partners to downstream partners that top up the app experience enhancing the overall created value. On the first aspect, Flowe relies on technological infrastructures delivered by Temenos[20], a company focused on providing technology solutions to financial institutions, Microsoft, and SIA[21] (Italian leader in providing technological solutions for financial institutions). Through a full Cloud architecture and SaaS solution (Software as a Service), Flowe benefits from Transact Core Banking, Financial Crime Mitigation and Temenos Payments services. SaaS solution has been fundamental since Flowe relied on a strong partner who let them focus on designing and constantly improving the overall value proposition. Furthermore, Temenos' API-first technology assured Flowe to "*cut down deployment time and costs as well as easily connect to third parties*"[22]. Instead, SIA provided support in regulation compliance activities and smartphone access to payment services[23].

Cloud architecture has been crucial to Flowe for going live in just five months during the pandemic crisis, ensuring flexibility, agility, and reactiveness. The architecture is run on Microsoft Azure Cloud Platform, and it allowed Flowe to scale up quickly and smoothly its operations and building a hyper cost-efficiency business model. The central platform is the heart of Flowe (see Exhibit 8) and governs all its activities and outputs, including the application itself. For instance,

19. https://stream24.ilsole24ore.com/video/italia/ivan-mazzoleni-perche-serve-banca-giovani/ADYfwl5
20. https://www.temenos.com/about-us/
21. https://www.sia.eu/it/gruppo-sia/chi-siamo
22. https://www.temenos.com/news/2020/10/07/temenos-saas-supports-flowe-in-launching-an-ethical-challenger-bank-in-record-time/
23. https://www.sia.eu/it/media-eventi/news-comunicati/flowe-sceglie-sia-per-lo-sviluppo-dei-servizi-di-digital-banking

it is thanks to the platform whether Flowe requests Temenos' API to perform a transaction, or Doconomy API to know the amount of CO2 emitted. At the same time, it is through the platform that the teams at Flowe have been able to work on improving the application and releasing new versions with a two-week sprint, as Marco Segato, Augmented Intelligence Practitioner at Flowe, explained in an interview: "*[...] our platform, which is the beating heart and the differentiating part of Flowe. It makes the difference between any core banking implementation that all other banks may have and the value-added service that, instead, are proprietary to Flowe*".

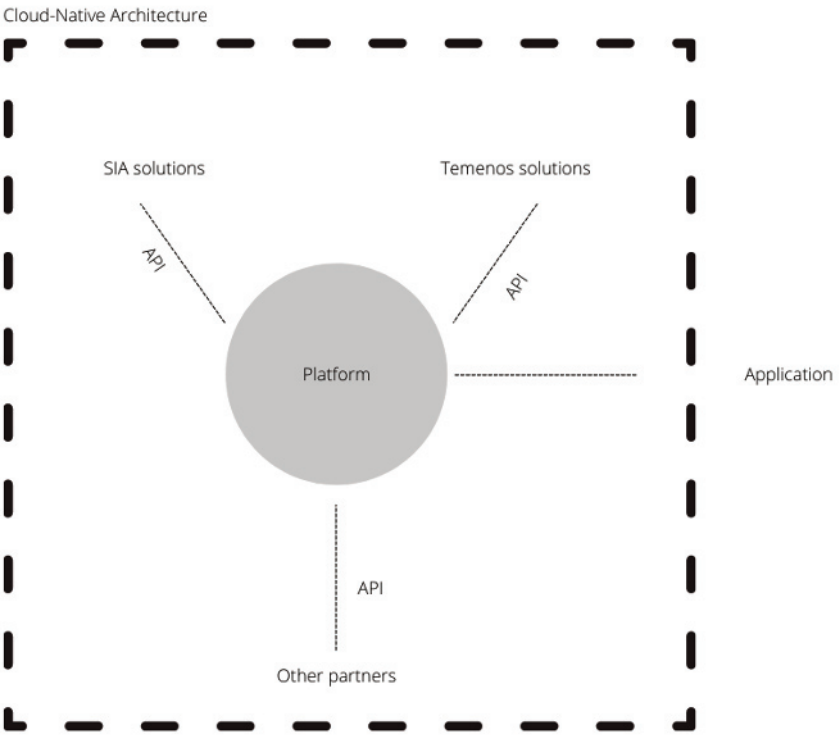


Exhibit 8. Sketch of the technological infrastructure of Flowe. All the operations with third parties are enabled by APIs and framed in a Cloud-Native Architecture

Remaining within the back-end aspects of the platform, it's worth to mention the partnership between Flowe and Sketchin, an advanced-design company, that aided Flowe to design and build a companion app which gained the IF Design Award in 2021, the most prestigious prize in production and design quality worldwide. According to Flowe, Sketchin has come in help to create a disruptive product that would combine business beliefs and values people care of. The app design is a critical aspect since it's the starting point for collecting interaction and thus user data, then used in a positive loop to improve the overall value proposition.

Flowe value proposition is achieved also by an ecosystem of partners going far beyond the world of financial services. As remarked before, Flowe blurred four industries and created a new market and action space; financial services are just the tip of the iceberg. The app displays, indeed, more sections that derive from other backgrounds. There is a Focus section where the purpose to increase awareness and raise an entrepreneurial mindset is put in place.

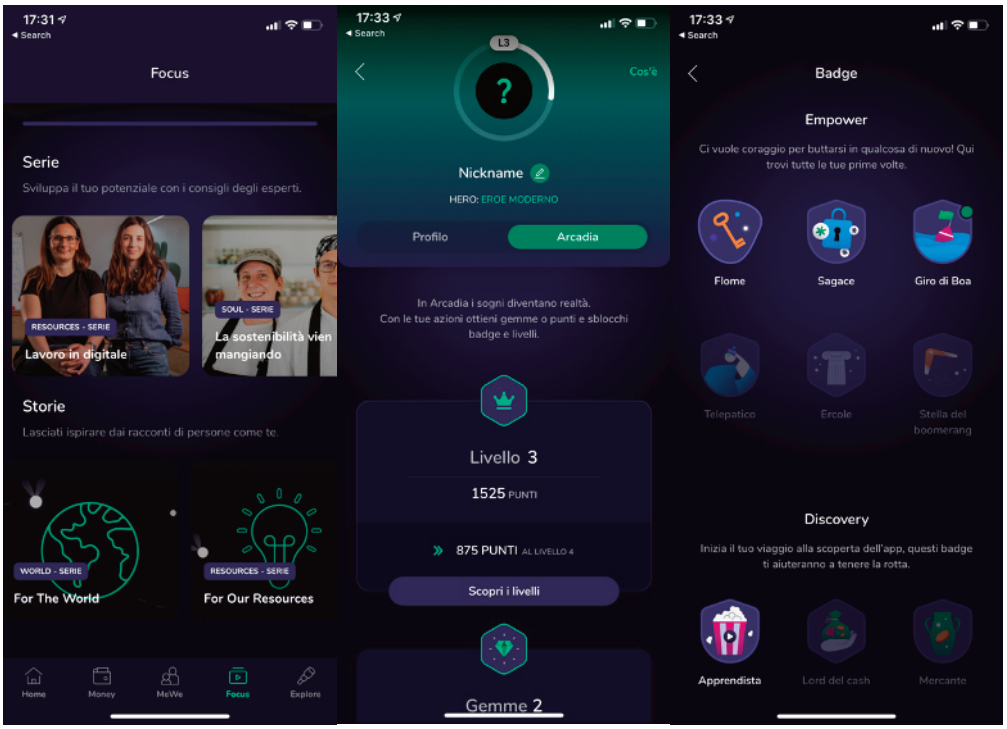


Exhibit 9. Focus and Arcadia overview

Here, users can look for a variety of video contents, based on Ted Talks format, aimed to supporting personal and professional growth. This area created 124 video contents by 45 different experts and Good Luck Creators along 2020. Last, but not least, there is the section Arcadia where Flowe users, also named *Flomes*, are prompted to challenge themselves with ethical and aware actions, pushed by the "gentle nudges" provided by the app and based on data flows that user generation crafts. Engaging themselves throughout this section, Flomes can earn badges and gems that will be used in a rich marketplace sponsored by Flowe and its commercial partners. The world of partners outward to Flowe plays key role for the delivery of the entire value proposition. Flowe core business seems to be banking, but thanks to a rich ecosystem it can provide a cross-cutting digital experience. As also put by Annachiara Haerens, PR & Media Relations at Flowe:

"*I always say our core business is banking and we are a digital bank, we know how to do that. But we do other thousands of things, and we can do them because we have our partners who support us and who are close to us, because we would not know how to talk about reforestation, we would not know how to talk about why it is important to plant trees, for example.*"

Leveraging APIs to cross industry boundaries

The value proposition of Flowe ecosystem depends on the configuration of the multiple activities to be undertaken and placed in a state of interdependence, giving each actor involved a defined position in the value co-creation and promoting the emergence of multilateral economic complementarities that respond to the logic "*A makes B more valuable*" (Jacobides et al., 2018). A useful example is the interdependence running among the core activities of Flowe, ZeroCO2 and Doconomy when there are a) the user financial transaction, b) the conversion of the transaction in CO2 emission, c) the planting of a tree. This interdependence is underpinned by the mix of technologies available to Flowe including mainly the exploitation of APIs, which represent the primary tool by which Flowe can cross industries and offer a service that knows no clear boundaries, as states also Andrea Pesce, ZeroCO2 co-founder:

"*Technology allows us to make our workflow daily. Most of that comes in the form of using APIs which really do so much. We integrated our service into the Flowe app thanks API, and today it's used whenever Flowe requests it in real time. [. . .] We needed to facilitate the experience, so we set it up in a gamification perspective whereby a user asks for a physical card in the app and a virtuous and engaging mechanism is triggered. It is a digital in the service of transparency, credibility, and functionality, understood as a mechanism to simplify the life of the user. The goal was to facilitate the flow of information and updates about the growth of the tree and make it scalable.*"

The case of Flowe shows that, although many value-added activities are linked to their physicality in the real world, the same activities: 1) presuppose digital practices to be performed; 2) become meaningful when digitalized and linked along with other complementary activities.

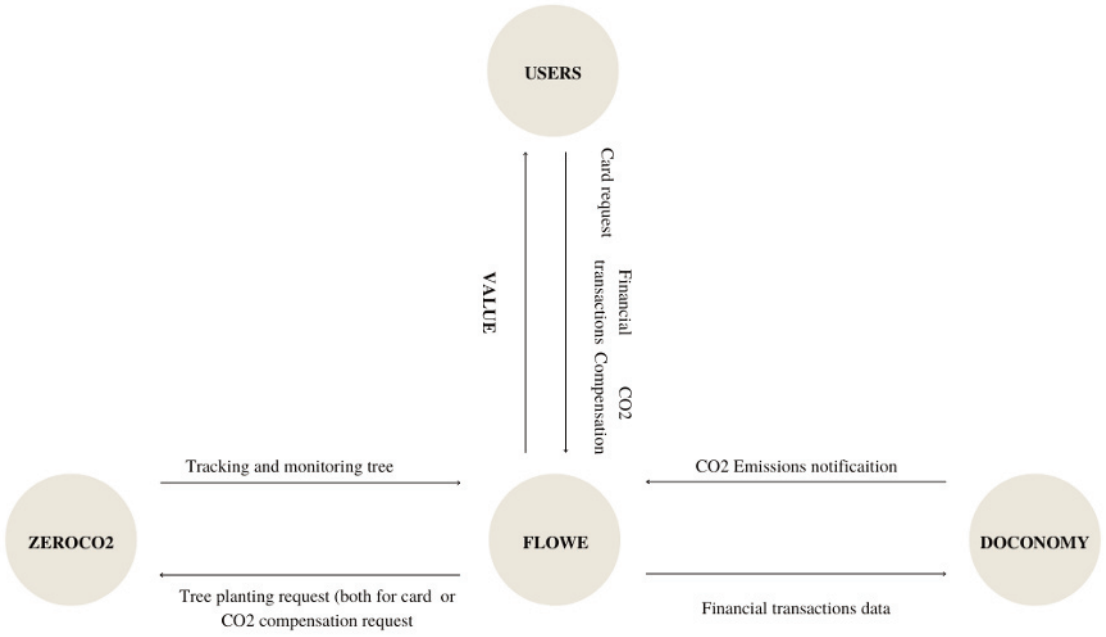


Exhibit 10. The interdependence of the activities of the main service in Flowe

To give an example, let's consider the case of the functionality of monitoring users own trees after the request of card issue and the notification about CO2 footprint purchases made by customers. Here, the alignment between the partners is strictly required to ensure the best and easiest value experience for end-users. When Flowe releases the card, they allow users to adopt a tree and look that it is growing by using directly in app. This functionality is achieved through APIs (See Exhibit 6), whereby whenever a user wants to see a picture of the tree Flowe makes a request to ZeroCO2 API to truly see that tree. In turn, Doconomy offers figures about kilos of produced CO2 by Flowe customers who then can offset the emissions planting new trees. Afterwards, ZeroCO2 provides numbers back to Flowe about the impact of the compensation. Physical inputs and activities such as new trees planting are digitalized and mixed by technologies as APIs and modular architectures that allow to bundle a set of services in the app core.

The integration of commercial offers reserved for Flowe users is also achieved using APIs, through which Flowe can connect and consume the service offered by the partners. The choice to integrate one partner instead of another one is driven by the interpretation of the data flow originated from user interaction and revealing what actor can better stick to the ecosystem whole value blueprint. Marco Segato, Augmented Intelligence Practitioner at Flowe, in this regard states:

"Each of these things are inherent to our nature, we don't see each of them as a project to be implemented, but as a decision on which API to call. I have to say that this other approach to integration, and that is being ready and open to integrate other APIs without any particular design activity but as a normal way of doing things, we see it as an advantage of our platform and our way of doing things."

Data and value creation

The multilateral activities of the core service described as above are fuelled by a data flow coming from various sources. APIs, instead, are the electrical sockets where data are shared. Still, the creation of gentle nudges aimed at prompting sustainable and ethical behaviours is driven by the collection and analysis of all the interactions that users leave a trace of in the application. AI technology helps Flowe to understand what the user interests are and consequently to create, say, high impact projects or new challenges in Arcadia, which will bring new interactions and therefore new data, feeding this virtuous social cycle. Service and application improvement as well derive from the collection of data from the interaction of Flowe users at all significant touchpoints and the interpretation of such data for the discovery of new patterns of value.

One of the means whereby this is made possible in Flowe is the use of Microsoft AI platform, whereby the members of Augmented Intelligence perspective aggregate multiple user data and extract value patterns that can propel people to live more meaningful lives. As put by Marco Segato, Augmented Intelligence Practitioner in Flowe, in a public interview with Microsoft:

"All this requires data, some of which comes from devices such as smartwatches. Other data comes from third-party apps that are integrated into Flowe. One such app tracks users' steps and workouts and offers community challenges. Another app provides information on the CO2 impact of every euro spent by users with the Flowe credit card."

What kind of data are worthier is not known in advance, what is known is that people interaction are of course crucial for all the ecosystem to run. On this issue, Marco Segato explains us in a video interview:

"Let's take this data from people's behaviour. When people interact with Flowe by shopping, taking steps, or sharing a grocery bill with someone, they release traces on our app and that's where we collect. Which ones can be important we don't know, or rather, we don't know in advance. What we do is collect all these interactions and discover meanings in them, so we understand which are important or not. […] We have really a hard time saying which data are the most important. When in doubt, in compliance with the regulations, we collect them all and each time those data become important that allow us to extrapolate meaning and improve people's lives."

Regardless of where they come from, this data stream is not only used to build a digital experience to which strategic goals are connected. They are also leveraged to create a community dimension in Flowe and to align end-users to an ecosystem with which they share values and visions. That is achieved concretely through the MeWe section in Flowe. In this section Flowe users can monitor the community achievements related to their own better-being.

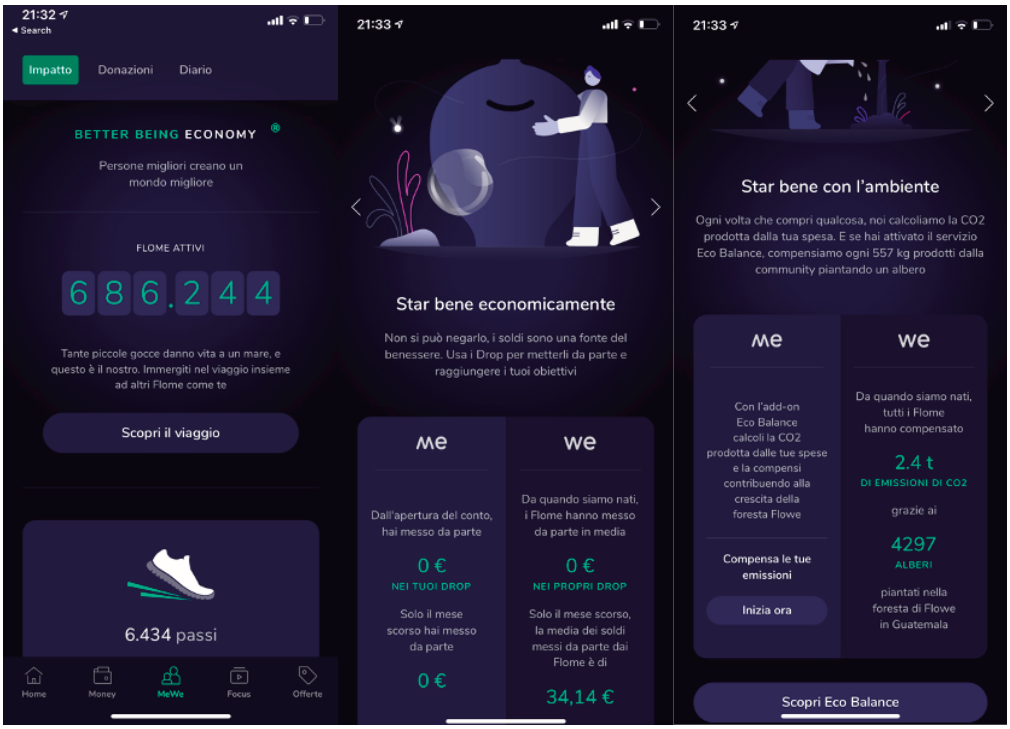


Exhibit 11. MeWe section displays as a digital journey. The users can follow the app interaction to view all the community achievements

The digital practices behind the planting of a tree, for example, or a payment transaction of a customer with the related CO2 emission, are translated into figures and results obtained by the community in a single interface where you can observe your progresses (See Exhibit 7). This community dimension is among the key value drivers in Flowe effort to set as a central hub of a new ecosystem.

The main implication in such a scenario is that the underlying economic relationships among Flowe and the partners derive from and are bundled by data. The set of resources or activities performed, although flowing into the real physical world, are in fact made meaningful when they are abstracted from their embodied nature, transformed into data and brought into relation with other types of data for the creation of new services or functionalities. Such is the case, for instance, of new contents for the Focus section, a new service related to the Sustainability or new gentle nudges in Arcadia. It is their abstraction from the physical world and subsequent digitalization that best explains the creation of cross-services spanning different industries and the formation of new ecosystems in the hyper-technological era, where software-based companies rule the competitive dynamics.

Conclusions

The *platformization of banking* is based on the continuous exchange of valuable assets such as data through APIs, on the management of such exchange via platforms and platform infrastructures and on the emergence of new platform-based ecosystems. As briefly noted in the introduction, the diffusion of platforms is indicative of wider and paradigmatic shifts in the modes of generating value that puts at premium the orchestration of the interactions of platform participants that considerably shape the goods and services thus produced. Much of what Flowe delivers to customers is contingent on a broad array of technology-mediated exchanges between the platform and its ecosystem. In this regard, platformization is closely associated with ecosystem formation (Alaimo, Kallinikos and Valderrama 2020).

An ecosystem is "*a group of interdependent organizations collectively providing valuable goods and services to their customers.*" (Teece, 2014). Adner, in his view of ecosystem-as-a-structure, defines an ecosystem as "*the alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialize*". Ecosystems tend to form around platforms which orchestrate interaction and provide supporting technologies for the development of complementarities between the capacities or resources of ecosystem participants and the goods they produce. Digital technology allows actors not simply to connect (this is obvious) but to intertwine their capabilities, resources, and goods through the development of technological functions and systems and the exploration of the many and contingent relations in which data can enter. Digitalization and digital transformation more widely should thus be seen as a structuring force that shapes economic and social relations leading to the emergence of novel business propositions centred on the emergence of a variety of complementarities, many of which are of a contingent nature (Alaimo Kallinikos and Valderrama 2020).

It should once more pointed out that in digital ecosystems, like in the case of Flowe, the configuration of the multiple activities and the emerging links and complementarities are digital and predominantly made by data and the combinations they afford. It is by working with data and through data that Flowe introduces innovative service provision whereby value is created as the result of data exchanges among several actors. Digital data, however, are not only "carriers of value" on which a complex value proposition can be delivered, but also "cognitive medium" able to shape new ideas and knowledge which often fall beyond the boundaries of established industry classifications (Alaimo and Kallinikos 2022; Alaimo Kallinikos and Valderrama 2020). Data are not traditional resources and afford possibilities of innovating that necessitate novel organizational patterns and intra-organizational arrangements. Innovation for Flowe does not come from the alignment of partners to a set of well-established activities (e.g., opening a bank account, paying, borrowing and so on). Flowe creates value as the result of different players which share and combine data in new ways from quite different regions of life, economy and experience. From a variety of data aggregation, recombination and bundling practices, Flowe can offer several services and experiences that have been previously unrelated or not connected. Flowe is still a bank

in some essential respect, but it is also much more. In a sense, Flowe can be considered as a software company rather than a bank, or as a set of APIs that are turned on or off depending on the services on offer. It is certainly a company that develops technology, that gamifies customer experience, that creates communities and spread awareness on sustainability and innovability. The services that Flowe offers can hardly be limited by the domain of financial services or, even, by any other of the long-established industry domains.

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