Green neobank: A banking innovation in the digital and sustainable era

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Received: 20/03/2025 *Accepted: 14/05/2025* *Published: 03/06/2025*

Abstract:

This paper explores the emergence of green neobanks as an innovation in the banking sector in the age of digitalization and sustainability. The aim is to analyze the factors that led to their rise, examine their distinctive characteristics, and assess their contribution to sustainable finance. To achieve this, a qualitative methodology based on documentary research was used.

Findings indicate that green neobanks have emerged from several factors, essentially: growing environmental awareness, fast development of digital technologies and expansion of fintech, stricter regulatory frameworks, increased consumer demand for sustainable financial products, and preference for rapid, convenient, and 24/7 accessible solutions.

Green neobanks are digital-only institutions offering services such as green accounts, eco-friendly cards, and responsible investment options. Examples like Bunq, Menzo and Tomorrow illustrate and embody this new banking model.

Through their innovative strategies, green neobanks are redefining the banking sector towards a more digital, inclusive, and environmentally friendly finance model.

Keywords: Innovation; Digitalization; Neobank; Sustainability; Green Neobank.

Jel Classification Codes: O31, L86, G21, Q56, Q55

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1. INTRODUCTION

In the era of digitalization and growing sustainability concerns, the banking sector is undergoing a profound transformation. The rise of mobile technologies and fintech, along with evolving consumer expectations for speed, transparency, and personalization, have redefined traditional financial practices. In this context, neobanks, fully digital financial institutions, have emerged, offering innovative financial services tailored to modern lifestyles. At the same time, the demand for responsible financial practices has fueled the growth of sustainable finance, which focuses on funding environmentally and socially responsible projects.

At the intersection of these two major trends, green neobanks are emerging. Combining digitalization with environmental commitment, they represent a new generation of digital banks focused on sustainability.

The objective of this paper is to explore the phenomenon of green neobanks as an innovation in the banking sector in the digital and sustainability era. Specifically, this study aims to analyze the factors that have driven their emergence, examine their distinctive characteristics, and assess their contribution to sustainable finance through the strategies they adopt and the services they offer.

To meet these objectives, the paper aims to answer a set of research questions that guide the analysis and structure the study:

- In what context did neobanks emerge, and how are they defined?
- What are the distinctive characteristics of neobanks and their main typologies?
- How can a green neobank be defined, and what specific factors contributed to its emergence?
- How do green neobanks contribute to the transition toward sustainable finance?

To address these questions and fulfill the research objectives, the study adopts a qualitative approach, relying on documentary research as data collection tool. Our literature review draws on scientific articles, books, industry reports, institutional publications, and online sources.

The consulted literature structures this paper around three main ideas. The first one explores the reinvention of banking with the rise of neobanks, tracing their origins, growth factors, and different typologies. The second one focuses on the rise of green neobanks, examining the context of their emergence, their specific characteristics, and the services they offer. Finally, the third idea presents concrete examples of green neobanks to illustrate their innovative practices and contributions to a digital and sustainable finance.

2. Reinvention of banking: The rise of neobanks

The emergence of neobanks marks a major turning point in the financial sector. Fully digital, they meet the new expectations of consumers seeking speed, transparency, and personalized services. This section explores the origins of these neobanks, the key factors that have fueled their growth, their distinctive characteristics, and the different typologies that shape this rapidly expanding ecosystem.

Thus answering the following questions:

- In what context did neobanks emerge, and how are they defined?
- What are the distinctive characteristics of neobanks and their main typologies?

2.1. Rise of neobanks: Origins and key factors

Neobanks, also known as digital banks, represent a revolution in the traditional banking sector. It was only with the advent of smartphones and mobile technology in the late 2000s and early 2010s that neobanks truly began to flourish. Among the first neobanks, Simple (founded in 2009 in the United States) and Fidor Bank (founded in 2009 in Germany) are often cited as pioneers. Simple was one of the first to offer a fully digital user experience with integrated budgeting tools. Fidor Bank, on the other hand, innovated by integrating online communities into its banking model, allowing customers to actively participate in managing their finances (Nicoletti, B., 2017).

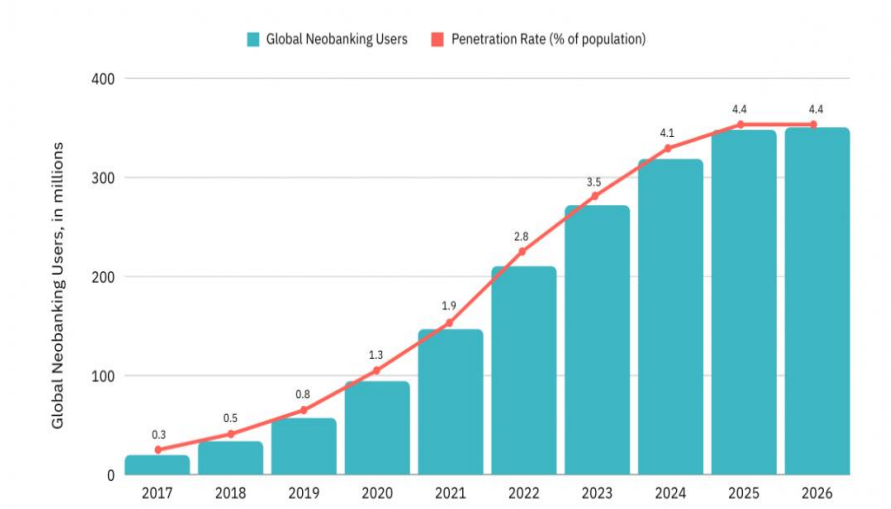
Statistics available in May 2025 indicate that there are over 314 active neobanks worldwide, over : 100 in Europe, 88 in North America, 56 in

South America, 52 in Asia-Pasific, and 18 in Africa & Middle East (NeoBanques.app, 2025).

This number is expected to grow in the coming years. According to Statista Research Department, the market volume of neobanks worldwide was estimated at 4.96 trillion U.S. dollars in 2023, marking a notable increase compared to previous years. The transaction value is expected to show a compound annual growth rate of 13.15 % between 2024 and 2028, resulting in a projected total value of 10.44 trillion U.S. dollars by 2028 (Statista Research Department, 2025).

To support these statistics, Figure 01 below is presented. It highlights the evolution of the number of neobank users from 2017 to a projected 2026, showing more than 350 million users in 2025.

Fig.1. Number of neobank users (2017-2026)



Source: (Malyshev.A., 2025)

The emergence and expansion of these neobanks occur within a context shaped by the following key factors:

Table 1. Factors behind the emergence and growth of neobanks

Digital transformation and changing consumer expectations	The digital revolution has profoundly changed consumer expectations for financial services. With the rise of smartphones and expanded Internet access, users now seek fast, convenient, and 24/7 accessible solutions. Neobanks have leveraged this trend by offering intuitive interfaces and fully digital services, removing the geographical and time constraints associated with traditional banks (Capgemini, 2020) (Mansouri,. H, Tounsadi,. H, 2021).
Boom and collaboration with Fintechs	The boom of fintech has created a favorable environment for the emergence of neobanks by providing the necessary technologies, innovative solutions, and digital culture to redefine the future of banking. Collaborating with fintechs has allowed neobanks to position themselves as credible and modern alternatives to traditional banks (BCG, 2021).
Distrust of traditional banks	The 2008 financial crisis eroded public trust in traditional banks. Consumers began seeking more transparent alternatives that cater to their needs. Neobanks, often perceived as more ethical and less bureaucratic, leveraged this distrust to position themselves as innovative and customer-centric actors (Deloitte, 2019).
Access to underserved markets	Neobanks have also emerged in response to the needs of underserved populations by traditional banks, particularly young people, freelancers, and small businesses. These groups, often seen as less profitable by traditional banks, find tailored solutions in neobanks to meet their specific needs (World Bank, 2020).
Favorable regulation	In several regions, regulators have adopted measures to encourage innovation in the financial sector. For example, in Europe, the Payment Services Directive (PSD2) facilitated the entry of new actors, including neobanks, by promoting data openness and competition (European Banking Authority, 2018). In the United States, the Office of the Comptroller of the Currency (OCC) also implemented regulatory frameworks to support fintechs.

Source: Compiled by the author from the cited references.

2.2. Definitions and characteristics of neobanks

The following definitions and qualifications are, in our view, among the most comprehensive and representative of the concept of neobanks:

Neobanks are fully digital banks that adopt a customer-centric approach, offering simple and quick solutions, often specializing in niche financial services (Burnmark, 2020).

Neobanks are def

ined as digital financial institutions born in the mobile technology era, offering banking services primarily via mobile applications and online platforms, bypassing the traditional physical branch model (Philippon, T., 2019).

A neobank is a digital platform, typically without its own banking license, that provides modern, flexible, and often personalized financial services through an architecture based on Application Programming Interfaces (APIs) and partnerships with traditional financial institutions (Zetzsche, D. A., and al., 2017).

In most cases, neobanks operate under a payment institution license rather than a full banking license. This allows them to offer dematerialized payment services, such as managing current accounts, mobile payments, and money transfers, while avoiding the more stringent regulatory requirements associated with traditional banking licenses (Drasch, B. J., andal., 2018).

Neobanks are tech startups in the banking sector that focus on user experience, transparency, and lower costs to compete with large traditional banks (Puschmann, T., 2017).

Neobanks are fully digital financial institutions that stand out for their innovative business model, notably based on a freemium strategy. This approach involves offering basic banking services for free, such as account opening, transfers, and payments, while offering premium paid features, such as high-end bank cards, additional insurance, or personalized services. This model allows them to attract a large customer base while generating additional revenue through the sale of advanced services (Nicoletti, B*., 2017).

These definitions show a convergence around the idea that neobanks represent an evolution focused on:

- *Digitization (primarily centered on mobile applications) and the absence of physical branches;*

- *Lower costs compared to traditional banks;*
- *Advanced and innovative technology (use of APIs, artificial intelligence, etc.);*
- *Customers (niche strategy: young and tech-savvy) with personalized services;*
- *The use of a payment license, in general, and in some cases a banking license (which may be either their own, depending on the country's regulations, or held by a traditional bank in a partnership);*
- *The prioritization of the freemium strategy, followed by a premium strategy.*

2.3. Typologies of neobanks

Neobanks can be classified into different categories based on their: operational model, services offered, technological approach, target audience, etc. Below an overview of the main categories of neobanks:

Table 2. Categories of neobanks

Payment neobanks	primarily focus on payment and money transfer services. They offer features such as mobile payments, fast international transfers, and virtual cards (Milian, E. Z., and al., 2019). Example: Wise (UK-based).
Challenger neobanks	collaborate with existing banking institutions. They use traditional banking infrastructure to offer modern digital services, enabling them to quickly launch products without waiting for their own licenses (Haddad, C., Hornuf, L., 2019). Example: Chime (US-based).
Full-Stack neobanks	hold their own banking license, allowing them to provide a full range of banking services, including deposits, loans, and payments. They operate independently of traditional banks (Gomber, P., and al., 2018). Example: Revolut (UK-based, operating as such in the UK, Australia, Lithuania, …).

Crypto neobanks	focus on financial services related to cryptocurrencies, offering cryptocurrency accounts, exchanges, and digital wallets. They target users interested in the cryptocurrency economy (Zetzsche, D. A., and al., 2017) (Benyezza, C., Bouketir, D., 2023). Example: Coinbase (US-based, operating in over 100 countries such as the US, Canada, etc.).
Embedded neobanks	integrate their services directly into other non-financial applications, such as e-commerce platforms or business management apps, offering financial services in a seamless and contextual manner (Lee, I., Shin, Y. J., 2018). Example: Amazon Pay (US-based, integrated directly into the Amazon ecosystem and other partner platforms, operating in countries like India).
Niche neobanks	target specific market segments, such as students, freelancers, or Small and Medium Enterprises (SMEs). They tailor their offerings to meet the particular needs of these groups (Gomber, P., et al., 2017). Example: Qonto (French-based, targeting SMEs and freelancers), Greenlight (US-based, targeting children and teenagers—and their parents).
Sustainable neobanks	stand out for their commitment to ethics and sustainability practices. They invest in sustainable projects, offer responsible banking services, and emphasize transparency and social responsibility (Feyen, E., et al., 2021). Example: Tomorrow (German-based).

Source: Compiled by the author from the cited references.

Neobanks have redefined the banking landscape by leveraging technological innovations and a customer-centric approach. With their 100% digital operations, they provide simplified, flexible, and often lower-cost banking services. By capitalizing on an open architecture and strategic partnerships, they meet the demands of a market seeking speed and agility. In this dynamic banking transformation, a particular trend has emerged: the rise of sustainable neobanks, especially green neobanks. These emerging actors go beyond digital innovation to integrate an ecological mission at the core of their strategy.

The following points explore this specific category of neobanks and highlight their contribution to a more environmentally respectful and sustainable finance model.

3. Where digital meets sustainability: The rise of green neobanks

The growth of green neobanks builds on the overall rise of neobanks while addressing specific environmental challenges. This section explores the drivers behind their emergence, followed by an overview of the distinctive features that set them apart from traditional neobanks and the services they offer.

Thus providing insights into the following questions:

- How can a green neobank be defined, and what specific factors contributed to its emergence?
- How do green neobanks contribute to the transition toward sustainable finance?

3.1. Context for the emergence of green neobanks

Green neobanks, also known as eco-friendly banks, began to emerge around the mid-2010s. Their rise is linked not only to the overall growth of neobanks discussed earlier but also to a context shaped by the following specific key factors (Feyen, E., et al., 2021):

Table 3. Catalysts for the emergence of green neobanks

Environmental awareness	has increased over the past few decades, largely driven by alarming scientific reports on climate change (e.g., the Intergovernmental Panel on Climate Change (IPCC) assessment reports). This awareness has influenced consumer and business behavior, driving the search for more sustainable solutions across all sectors, including finance and banking (IPCC, 2018).
Governmental and international regulations	implemented, by governments and international organizations, to encourage sustainable practices. For instance, the 2015 Paris Agreement was a major catalyst for the adoption of strict environmental policies (UNFCCC, 2015). In Europe, the European Green Deal aims to make the EU the first carbon-neutral continent by 2050 (European Commission, 2019). These regulations have created a conducive environment for the emergence of green neobanks.

Consumer demand	Consumers, particularly millennials and Generation Z, are increasingly concerned about the environmental impact of their financial choices. A 2020 study by Deloitte found that 43% of millennials consider environmental impact a key factor in their investment decisions (Deloitte, 2020). This growing demand for sustainable financial products has driven financial institutions to innovate and offer green solutions.

Source: Compiled by the author from the cited references.

As no precise data could be found on the number of green neobanks worldwide, we carried out our own investigation. Starting from the list of 314 active neobanks referenced on the "NeoBanques.app" website, we reviewed the official websites of each to analyze their business models and the services they offer. This analysis allowed us to identify 28 neobanks with a clear environmental focus (green neobanks), representing just over 8% of the total listed (an overview of this selection is presented in section 3.4).

3.2. Definitions and characteristics of green neobanks

The following definitions and qualifications are, in our opinion, among the most relevant and comprehensive for understanding the concept of green neobanks:

Green neobanks are fully digital financial institutions that focus on environmentally friendly banking practices. They primarily operate online, without physical branches, which reduces their carbon footprint. These banks integrate Environmental, Social, and Governance (ESG) criteria into their investment decisions and offer financial products that support sustainable projects. They stand out for their commitment to sustainability, transparency, and their use of innovative technologies. They often collaborate with environmental organizations, innovative startups, and traditional financial institutions to strengthen their impact and provide concrete and measurable solutions (Bocken N. M. P., and al., 2014).

Green neobanks distinguish themselves by their commitment to environmental protection. They invest in ecological projects such as renewable energy, energy efficiency, and biodiversity conservation (Weber, O., & Feltmate, B., 2016).

Green neobanks are neobanks that provide their clients with detailed information about the environmental impact of their transactions and investments. This often includes reports on the carbon emissions avoided or offset through their services. Transparency is therefore a key characteristic (Tapscott. D., & Tapscott. A., 2016).

Green neobanks also play an educational role by raising awareness among their clients about environmental issues. They provide resources and tools to help clients understand the impact of their financial choices on the environment. For example, the french neobank Helios offers carbon footprint calculators and advice on reducing environmental impact (Bouma, J. J., and al., 2017).

These definitions lead to the idea that green neobanks represent an evolution from traditional neobanks, focused on considering:

- *ESG criteria, particularly environmental commitment;*
- *Customer segmentation (targeting environmentally conscious consumers);*
- *Sustainable banking services;*
- *Collaborations and partnerships;*
- *Value proposition (positively contributing to the environment);*
- *Transparency and traceability;*
- *Education and awareness.*

3.3. Services offered by green neobanks

Green neobanks offer a range of financial services and products that allow customers to manage their finances while positively contributing to the environment. These services mainly include the following elements:

Table 4. Range of products offered by green neobanks

Green checking accounts	allow customers to manage their finances while positively contributing to the environment. They are often equipped with features such as carbon footprint tracking and options to offset carbon emissions (Tomorrow, 2024).
Sustainable credit and debit cards	made from sustainable materials such as recycled plastic or bioplastics. These cards are often linked to carbon offset or reforestation programs (Helios, 2025).
Responsible savings accounts and investments	finance sustainable projects such as renewable energy, organic farming, and biodiversity conservation (Triodos Bank, n.d.).
Green loans	finance ecological projects, such as the installation of solar panels, the purchase of electric vehicles, or energy-efficient building renovations. They are often accompanied by preferential interest rates to encourage sustainable practices (ASN Bank, n.d.).
Sustainable wealth management services	integrate ESG criteria to guide investment decisions. They include green investment portfolios, sustainable funds, and responsible investment advice (Aspiration, 2024).
Environmental impact tracking tools	help customers track and reduce their environmental impact. They include carbon footprint calculators, detailed reports on transaction impact, and advice on adopting more sustainable practices (Helios, 2025).
Carbon offset programs	allow customers to offset the carbon emissions generated by their transactions. They often include reforestation, renewable energy, and biodiversity conservation projects (Bunq, 2025).
Advisory and educational services	Through resources and tools, these services help customers to understand the environmental impact of their financial choices (Triodos Bank, n.d.).

Source: Compiled by the author from the cited references.

3.4. Concrete examples of green neobanks

At the intersection of digitalization and sustainability, green neobanks are redefining the banking sector by combining technological innovation and environmental commitment. These financial institutions adopt eco-friendly practices while offering a fully digital user experience.

In order to better understand how these green neobanks blend digital technology and sustainability, it is useful to examine their concrete initiatives. The table below lists the 28 identified green neobanks, highlighting their country of origin, year of creation, type of environmental commitment (climate-focused, reforestation and eco-products, automatic Carbon Tracking/Offsetting and circular economy), and number of users (figures as of 2024).

Table 5. Identified green neobanks and their eco-responsible practices

Climate-focused neobanks (Fossil fuel free)
Aspiration (USA, 2013) - No oil funding + tree planting (5M+ users)
Tomorrow (Germany, 2018) - 100% renewable energy investments (500.000+ users)
Green-Got (France, 2019) - Blocks payments to polluting companies (200.000+ users)
OnlyOne (France, 2019) - Automatic carbon offsetting (150.000+ users)
Helios (France, 2020) - Complete fossil fuel exclusion (300.000+ users)
Greenpenny (USA, 2020) - Solar/wind energy loans (25.000+ users)
Ando Money (USA, 2020) - 100% clean energy funding (250.000+ users)
Meni Bank (Iceland, 2021) - Geothermal energy financing (20.000+ users)
GreenArc (UAE, 2021) - Middle East's first green neobank (15.000+ users)
Reforestation & Eco-products
Bunq (Netherlands, 2012) - *Plants 1 tree per €100 spent* (9M+ users)
Goodvest (France, 2020) - Sustainable life insurance (40.000+ users)
Oxbury Bank (UK, 2020) - Sustainable agriculture focus (30.000+ users)
TreeCard (UK, 2020) - Wooden debit card funding reforestation (1M+ users)
Ekster (Netherlands, 2020) - Eco-designed cards (500.000+ users)
Banco Pérola (Brazil, 2020) - Amazon rainforest protection (50.000+ users)
Automatic carbon tracking/Offsetting
Monzo (UK, 2015) - Optional carbon offsetting for transactions (8M+ users)
Doconomy (Sweden, 2018) - Real-time CO_2 calculator (300.000+ users)

Bright (USA, 2019) - AI-powered eco-spending optimization (200.000+ users) **Tred** (UK, 2021) - "Zero-emission" card blocking polluters (100.000+ users) **Neo** (Canada, 2021) - Sustainable cashback rewards (1M+ users) **Carbon Pay** (Singapore, 2022) - Automatic carbon offsetting (10.000+ users)
Circular economy **Change** (Greece, 2021) - Circular business financing (50.000+ users) **Victo** (Belgium, 2022) - Zero-waste operations (10.000+ users) **Spring** (Austria, 2022) - 100% sustainable mobile banking (5.000+ users) **Revolut Green** (UK, 2023) - Sustainable savings accounts (500.000+ green users) **Alma** (Spain, 2023) - Green real estate loans (70.000+ users)
Recent innovators **Zopeful** (UK, 2023) - Eco-banking + mental health (5.000+ users) **Pave Bank** (Singapore, 2024) - Blockchain carbon tracking (New launch - data NA)

Source: Compiled by the author from: (NeoBanques.app, 2025).

This list illustrates how these innovative financial institutions, the green neobanks, integrate environmental actions into their business models, thus contributing to the transition towards a more sustainable finance.

4. CONCLUSION

The objective of this paper was to explore the phenomenon of green neobanks as an innovation in the banking sector in the era of digitalization and sustainability. To achieve this goal, a qualitative methodology, based on documentary research as a data collection tool, was used.

The study highlighted that green neobanks emergence is not coincidental but rather the result of converging forces: increasing environmental awareness, the rapid development of fintech, evolving regulatory frameworks, and rising consumer expectations for responsible and convenient financial solutions. These institutions distinguish themselves by offering dematerialized, user-centric services such as: eco-friendly payment cards, carbon footprint tracking, and green investment options that directly support sustainability goals.

The findings of this paper confirm that green neobanks are not just digital banks with a green marketing layer. Instead, they actively contribute to sustainable finance by integrating environmental responsibility into their

business models and by promoting the financing of environmentally responsible initiatives. Through the examples of Bunq, Menzo, and Tomorrow, we see concrete illustrations of how green neobanks can innovate through both their product offering and their environmental commitments.

From a practical standpoint**,** regulators and policymakers should consider fostering the development of green neobanks through supportive legal frameworks and incentive schemes.

Financial institutions interested in transitioning toward greener practices can draw inspiration from the strategies employed by these actors, particularly in integrating sustainability into customer experiences and investment portfolios.

For entrepreneurs and fintech developers, green neobanks offer a promising path to combine digital innovation with impact-driven finance.

Ultimately, green neobanks have the potential to reshape the financial landscape by aligning digitalization with ecological responsibility; making finance not only smarter and more inclusive but also more sustainable.

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