



# The Alternative Lending Market: Enhancing Effectiveness and Efficiency in Peer-to-peer Lending Platform Ecosystems

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## **Abstract**

The rapid growth of platform ecosystems presents opportunities and challenges for the alternative lending industry. This study investigates managerial strategies linked to enhancing efficiency and effectiveness within these platform ecosystems. Drawing on a comprehensive literature review and qualitative interviews with ten industry experts, this research explores new avenues for products, services, and collaborative partnerships within peer-to-peer lending platform ecosystems. The findings reveal that managers have the potential to elevate efficiency through the advancement of a platform's technical facets and the integration of innovative technologies into the lending platform. Additionally, managers can pursue novel lending products, orchestrate new strategic partnerships, or engage in service collaborations to further enhance overall effectiveness of the peer-to-peer lending platform ecosystem. This research makes a significant contribution to the field by providing actionable insights for the various participants within a platform ecosystem. By embracing these recommendations, managers can navigate the evolving landscape of peer-to-peer lending, ultimately promoting sustainable growth and stability.

**Keywords:** Peer-To-Peer Lending, Platform Ecosystems, Growth Strategies, Efficiency, Effectiveness, Digital Platforms, Inclusivity, Innovation.

**Title:** How Can Managers Enhance Efficiency and Effectiveness in Peer-to-Peer Lending Platform Ecosystems?

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## **Sumário**

O rápido crescimento dos ecossistemas de plataformas apresenta oportunidades e desafios para o sector dos empréstimos peer-to-peer. Este estudo investiga estratégias de gestão ligadas ao aumento da eficiência e da eficácia no âmbito destes ecossistemas de plataformas. Com base numa análise exaustiva da literatura e em entrevistas qualitativas com especialistas do sector, esta investigação explora novas vias para produtos, serviços e parcerias de colaboração no âmbito dos ecossistemas de plataformas de empréstimo entre pares. Os resultados revelam que os gestores têm o potencial de elevar a eficiência através do avanço das facetas técnicas de uma plataforma e da integração de tecnologias inovadoras na plataforma de empréstimos. Além disso, os gestores podem procurar novos produtos de empréstimo, orquestrar novas parcerias estratégicas ou envolver-se em colaborações de serviços para melhorar ainda mais a eficácia global do ecossistema da plataforma de empréstimo entre pares. Esta investigação dá um contributo significativo para este domínio, fornecendo informações úteis para os vários participantes num ecossistema de plataformas. Ao adotar estas recomendações, é possível navegar na paisagem em evolução dos empréstimos entre pares, promovendo, em última análise, o crescimento sustentável e a estabilidade.

**Palavras-chave:** Empréstimos entre pares, Ecossistemas de plataformas, Estratégias de crescimento, Eficiência, Eficácia, Plataformas digitais, Inclusão, Inovação.

**Título:** Como podem os gestores aumentar a eficiência e a eficácia nos ecossistemas de plataformas de empréstimo entre pares?

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"Traditional banks, much like labour laws, tend to accumulate regulations over time, making it difficult to remove underlying inefficiencies. Banks can sometimes be inefficient not out of choice, but due to regulatory obligations."

**Grégoire de Lestapis,  
Chairman October Spain**

## **1. Introduction**

Since the global financial crisis of 2008, banks' lending practices have undergone significant changes, leading to a more cautious approach to lending (Bańkowska, 2020). This shift has had a direct impact on individuals and small businesses, with many finding it increasingly difficult to secure loans from traditional banking institutions (Bańkowska, 2020). Small and medium-sized enterprises (SMEs) are often perceived as having more limitations than larger firms, which results in them being viewed as less desirable borrowers. This is due to SME's limited financial reporting requirements and their struggles to provide high-quality collateral (Cahery et al., 2017; Abbasi et al., 2021). In this context, several academics have focused on analysing the determinants and effects of bank lending constraints on businesses since the financial meltdown of 2008-2009 (Artola & Genre, 2011; Ferrando & Griesshaber, 2011; Popov & Udell, 2012). After the Great Recession, advances in information technology and a heavier post-crisis regulatory burden gave rise to innovative lending products and services offered by fintech and big tech credit companies (Michlitsch, 2021; De Roure et al., 2022). These new forms of credit have been identified in the literature as "fintech credit" (FSB and CGFS, 2017), "debt-based alternative finance" (Wardrop et al., 2015), or "alternative online lending" (Cahery et al., 2017). These innovative solutions include intermediaries, such as peer-to-peer or marketplace lending, balance sheet lending, and invoice trading, among others. (Cornelli et al., 2023).

While traditional bank financing remains the most common source of funding for small and medium-sized enterprises, there has been a growing trend toward alternative financing options in recent years (Obiora & Csordás, 2017). The fintech credit market exhibited a notable valuation of \$449.89 billion in the year 2020 (Goswami et al., 2021). With its continuous advancements in financial technology, projections indicate that by 2030, the alternative lending market could potentially attain a market value of \$4,957.16 billion. (Goswami et al., 2021).

There could be a significant shift in the credit creation landscape as fintech credit is poised to become a major contributor (Agarwal, 2020). One reason for the non-conventional lending sector increasingly gaining market share is partly due to their exemption from regulatory oversight on capital reserves and liquidity (Feyen et al., 2023). However, it is not guaranteed to remain this way. Shifts in regulations and political sentiment could lead to a reassessment of this advantage. Furthermore, financial catalysts have also contributed to the growth of the alternative lending industry. Technologies such as online payments, blockchain, AI, cloud computing, and mobile apps, have improved the consumer lending experience by enabling faster, more secure, and data-driven lending decisions (Jucevičius et al., 2021). Finally, digital platforms can scale rapidly and cost-effectively. Unlike traditional lending institutions which often require significant investments in physical infrastructure and human resources, digital platforms can utilize technology to achieve expansion with minimal additional investment costs (FSB and CGFS, 2017).

Fintech credit providers have been successful in reaching previously underserved borrowers who may have been turned away by traditional lenders. This is primarily due to the lower operating costs associated with financial technology innovation and the ability of fintech platforms to operate outside the prudential regulatory net (Bachmann, 2011). However, significant portions of consumers and small businesses still lack access to financing options (Gerhard et al., 2021; Barua et al., 2019). Certain lending marketplaces have been able to offer minimum and maximum loan amounts that can range from a few dollars to a million to consumers and businesses (Shneor et al., 2020). In terms of interest rates, it can be challenging to make precise comparisons between the ones paid by fintech credit borrowers and those paid by traditional bank borrowers due to incomplete data and possible differences in credit risk (FSB and CGFS, 2017). For example, several studies have indicated that non-traditional consumer loans tend to have lower interest rates than bank loans (Demyanyk, 2016). Yet, the (U.S. Department of Treasury, 2016) highlights that alternative consumer lending annual interest rates can vary widely, ranging from 6% to 36%. In the context of small businesses, they typically pay lower interest rates on traditional loans compared to alternative loans. According to data from last year, the average fixed interest rate for a traditional business loan was 4.76%, with a variable rate of 5.35%. In contrast, interest rates for online business loans ranged from 11% to as high as 44% (Berry-Johnson, 2023).

For lenders, alternative lending can be a compelling investment strategy. Non-traditional loans may provide a potent combination of attractive returns, which differs from the conventional fixed-income universe. Thereupon, it can be considered as diversifying versus other major asset classes because credit exposure often originates from individuals as opposed to corporations and governments. (Michlitsch, 2021). Despite the potential for high earnings and diversification, fintech credit can create some issues for lenders such as information asymmetry, inadequate credit assessment, and potential high default risk (Purkayastha & Tuzlukaya, 2021).

Finally, as the fintech credit industry becomes increasingly digitized, it is crucial for lenders in the alternative lending market to effectively address regulatory challenges, fierce competition, technology advancements, and risk management to sustain growth. Organizations that lack a clear action plan to maximize their growth potential and to fortify their strategic moat against potential risks, peril being left vulnerable to rivals who implement the right practices. Therefore, where triumphant outcomes derive not solely from innovation but equally from strategic initiatives, this research will seek to explore the potential of developing a platform ecosystem as a growth strategy for peer-to-peer lending companies. This thesis is initially organized around an industry analysis of peer-to-peer lending. It then delves into exploratory research focused on the strategic decisions involved in enhancing a peer-to-peer lending platform ecosystem. The rationale for selecting the peer-to-peer lending industry is rooted in empirical evidence. This is demonstrated by the popularity of peer-to-peer lending as the most used lending scheme when compared to other alternative models. (Ziegler et al., 2021). Moreover, the peer-to-peer lending industry holds an untapped potential (Agarwal, 2020; Goswami et al., 2021), driven by its unique ability to democratize access to credit, foster financial inclusion, and harness technological innovation.

## 2. Literature Review

In the quickly advancing realm of technology, it is typical for businesses to go head-to-head in a battle for supremacy. Regarding platform ecosystems, Apple has consistently occupied a leading position with iOS<sup>1</sup>. Yet, explaining the concept of a platform ecosystem can be challenging due to its intricate nature. As a first step, it is valuable to clarify the terminologies employed in the context of platform ecosystems (Jacobides, 2022).

### 2.1. Definition of Platform Ecosystems

#### 2.1.1. Platforms

One of the earliest examples of platforms is village markets where vendors gather to showcase their products while clients explore and make purchases (Shipilov, 2020). Some studies have defined platforms on a non-technical view that presents them as a market that facilitates transactions in form of business-to-business, business-to-customer, or even customer-to-customer (Koh and Fichman 2010; Tan et al. 2015). From a technological standpoint, contemporary platforms are typically viewed as software-based systems (Tiwana, 2013). In this modern context, vendors are individuals or businesses providing products, services, or content on the platform, while clients, access the platform to explore, and use the offerings provided, resulting in a dynamic ecosystem of interactions through the platform's interface. In general, most digital platforms are constructed using advanced information technology, incorporating elements such as cloud computing, in-memory databases, and data solutions for big data (Hein et al., 2020). In the literature, there are different types of platforms and approaches to bringing these to life (Sahai, 2022). Apple's operating system can be regarded as a software-based platform that encompasses an extensive array of applications (apps) such as entertainment, social media, and productivity tools. Apple also delivers services on iOS such as iCloud for Storage, Apple TV for streaming content, and Apple Pay for digital payments (Apple, n.d.) Developers can leverage iOS APIs<sup>2</sup> to design and tailor applications for a large audience of users (Verma & Sambhav, 2020).

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<sup>1</sup> iOS, a mobile operating system developed by Apple and exclusively used for its hardware.

<sup>2</sup> Application Programming Interfaces is a set of defined rules that enable different applications to communicate with each other. What is an Application Programming Interface (API)? | IBM. (n.d.). <https://www.ibm.com/topics/api>

### **2.1.2. Ecosystems**

The concept of an ecosystem has long been present in strategic thinking (Moore, 1993; Iansiti & Levien, 2004; Dhanaraj, 2006), but in recent times, it has surged in popularity. When examining the titles or abstracts of leading strategy papers, a search for the term "ecosystem" reveals a sevenfold increase in its frequency over the past five years (Jacobides et al., 2018). The term ecosystem originates from biology and is defined as a community of organisms, their physical environment, and all their interrelationships in a particular unit of space (Encyclopaedia Britannica, 2023). To draw a parallelism between a biological and a business ecosystem, we can consider the following analogy: a group of connected products and services and the actors who work collaboratively to produce them (Jacobides, 2022). Apple's ecosystem around iOS is a prime example. Their hardware products, including iPhones, iPads, Watches, and AirPods, are designed to integrate seamlessly with their range of services like iCloud, Apple Music, and Apple Pay. Within the ecosystem, actors take the role of complementors; They actively participate in the co-creation of complementary products or services that enhance the value and functionality of the main platform (Alt et al., 2010). An ecosystem is an appealing environment for different complementors due to its low barriers to entry, minimal development costs, and immediate access to many potential customers (Deilen & Wiesche, 2021a). In August 2019, a collaboration between Goldman Sachs and Apple resulted in the introduction of the Apple card designed to empower consumers in leading a more financially responsible life. Goldman Sachs, as a complementor, took the role of card issuer, handling underwriting, customer service, and regulatory compliance (Goldman Sachs, n.d.).

### **2.1.3. Platform Ecosystems**

In simple terms, platforms are made of technology while ecosystems encompass services, products, and organizations (Jacobides, 2022). Within this context, a platform ecosystem embodies a community of diverse actors, including platform owners, customers, partners, developers, regulators, and more, hailing from various industries. These actors collaborate through digital platforms, all while operating independently of formal contractual ties (Cennamo et al., 2018). They exhibit a significant level of interdependence, working hand in hand to create value through resource sharing, co-creation, and learning. As a final example, Apple has created a digital environment where different applications, devices, services, and

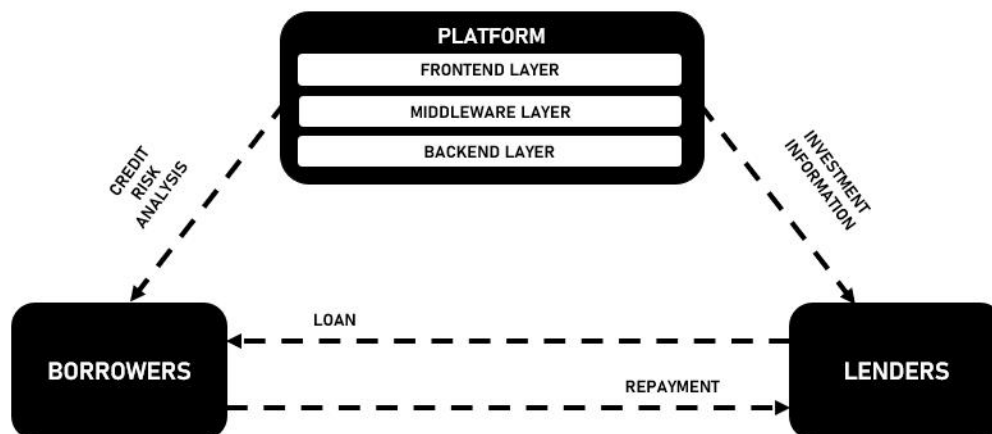
people work together to provide an integrated and convenient user experience. Apple's platform ecosystem is still widely regarded as one of the most effective tools for locking in customers, creating opportunities for revenue streams, and having substantial control over its user experience (Erwinkarim, 2022).

The recent emergence of platform ecosystems in the field of business and technology underscores the importance of comprehending their evolution, definition, and characteristics crucial to drive scalability and fuel market expansion in the peer-to-peer lending industry. This literature review will first discuss the software architecture of the peer-to-peer lending platform. Then, it will examine a peer-to-peer lending platform ecosystem.

## 2.2. The Peer-to-peer Lending Platform

A peer-to-peer lending platform enables borrowers to obtain loans without the involvement of traditional financial institutions through a digital matchmaking platform (Bachmann et al. 2011; Philippon 2016) The mechanics are as follows:

Figure 1: Conceptual Framework: The Peer-to-Peer Lending Platform



Source: Committee on the Global Financial System & Financial Stability Board, (2017).

Prospective borrowers apply and register for a loan on the peer-to-peer lending platform. This research categorizes three types of loans. First, a **consumer loan** refers to a financial arrangement where a creditor extends credit to an individual consumer. These loans are typically intended for personal use, such as a mortgage, financing education, buying a vehicle, or covering day-to-day expenses (Corporate Finance Institute, 2022). peer-to-peer consumer loans are commonly unsecured, meaning they do not require collateral. Second, **business loans** typically involve peer-to-peer funding for SMEs, without requiring collateral. Consequently, the loan approval process often focuses on assessing a business's growth strategy or development plan. Many loan providers employ business analysts to mitigate risk as part of their evaluation panels (Macdonald, 2022). Finally, **property loans** are a specialized form of peer-to-peer lending that funds property development. They can be used for various purposes, such as home improvement or expanding business ventures (Macdonald, 2022). Unlike mortgages, property loans typically have shorter terms and may not always require collateral for security. After registering, borrowers disclose their credit history, which the platform verifies and approves (credit risk analysis) while prospective creditors can choose to fund loans available on the market (investment information). Peer-to-peer lending platforms allows borrowers and creditors to establish loan contracts directly while keeping funds and loan repayments separate from the platform's account. Additionally, the platform operates revenue from fees levied on the transacting parties such as account set-up, loan origination, and ongoing loan repayment.

### **2.2.1. Peer-to-Peer Platform Lending Layered Architecture**

Understanding a layered architecture is essential for a platform ecosystem strategy, as it paves the way for optimizing the platform's constituent layers through in-house enhancements or strategic outsourcing. A platform architecture typically consists of three distinct layers: frontend, middleware, and backend (Malakani et al., 2021).

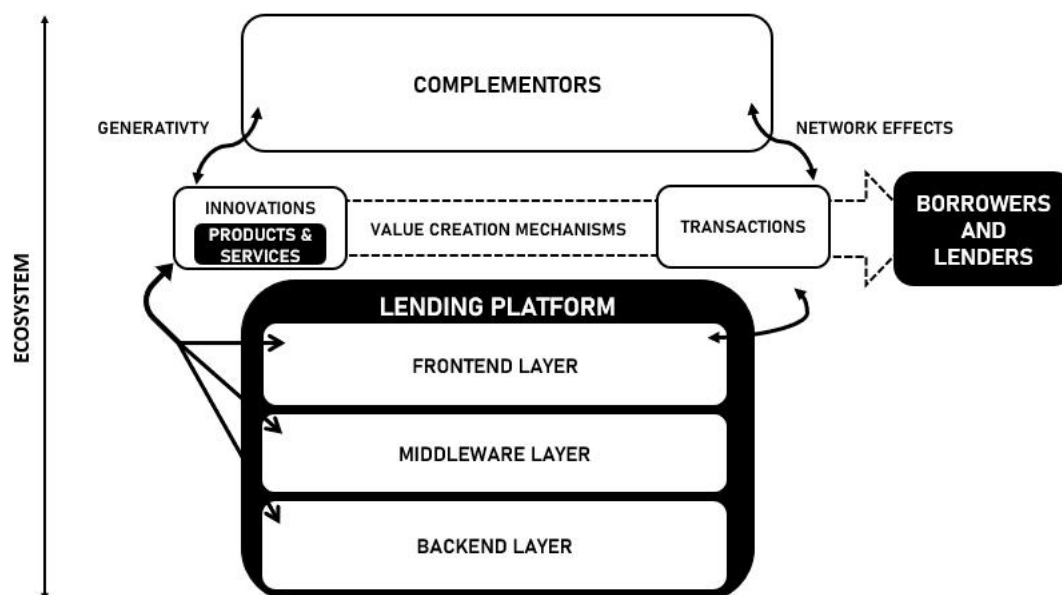
Table 1: Peer-to-Peer Platform Lending Layered Architecture: Definitions

Layer	Definition	Component(s)
Frontend Layer	is responsible for the consumer’s interaction with the lending software and facilitates the graphical representation of banking solutions (Roid et al., n.d.).	<b>The user interface</b> encompasses the collection of methods through which individuals (the users) engage with a machine device, computer software, or other complex instrument (Blair-Early & Zender, 2008).
Middleware Layer	acts as a mediator between the front-end layer and the back-end data. Moreover, it also includes functionality for security and customer authentication (Roid et al., n.d.).	<b>Security components</b> relate to regulatory aspects, compliance, and the use of technology to secure the platform and protect its customers (Roid et al., n.d.).
Backend Layer	is the underlying technology, databases, algorithms, and processes that support the platform's functionalities (Zutshi & Grilo, 2019).	<p><b>Core lending systems</b> relate to the software applications that form the foundation of a financial institution's lending operations. These systems are the backbone for managing and facilitating the entire lending lifecycle, from loan origination to servicing and repayment (Roid et al., n.d.).</p> <ul style="list-style-type: none"> <li><b>a) Loan Origination:</b> refers to the systems employed by platforms to evaluate and approve initial borrower information for different types of loans (Kopp, 2023).</li> <li><b>b) Loan Underwriting:</b> a system that ensures that a loan applicant meets all financial requirements to set the terms of the approved loan (Banton, 2023)</li> <li><b>c) Loan Servicing and Management:</b> it manages all aspects of the loan lifecycle from application to repayment, encompassing customer details, offers, and collections (Ab, 2023).</li> </ul> <p><b>Data and Analytics:</b> this part of the backend layer comprises transactional data used for analyzing the types of lending activities customers engage in and predicting their future actions in the lending process (Roid et al., n.d.).</p>

NB: It's worth noting that while the components highlighted in the table above represent a significant aspect of the Layered Architecture in Peer-to-Peer Platform Lending, there are additional components that exist but may not have been explicitly mentioned in the table. These unmentioned components could also contribute to the overall functionality and effectiveness of the peer-to-peer lending system. The components stated here have been referenced by the interview participants as indispensable elements within the realm of peer-to-peer lending.

## 2.2.2. Conceptual Framework: Peer-to-Peer Lending Platform Ecosystem

Figure 2: Conceptual Framework: Peer-to-Peer Lending Platform Ecosystem



The framework was adapted from Hein et al.'s (2020)

Successful digital platforms enable and promote mechanisms that generate value within their platform ecosystem. The first value creating mechanism, called generativity, emphasizes the platform's ability to engage complementors from diverse backgrounds in proactively shaping and further developing the lending platform's capabilities (Nambisan et al., 2019). Complementors, leveraging their expertise, collaborate to generate value-adding products and services that can be integrated across the various layers of the lending platform. For example, a credit scoring service provider offering specialized algorithms to assess the credit worthiness of potential borrowers. The second value-creating mechanism revolves around transactions, where digital platforms facilitate interactions and value exchange between complementors and borrowers and lenders in a mutually beneficial manner (Hein et al., 2020). An important characteristic of this transaction mechanism is known as 'Network Effects' (Economides & Tåg, 2012; Van Alstyne & Parker, 2017). As the number of complementors within the platform increases, it enhances its appeal to borrowers and lenders, and reciprocally, a greater customer base attracts more complementors (Zutshi & Grilo, 2019).

In terms of governing a platform ecosystem, two distinct situations can be identified. In the first scenario, the platform assumes the role of the orchestrator and collaborates with complementors (see fig. 2). The orchestrator acts as the central authority, providing for the end-users' core needs and establishing the guidelines for participation in the ecosystem (Jacobides, 2022). For example, a peer-to-peer lending platform takes on the role of orchestrating an array of digital payment services within its ecosystem. An illustration of this orchestration could be the integration of PayPal (complementor) as a payment gateway for the platform's network of lenders and borrowers. This integration could bolster the platform's user experience by providing a widely recognized and trusted payment solution.

In the second scenario, the platform itself can function as a complementor to another orchestrator. Here, the platform plays a supporting role, aligning its services and offerings with the strategies of other orchestrators within different ecosystems. Engaging in multiple ecosystems simultaneously enables businesses to maximize their profit potential and reach a broader customer base (Lang et al., 2021). An example of scenario two would be the integration of a peer-to-peer lending functionality within a traditional bank app. It could provide underserved customers with supplementary lending options beyond the scope of traditional bank loans.

### **3. Methodology**

#### **3.1. Introduction**

Within the scope of this study, the central question revolves around: "How can managers enhance efficiency and effectiveness within Peer-to-Peer Lending Platform Ecosystems?" This question supports the main goal of this research, which is to shed light on the strategic decisions involved in improving a platform ecosystem by identifying the critical components including products, services, and partnerships.

#### **3.2. Primary Data: Research Methodology**

This study relied on a qualitative research method given the exploratory nature of the research. In its simplest form, exploratory studies are defined as the application of qualitative research in an already existing topic to produce new ideas and hypotheses, but without being able to verify these (Elman et al., 2020). Prior exploratory research has been conducted in the field of ecosystems (Jacobides et al., 2018) and platform ecosystems (Deilen & Wiesche, 2021) which highlights the applicability of this method. This research approach was chosen with the intention of examining the recent phenomenon of platform ecosystems within the peer-to-peer industry for which there is not yet abundant literature. Its primary purpose is to unearth factors that could potentially contribute to the improvement of peer-to-peer lending platform ecosystems.

#### **3.3. Primary Data: Sample Strategy**

The purposive sampling method was employed to select individuals from the peer-to-peer lending industry who were closely associated with platforms' growth strategies. Specifically, a purposive homogeneous sampling<sup>3</sup> approach (Rai & Thapa, 2015) was utilized to target C-level executives, directors, and managers within peer-to-peer lending companies, with no regard for their departmental roles. The criteria for inclusion required firms to either offer personal loans, business loans, property loans, or end-to-end loan solutions. Due to resource limitations and challenges in participant recruitment, a sample size of ten interviewees was chosen.

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<sup>3</sup> deliberately select samples from a dataset that share similar traits

Table 2: Summary of Interview Participants

<b>Interview ID</b>	<b>Job Title</b>	<b>Company</b>	<b>Type of Loans Offered on the Platform</b>
INT01	Board Member and Chairman	October	SME Loans
INT02	Head of Operations	Iuvo Group	Consumer Loans
INT03	Chief Executive Officer	Bondora	Consumer and Business Loans
INT04	Co-Founder	SoLo Funds	Small & Short-Term Consumer Loans
INT05	Head of Loan Origination	Debitum	SME Loans
INT06	Strategy Manager	Zopa	Consumer Loans
INT07	Director Capital Markets	Crosslend	End-to-end loan solutions
INT08	Chief Operating Officer	Income Marketplace	Consumer, Real Estate, Car Loans
INT09	Board Member & Co-Founder	Debitum	SME Loans
INT10	Chief Executive Officer	Bondster	Consumer and Business Loans

### 3.4. Primary Data: Data Collection

For this study, an interview guide was developed based on the literature review's findings. Then, data was gathered through an extensive series of 10 semi-structured interviews (SSI) involving respected professionals from the peer-to-peer lending industry. All interviews were digitally recorded, their content was transcribed with the Descript software, and for some translation was also necessary. The rationale behind choosing semi-structured interviews (SSI) was to encourage open-ended responses while keeping a predetermined structure (Kakilla, 2021). Open-ended responses in exploratory research enable the discovery of new and unanticipated insights, ideas, and trends. Additionally, SSI offer the potential for reliable computer-assisted data analysis (Deterding & Waters, 2018). Comprehensive summaries of these SSI are in the Appendices.

Table 3: Interview Question Summary

QUESTION	TEXT
Q1	Can you describe your experience working in the alternative lending industry? What led you to pursue a career in this field?
Q2	How have you seen the alternative lending industry evolve since you started working in it? What trends have you observed?
Q3	How important is access to capital for alternative lending platforms? How do you as an alternative lending platform secure capital?
Q4	How do you evaluate the creditworthiness of potential borrowers and manage credit risk in the alternative lending industry?
Q5	How do you differentiate your alternative lending platform/business from competitors? What unique value proposition do you offer to borrowers and investors?
Q6	How do you ensure borrower and investor trust in the platform and maintain transparency in transactions? Nb: loan terms, underwriting, compliance, risk assessment, etc.
Q7	What do you think are the biggest challenges facing the alternative lending industry currently and in the future?
Q8	What are the fundamental factors that a peer-to-peer lending company must take into consideration to attain success in the competitive lending industry?

### 3.5. Primary Data: Data Analysis

The study followed the analytical method suggested by Saldana (2023) as it analysed the ten SSI using descriptive coding for its first cycle<sup>4</sup>. Descriptive coding summarizes the basic idea of a qualitative data's passage in a word or short phrase (Saldana, 2023). The coding was conducted using the NVivo software. Each SSI was broken down into smaller passages, which were then assigned relevant codes to capture their essence. For instance, the passage: "The alternative lending industry has not yet grown enough to become a household investment option for many investors and that needs to change (INT05)" was assigned the code "OPPORTUNITY". The reasoning behind assigning the code opportunity is that the alternative lending industry has room for growth.

Moving on, Sub coding, a second-order tag<sup>5</sup> assigned after a primary coding to enrich the entry, was used. In other words, there is the first code called "the parent" while its sub-codes will be called the "children" (Gibbs, 2007). For example, the "child code" for the previous passage (INT05) was "MAINSTREAM INVESTMENT TOOL". Indeed, the alternative lending market has room for growth because it is not yet a mainstream investment tool for all. The final "parent" – "child" code then becomes "OPPORTUNITY" - "MAINSTREAM INVESTMENT TOOL".

Thereupon, the "parent" codes, "children codes", and corresponding passages were exported to an Excel spreadsheet, making them ready for content analysis (Parveen & Showkat, 2017). Content analysis was employed to derive the key findings related to peer-to-peer lending platform ecosystems. First, the study associated "parent" codes as well as "children" codes to the Traditional Peer-to-Peer Lending Platform (Figure 1). The aim of this action was to explore if potential improvements could be made to the digital platform. Subsequently, an additional analysis was performed, linking both "parent" and "children" codes to the Peer-to-Peer Lending Platform Ecosystem (Figure 2). In this context, the goal was to understand the potential products, services and partnerships that could be organized around the platform ecosystem.

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<sup>4</sup> refers to the initial iteration where data is processed and categorized using descriptive coding.

<sup>5</sup> refers to the second iteration where data is processed and categorized using descriptive coding.

## **4. Results**

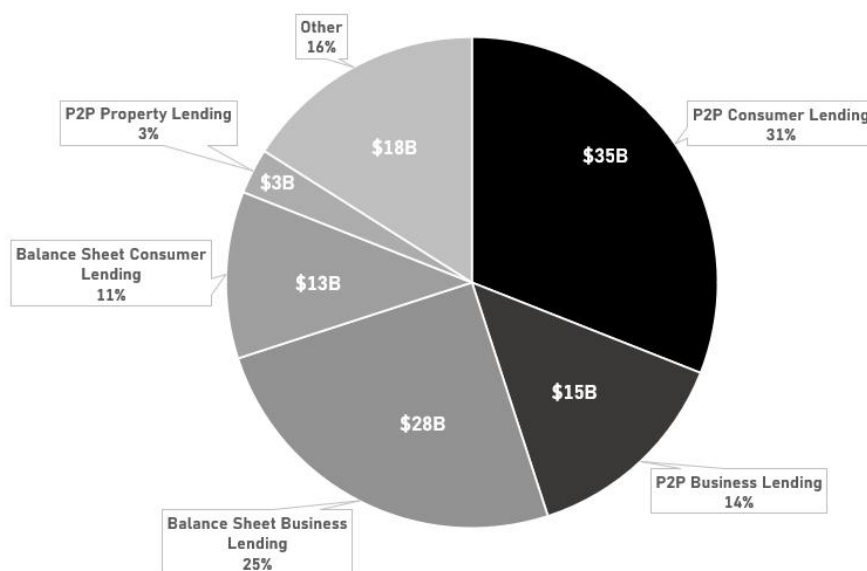
### **4.1. Secondary Data: Peer-to-Peer Lending Industry Analysis**

Prior to delving into the primary data analysis of the interviews, an industry sector analysis was undertaken. The primary goal of the industry sector analysis is to conduct an in-depth examination of a particular industry in a given economy (Aithal, 2017). Hence, secondary data from the peer-to-peer lending industry was analysed using content analysis, which is a research method for the subjective interpretation of written, verbal, or visual data (Parveen & Showkat, 2017). It resulted in a comprehensive synthesis of the key findings related to the current state of the peer-to-peer lending industry, emerging trends, challenges, and potential opportunities.

#### **Relevance of Peer-to-Peer Lending in the Alternative Market**

Peer-to-peer lending models have emerged as the most widely preferred lending models in the alternative lending landscape. In 2019, before the COVID-19 pandemic, peer-to-peer consumer lending emerged as the most widely adopted alternative lending model, capturing a substantial market size of 31%. The market volume associated with peer-to-peer consumer lending amounted to \$35 billion (Fig. 1). Then, peer-to-peer business lending secured the third position among alternative lending models, accounting for a market share of 14%. Although not as dominant as peer-to-peer consumer lending, the loan volume through peer-to-peer lending for business financing accounted for \$15 billion. Finally, peer-to-peer property lending captured a smaller market share of 3%, indicating a more specialized niche within the alternative lending sector. Despite the relatively minor market share, the loan volume associated with peer-to-peer property lending reached \$3 billion. In summary, these statistics reveal that peer-to-peer lending captures nearly half of the alternative market share, highlighting a distinct borrower preference for the peer-to-peer lending model.

Figure 3: Global Market Size and Share by Alternative Lending Models, (USD & %), 2019

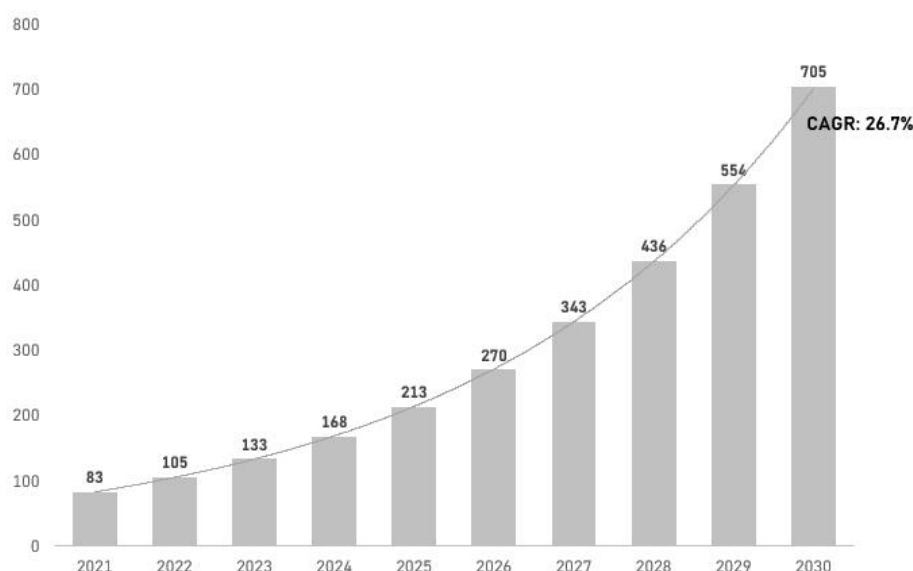


Data adapted from Ziegler, Shneor, Wenzlaff, Suresh, et al. (2021).

### Peer-to-Peer Lending Market Size and Growth Potential by 2030

Examining the period from 2021 to 2030, the following data indicates an expected compound annual growth rate (CAGR) of 26.7% (Fig. 4). Forecasting a consistent expansion and popularity of peer-to-peer lending platforms for borrowers and investors. According to forecasts, the alternative lending market is expected to experience a substantially higher CAGR of 26.7% compared to the global lending market's projected CAGR of 5.5% (Berkshire Hathaway, 2021). Projections suggest that by 2030, the peer-to-peer lending market size is estimated to reach a potential value of 705 billion USD. However, upon contrasting the peer-to-peer lending market size with the projected global lending market size for 2030 (estimated at \$11,604.7 billion) (Berkshire Hathaway, 2021), the former will account for only 6% of the global lending market volume.

Figure 4: Global Peer-to-Peer Lending Market Size Projections, (USD Billion), 2021 – 2030

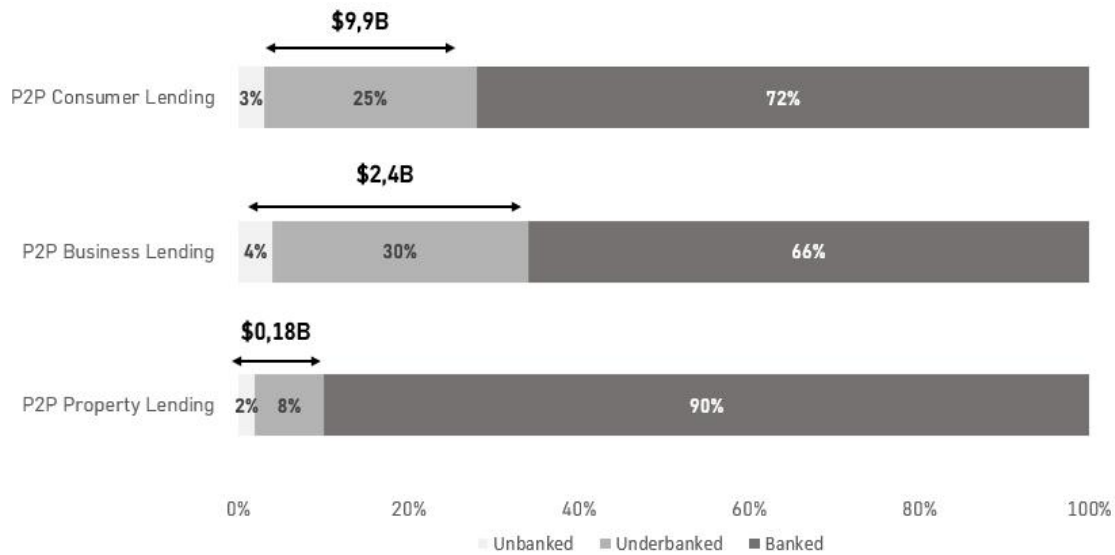


Data adapted from Precedence Research (2022)

### **Tapping into Hidden Market Potential**

Delving into the specifics of the peer-to-peer business lending sector, around 30% of individuals are categorized as underbanked. "Underbanked" refers to individuals with access to limited peer-to-peer lending services, while "unbanked" denotes the absence of access to any peer-to-peer lending services. A smaller segment, constituting 4%, can be identified as entirely unbanked. Notably, when we bring together these underbanked and unbanked segments, they present a significant market opportunity worth \$2.4 billion. Equally compelling are the observations within the peer-to-peer consumer lending arena. Here, a notable 25% of the market stands as underbanked. Furthermore, a modest 3% fall under the unbanked classification. The combined implications of these figures signify an opportunity worth \$9.9 billion. These statistics reveal avenues for innovative strategies to cater to these segments' needs and the potential for establishing a position in a multi-billion-dollar market opportunity.

Figure 5: Banking Status by Peer-to-Peer Lending Model, (%), 2020

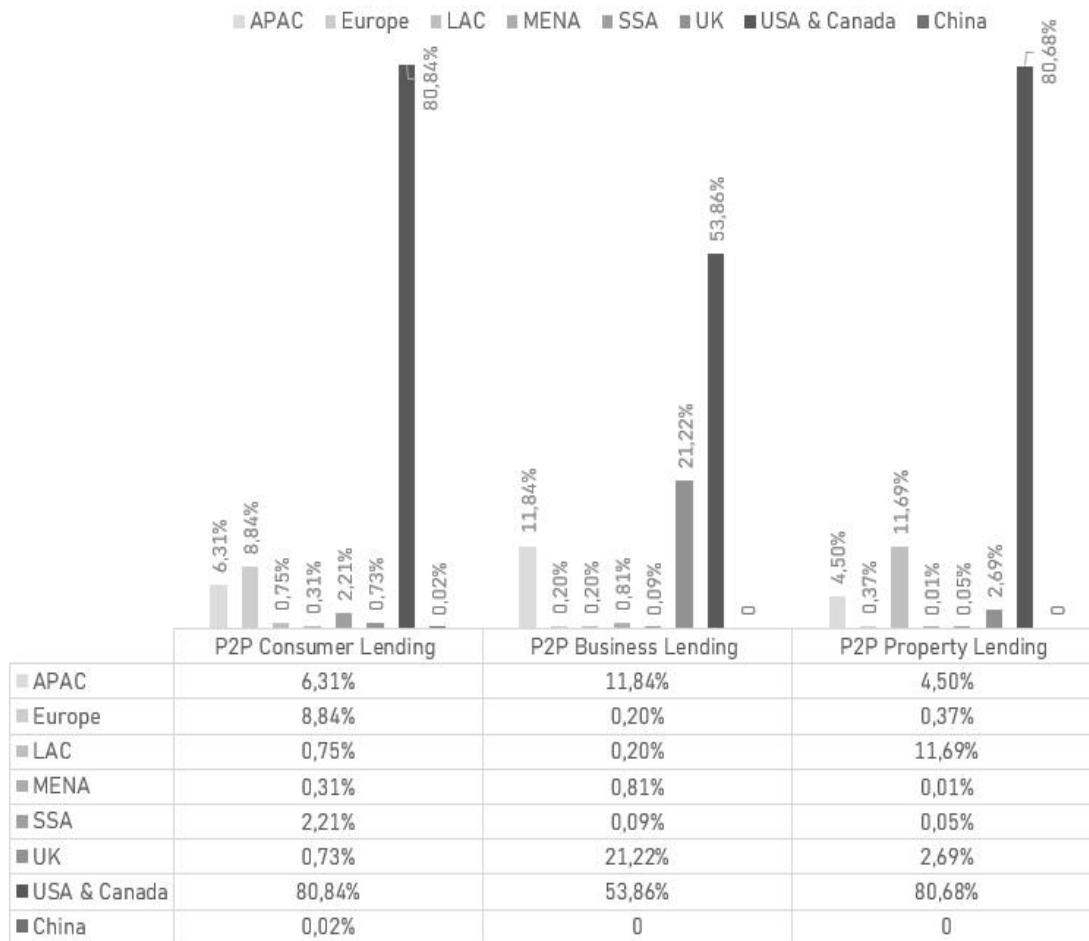


Data adapted from Ziegler, Shneor, Wenzlaff, Suresh, et al. (2021)

### Global Peer-to-Peer Lending Market Shares: Regional Insights

In 2020, peer-to-peer lending acquired substantial market share in the USA and Canada, that could be attributed to favourable regulations, mature markets, strong business sectors, and high technology penetration (80.84% consumer, 53.86% business, 80.68% property). Meanwhile, Europe and Asia-Pacific (APAC) demonstrated noteworthy consumer lending market shares, the UK and APAC displayed significant business lending market shares; notably, property lending thrived in Latin America and the Caribbean (LAC), and APAC.

Figure 6: Market Share by Peer-to-Peer Lending Model, (%), 2020



Data adapted from Ziegler, Shneor, Wenzlaff, Suresh, et al. (2021)

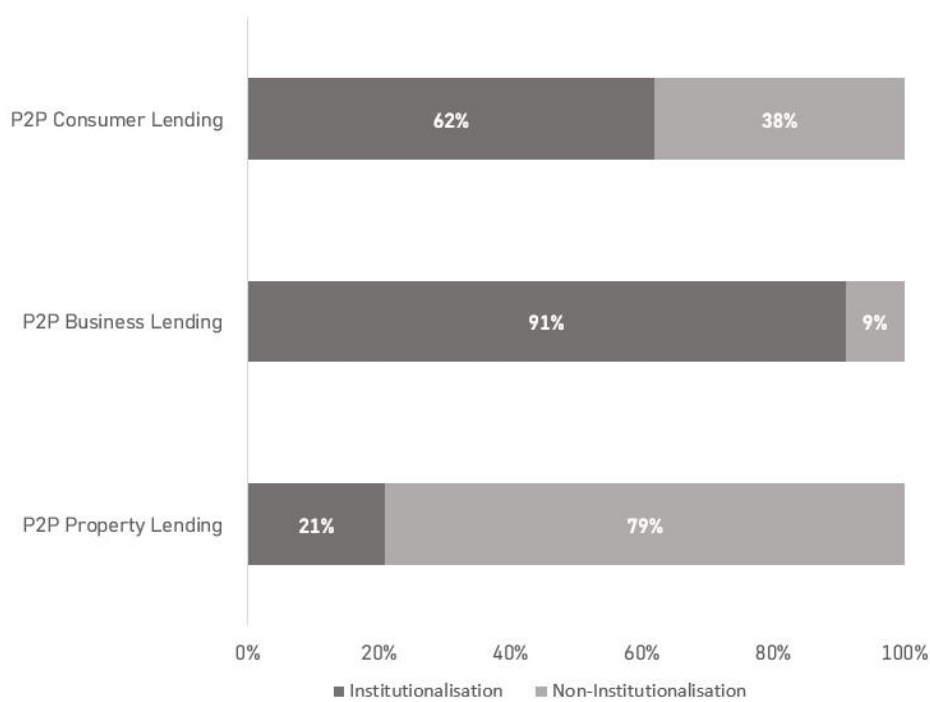
### **Institutionalising Peer-to-Peer Lending: Capturing Trends and Partnerships**

Despite the decentralized nature of peer-to-peer lending, institutionalisation<sup>6</sup> has firmly established itself within this space, with 62% of the consumer lending volumes and 91% business lending volumes being provided by institutional investors. An illustrative instance of this trend can be witnessed in government SME support schemes that heavily rely on

<sup>6</sup> Institutionalisation in this context refers to the involvement of established financial entities, such as pension funds, banks, and asset management firms, as participants in the peer-to-peer lending market. These entities allocate a portion of their portfolio to peer-to-peer lending investments.

institutional participation during the coronavirus pandemic. Back then, peer-to-peer lending platforms were selected as accredited lending partners, further highlighting their role in facilitating financial support to businesses and consumers in need (Ziegler, Shneor, Wenzlaff, Suresh, et al., 2021). In conclusion, these facts highlight the value of collaborating with institutional investors given their significant role in providing lending volumes.

Figure 7: Institutionalisation by Peer-to-Peer Lending Model, 2020, Excluding China

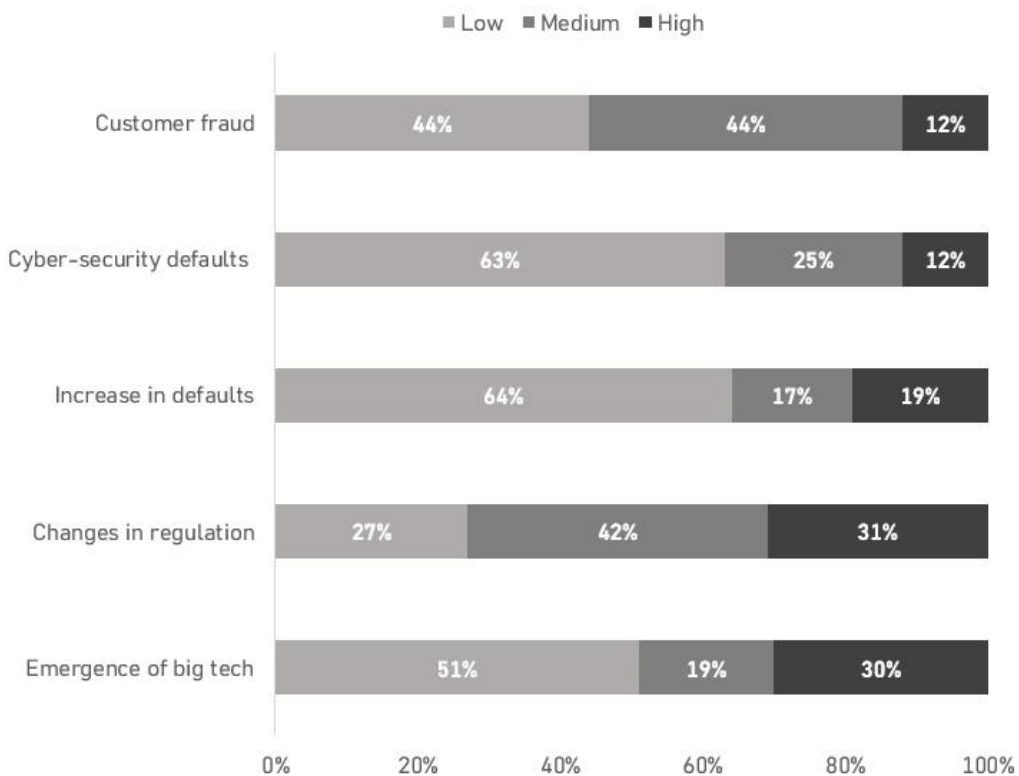


Data adapted from Ziegler, Shneor, Wenzlaff, Suresh, et al. (2021)

## Navigating Risks and Shifting Dynamics

Peer-to-peer lending platforms view changes in regulatory frameworks as a significant source of risk, especially considering the varying regulatory landscapes across regions (Bazarbash & Beaton, 2020). Moreover, the emergence of big tech credit is similarly regarded as a significant risk, exemplified by the shift in market dynamics wherein big tech credit surpassed fintech credit in 2018 (Cornelli, 2020). Therefore, peer-to-peer lending platforms will have to remain highly competitive over the next decade. Thereafter, peer-to-peer platforms maintain that a plausible increase in loan and cyber-security defaults represent a low risk. These perceptions could be supported by the presence of effective loan recovery mechanisms, robust borrower selection processes, and strong technological capabilities.

Figure 8: Perceived Risks for Peer-to-Peer Lending Platforms, (%), 2020



## 4.2. Primary Data

The primary data results have been organized into distinct sections for clarity. In the initial sub-section, "Technical Aspects of a Peer-to-Peer Lending Platform," all the software components mentioned by the interviewees have been documented and elucidated. These components will be categorized and analyzed during the discussion.

Similarly, within the subsequent sub-section, "Peer-to-Peer Lending Platform Ecosystem: Potential Products, Services, and Partnerships," a record of all products, services, and partnerships referenced by the interviewees has been compiled and expounded upon. This extensive dataset will also undergo categorization and comprehensive analysis in the forthcoming discussion.

While some claims find support from several interviewees, there are instances where only a single citation corroborates them. In such cases, the author has provided an exemplary citation that offers substantial evidence to underpin these claims.

### 4.2.1. Enhancing Technical Aspects of a Digital Peer-to-Peer Lending Platform

#### **User Interface: Empowering through Data Standardization and Real-Time Access**

Since peer-to-peer lending involves various participants such as borrowers, lenders, and other entities, each may use different data formats for loan-related information. In his interview, the former Director of Capital Markets at Crosslend emphasized the importance of data standardization, real-time data access, and how they contribute to the development of a user-friendly platform:

*"You standardize the loan level data, and then you can access it in real-time through a platform[...] So, that's kind of like, you know, it brings the industry on a good bit."*

### **User Interface: Elevating Platform Engagement through Intuitive Design**

Moreover, the idea of becoming a widely known and accepted alternative to traditional investment instruments is centered around creating a highly intuitive, user-friendly interface. The Head of Loan Origination at Debitum indicated that his platform's goal is to become widely recognized, which can be linked to user interface design and brand awareness:

*"The platform became a household name, making people consider it a genuine alternative to traditional financial instruments."*

### **User Interface: Enhancing Guidance and Risk Awareness Components**

Lastly, user interface components can be designed to offer a positive and empowering user experience. The Head of Operations at Iuvo Group discussed the components related to user guidance and risk awareness that can indirectly be linked to the user interface. He stated:

*"We also provide them with the support of how to use the platform and what the potential risks of using such a platform are."*

### **DD<sup>7</sup>, KYC<sup>8</sup>, and AML<sup>9</sup> Processes: Fortifying Lending Security**

The Head of Loan Origination at Debitum discussed the due diligence process for small and medium-sized enterprise lending, which involves verifying various aspects of the lending entity, including its financials, company structure, underwriting principles, and compliance with anti-money laundering regulations:

*"[...] due diligence on financials, company structure, underwriting principles, debt collection principles and with license - very thorough check of AML/Compliance."*

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<sup>7</sup>DD (Due diligence) is the process of evaluating financial information about a business or investment opportunity before deciding.

<sup>8</sup> KYC (Know Your Customer) processes of collecting and verifying the identity of customers to prevent illegal activities.

<sup>9</sup> AML (Anti-Money Laundering) processes involve a set of regulations and procedures designed to prevent the generation of income through illegal activities.

### **Regulatory Compliance: Ensuring a Secure and Trustworthy environment**

Most platforms have to maintain a strict adherence to all regulatory compliance requirements. For example, the Head of Loan Origination highlights the stringent restrictions applied to financial players, which in turn ensures a trustworthy and secure environment.

*"[...] the restrictions and requirements that all finance players (e.g., banks) are put to, are now part of the industry."*

### **Loan Processing: Faster and More Efficient**

First, securing a loan in traditional financial institutions can be tedious and take weeks for approval. With the advent of advanced front-end technologies, the loan approval time has been dramatically reduced compared to traditional institutions. This highlights the quick and efficient loan processing provided by the backend layer. Co-founder at Solo Funds pointed out that:

*"You know, we fund loans in less than 10 minutes."*

### **Digital Credit Scores: The Key to Expanding Access to Credit**

One of the fundamental functionalities offered by an alternative lending platform is the digital issuance of a credit score to each potential borrower. The score is calculated based on factors such as credit history, financial behaviour, and previous loan repayments. The Strategy Manager at a UK peer-to-peer lending company, the Chief Executive Officer at Bondora, and the Co-Founder of SoLo Funds respectively provided the explanations:

*"You're a digital company, you innovatively do credit underwriting [...] Having a kind of edge in terms of credit and underwriting to sustain returns is vital." (UK Company)*

*"Underwriting is arguably the most crucial aspect of providing loans." (SoLo Funds)*

*"Technology is a competitive edge, especially the credit/risk assessment" (Bondora)*

## **Loan Servicing & Management Systems: A Valuable Tool**

First, loan management systems help users administer their different loan products effectively. This is offered by a peer-to-peer lending company situated in the UK. Their Strategy Manager expressed:

*"We offer a range of services including (around loans) [...] a financial/debt management app."*

## **Electronic Payment Systems: Facilitating Secure Disbursements and Repayments**

These systems usually handle loan disbursements and repayments, which involve the transfer of funds from the lenders to the borrowers and vice versa for the instalments. While the technological aspect behind the loan disbursements and repayments is not explicitly mentioned by the Chief Operating Officer at Income Marketplace, we can deduce that they are conducted electronically through the platform.

*"Then, all the repayments are done to the investors."*

## **Collateralized Loan System: Enhancing Peer-to-Peer Lending Security**

Despite the presence of unsecured peer-to-peer loans, it remains crucial to emphasize the significance of collateral-backed loans issued by peer-to-peer lending businesses. For example, the Head of Loan Origination at Debitum said:

*"All loans issued by our Loan Originators are backed by some form of collateral."*

## **Crypto-Backed Collateral Loan System: Innovating with Alternative Loan Security**

Notably, during the interviews, some participants highlighted creative ways of introducing new collaterals. For example, the Chief Executive Officer of Bondster stated that alternative loans could be secured by crypto as collateral:

*“The loan originator within our group is offering loans with Bitcoin as collateral.”*

### **Stablecoin Collateral Integration: Expanding Possibilities for Loan Security**

Furthermore, the former Director of Capital Markets at Crosslend took the case even further, emphasizing that stablecoins can be utilized as collateral. Stablecoins are pegged to stable assets (another currency, commodity financial instruments, etc.), making them a more reliable means of exchange and a potential store of value compared to other fluctuating cryptocurrencies.

*"Absolutely, creating a bridge between the cryptocurrency market and real-world assets is an intriguing development that has gained traction, especially with the advent of stablecoins."*

### **Database System: Enhancing Transaction Speed and Efficiency**

The Chief Executive Officer of Bondster asserted that his organization had implemented changes to its existing databases. More specifically, Bondster addressed the issue of slow transactions by expanding the databases to handle a larger volume of transactions. Additionally, it optimized the database queries<sup>10</sup> to avoid timeouts<sup>11</sup>.

*"What we have already made are some upgrades of the databases [...] The problem was about the number of transactions and some timeouts and when we wanted to optimize it."*

### **Data Integration Solutions: Achieving Seamless Data Transfer**

The Strategy Manager at a peer-to-peer lending company situated in the UK announced that his platform had successfully established technical connections with its partners, highlighting the platform's ability to interact and exchange information seamlessly. The utilization of data integration solutions guarantees that data is mapped and transferred between systems with minimal errors. He articulated:

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<sup>10</sup>Queries are used to request data from databases. Database queries are usually written in Structured Query Language (SQL).

<sup>11</sup>the amount of time that a database query can run before it is aborted.

*"We had amazing distribution with price comparison websites, and we had really strong technical integration with them, which meant we could instantly rely on them."*

### **Data Analytics Solutions: Driving Business Agility**

To conclude, the Former Director of Capital Markets at Crosslend suggested that various indicators were collected and used for analytical purposes to gain valuable insights. Overall, the availability of data analytics can empower businesses to be more agile<sup>12</sup> and efficient. He enunciated:

*"Our updated analytics approach has identified and incorporated superior lead indicators."*

#### **4.2.2. Peer-to-Peer Lending Platform Ecosystem: Potential Products, Services, and Partnerships.**

##### **Product Diversification May Offer a Relevant Opportunity for Platform Ecosystems**

Despite differing value propositions among respondents, the content analysis examined distinct products offerings to determine the scope of the peer-to-peer lending products, yielding valuable insights into product differentiation and innovation opportunities. For example, the Co-Founder of Debitum pointed out that **bond-like products** could be issued in the future, enabling small and medium enterprises to secure capital from a more extensive investor base.

*"Yeah, it's more like offering SME bonds. Previously, regular individuals or smaller local companies could not participate due to their non-professional status."*

During his discourse, he also drew attention to the existence of companies that offer **structured investment products**. These products provide investors with the opportunity to combine higher-risk loans with low-risk investments, resulting in diversified portfolios.

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<sup>12</sup>refers to the ability of a business to adapt quickly to change

*"For example, there are companies claiming to offer a combination of higher-risk consumer loans alongside low-risk, low-return ETFs as part of their investment offerings."*

Next, a Strategy Manager at a peer-to-peer lending company situated in the UK highlighted their diverse portfolio of innovative financial products. For investors, the advantage lies in the opportunity of diversification as the platform offers **car financing**<sup>13</sup> and savings accounts. For borrowers, car financing provides a pathway to vehicle ownership without the burden of upfront payment while **easy access savings**<sup>14</sup> is a convenient way to store and access their funds. Ultimately, **fixed-term savings accounts**<sup>15</sup> contribute significantly to effective financial planning.

*"We offer a range of services including personal loans, car finance, [...], easy access savings, fixed-term saving."*

Moreover, the Strategy Manager also delved into **student loans** and **mortgages** as potential products for the peer-to-peer lending platform to explore, said their Strategy Manager. However, the interviewee acknowledged that scaling and effectively offering these products within the constraints of peer-to-peer lending may pose significant challenges due to the involvement of substantial amounts, the need for robust evaluation methods, and extended durations.

*"We examined student loans and mortgages, among other things. It could be any combination of one, two, or all those products. However, the ability to scale and offer all those products is challenging."*

The Head of Operations at Iuvo Group suggested that his platform could also become the go-to place for **bridge loans**. This means that the group aims to offer short-term lending products

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<sup>13</sup> **Car financing** refers to financing options for individuals looking to purchase a vehicle without making the full payment upfront.

<sup>14</sup> **easy-access savings** accounts are deposits that provide quick and unrestricted access to funds.

<sup>15</sup> **fixed-term savings accounts** involve depositing money for lenders for a fixed duration and interest rate.

to individuals who require immediate funds, such as financing a property purchase while waiting for the sale of another property. He said:

*"Moreover, there is a possibility for our platform to emerge as the go-to place for bridge loans as well."*

In addition, the Co-Founder of Debitum highlighted a promising possibility for peer-to-peer lending platforms in the startup realm. The exploration of venture-like financing, offering valuable support to entrepreneurs in their pursuit of funding, can provide investors with diversification and the potential for high returns. Nevertheless, it is crucial to acknowledge the inherent risks that startups naturally carry and the need for specialized underwriting to assess the dynamics of startups.

*"In the context of the startup world, there is a possibility that peer-to-peer lending platforms can explore offering a form of venture-like financing."*

Besides, the Co-founder of SoLo Funds explored the concept of **community financing**, which revolves around seeking collective support from lenders to provide funding opportunities that might otherwise be inaccessible through traditional channels. He highlighted the following:

*"In exploring various community finance and microfinance models globally, we found ourselves anchored to the idea of creating a new and innovative product that could effectively work and make a difference."*

During the interviews, some participants mentioned the potential implementation of secondary **market** functionality for peer-to-peer lending customers. It would benefit lenders in trading their existing loans to other investors. This feature provides lenders with greater liquidity and flexibility, allowing them to potentially exit their investments before the loans reach maturity. According to the former Director of Capital Markets at Crosslend:

*"The secondary market is a crucial aspect that is expected to evolve over time, possibly influenced by factors such as the bid-ask spread and credit considerations".*

## Exploring Financial Services within the Peer-to-Peer Lending Platform Ecosystem

As mentioned in the earlier section regarding the products, it was evident that numerous industry experts emphasized the significance of **credit scoring and underwriting services**. Nevertheless, it is worth noting that these services do not necessarily require an in-house approach, as they can be effectively outsourced to third-party providers. Additionally, peer-to-peer lending platforms possess the flexibility to choose between two distinct options when it comes to originating loans. The first one assumes taking full control over assessing borrower profiles, setting interest rates, credit collection, and managing loan agreements. The second option is to leverage **loan origination services** from external providers to access specialized expertise and reduce operational costs. These external services were chosen by a few of the interviewed lending platforms, namely:

*At Iuvo group: "We have a loan originator".*

*At Income Marketplace: if something goes wrong with the loan originator, then we have legal rights to take the loan book from them"*

*At Debitum: "We have a multi-layer evaluation that includes regular (almost daily) communication with the Loan Originators"*

*At Bondster: "We have some problems with some of the loan originators"*

*At Crosslend: "We've had originators"*

Furthermore, the former Capital Market Director at Crosslend explained that **securitization services**<sup>16</sup> are not solely confined to traditional banks:

*"Sometimes those non-bank lenders also do securitizations".*

In fact, non-banking institutions can also be involved in the process. This entails collaborating with securitization providers to facilitate the creation of asset-backed securities. An illustrative instance of the outcome of such collaborations can be structured investment products.

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<sup>16</sup> refer to the financial process of transforming illiquid assets, such as loans, mortgages, etc. into tradable securities.

Hence, peer-to-peer lending platforms have the option to partner with multiple secondary markets, broadening reach, and diversifying trading opportunities for investors. These marketplaces, linked to **digital asset management services**<sup>17</sup>, establish an ecosystem for diverse digital asset trading. According to the former Capital Markets Director at Crosslend, digital asset management services are poised for substantial growth. For example, blockchain technology's<sup>18</sup> tamper-proof capabilities can enhance trust through secure loan transaction records. Additionally, tokenization<sup>19</sup> seamlessly aligns with digital asset management services, enabling secure and efficient representation, trading, and exchange of peer-to-peer loans on secondary markets.

*"So you are going to see a big growth in what's called digital asset management."*

Besides, various financial activities can be facilitated through **electronic money institution services**. The Co-founder at Debitum declared that payment needs, including incoming, outgoing, or salaries, as well as credit card and credit usage, could be outsourced to an electronic money institution:

*"For example, your incoming and outgoing payments, such as your salary, credit, and credit card transactions, can all be facilitated by an electronic money institution."*

### **Regulatory and Compliance Services: Ensuring Financial Compliance**

The Chief Executive Officer of Bondster highlighted that peer-to-peer lending investments are subject to a significant number of regulations, implying that there are some constraints imposed on the involved entities. While discussing this, he exposed the complex regulatory landscape but didn't explicitly mention the outsourcing of **legal services**:

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<sup>17</sup> software solutions that help businesses store, organise, and distribute their digital assets, encompassing any form of value owned by a business in a digital format. (e.g., data, knowledge, patents, crypto, etc.)

<sup>18</sup> blockchain technology involves using secure and unchangeable record-keeping systems that facilitates the process of recording transactions and tracking assets across a business network.

<sup>19</sup> Tokenization involves converting the ownership and rights of specific assets into a digital format. For example, if Vincent van Gogh's 'Starry Night' was tokenized, ownership shares of the painting could be digitized and traded on a digital platform, allowing art enthusiasts to invest in and own fractional portions of this masterpiece.

*"There are 1000 entities or subjects investing, not just one bank. Mm-hmm. There are a lot of restrictions and regulations associated with that."*

However, The Co-Founder of Debitum pointed out that the regulatory landscape exhibits variations from country to country. Some jurisdictions may impose more stringent restrictions than others:

*"We see that platforms that are not regulated, such as those based in Ireland, Croatia, or other locations, are actually experiencing substantial increases in the number of users."*

### **Marketing Services: Navigating the Peer-to-Peer Lending Platform Ecosystem**

The Chief Executive Officer of Bondster suggested that their marketing efforts were directed toward attracting investors from within their own country. Focusing their marketing on a specific region may allow them to tailor their offerings to meet the needs of local investors. However, he didn't mention whether these marketing activities were outsourced to a third party.

*"At this time, with all our marketing activities, we are primarily focusing, um, around 80% to 90%, on attracting Czech investors."*

### **Complementors: Fostering Synergies in the Peer-to-Peer Lending Platform Ecosystem**

As previously stated, complementors are entities or businesses that provide products or services that complement the offering of the orchestrator. The Chairman of October expressed the potential of his company being a complementor to traditional banks, suggesting that these banks could integrate peer-to-peer lending technology into their systems.

*"So, we're working more and more now with banks who think what we're doing is extraordinary and they want to benefit from it too, so they're partnering." [...] "We have been increasingly collaborating with banks who recognize the uniqueness of our solution and wish to benefit from it through strategic partnerships."*

Moreover, the former Capital Market Director at Crosslend suggested peer-to-peer lending platforms could potentially partner up with neo-banks<sup>20</sup>, pointing out that the latter possess substantial liquidity for funding but lack sufficient assets for investment. This collaboration could be a win-win situation, benefiting both parties by leveraging each other's strengths.

*"Get whatever deposits they want in. What they lack is assets. So, someone like Starling Bank, Revolut, or, you know, N26, or any of these guys, everyone's going around with their phone, and their money's gone in there, and they've got tons of liquidity."*

Delving into the **realm of funding**, some interviewees expressed their interest in collaborating with pension funds, private equities, and other funding sources. This observation suggests a trend wherein institutions are increasingly drawn to peer-to-peer lending to diversify their investment portfolios:

*"But it's not peer-to-peer in a true sense because it's all institutionally funded [...] there are no retail people involved. I think lenders will take some high-net-worth individuals." (UK peer-to-peer lending)*

*"Private credit funds [...] private equity, have basically invested in nonbank financials, as a way to deploy capital." (Crosslend)*

*"If you mean capital to finance our own work then it is in our case financed by owners (equity capital)." (Debitum)*

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<sup>20</sup> Tech company that operates exclusively using digital banking without physical branches.

## 5. Discussion

This study offers two relevant contributions to enhance the management of platform ecosystems in the context of alternative lending. The first contribution refers to exploring potential technological solutions to improve the digital peer-to-peer lending platform components (Figure 9). This endeavor entails a thorough examination of the diverse components emphasized in the Results section (4.2.1) of the peer-to-peer lending platform.

Subsequently, the second contribution relates to the landscape of the peer-to-peer lending platform ecosystem (Figure 10), where it delves into the concept of generativity<sup>21</sup>. This concept emphasizes how the platform brings together people from different backgrounds to work together and enhance the lending platform. The analysis first dives into the diverse array of products and services underscored in the Results section (4.2.2). For each distinct product, the study aligns potential collaborating entities capable of fostering the development of the platform ecosystem. Moreover, the study distinguishes the different governance models applicable to these partnerships, as previously elucidated in the literature review. As a reminder, "orchestration" denotes the internal development of a product on the peer-to-peer lending platform, while "complementation" signifies sharing the product offering to external platforms, due to certain income. Additionally, the research examines the nuances to be considered during the launching of these products. Similarly, for each distinctive service, the study outlines conceivable partners with whom collaborative efforts can be cultivated. Here too, the governance frameworks echoes the principles enunciated in the literature review. In this discourse, "orchestration" assumes building the service with your existing internal resources. Conversely, "complementation" embodies the act of outsourcing a service to a third-party entity.

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<sup>21</sup> The concept of generativity is explained in the literature review (p.17)

Figure 9: Analysis: Enhancing Technical Aspects of a Digital Peer-to-Peer Lending Platform

	Layer	Potential Technologies	Benefits
<b>User Interface</b>	Front-end Layer		
I. Data Standardization & Real Time Access	Front-end Layer	<b>API Integration platform:</b> enables connection with external software applications through standardized APIs. Through the APIs, users can perform actions like making payments, verify identity, etc.	(+) Diverse services (+) Rapid innovation by integrating new services independently (+) Ecosystem growth
II. Engagement Driven Branding	Front-end Layer	<b>AI Driven algorithms:</b> analyse user behaviour and preferences, enabling tailored content and offerings.	(+) Effective engagement branding can attract more customers, stimulating growth and benefiting the actors of the ecosystem in general.
III. User Guidance and Risk Awareness	Front-end Layer	<b>Interactive User Interfaces:</b> visually engaging and intuitive user experience <b>Real-time Risk Indicators:</b> insights into the risks associated with loans or investments <b>Educational Resources:</b> content and tools aimed at enhancing users' responsible financial decision making	(+) Build Trust (+) Reduce Default Rates (+) Lower Customer Support Load
<b>DD, KYC, and AML Processes</b>	Middleware Layer	<b>AI driven tools:</b> automate customer due diligence, KYC verification, and AML checks <b>Blockchain Technology:</b> streamline and standardize KYC/AML processes shared among different organizations	(+) AI reduces the need for manual labor in verification tasks (+) Accelerates customer onboarding (+) Prevent fraudulent activities
<b>Regulatory Compliance</b>	Middleware Layer	<b>Regulatory Reporting Software:</b> automate and regulatory reports to relevant authorities	(+) Streamlined and efficient reporting, reducing manual effort and minimizing risk of compliance breaches
<b>Loan Origination and Underwriting</b>	Backend Layer		
I. Loan Processing System	Backend Layer	<b>Loan Processing Automation:</b> streamline all stages of loan cycle	(+) Decrease in operational costs (+) Increase in loan origination volumes

II. Digital Credit Scores	Backend Layer	<b>Machine Learning Algorithms:</b> AI based credit scoring algorithm, trained on large sets of data; from which they identify the borrower's ability to repay	<ul style="list-style-type: none"> <li>(+) Fairer loan offers and interest rates</li> <li>(+) Investor confidence</li> <li>(+) Quicker loan approval processes</li> <li>(+) Reduced Default rates</li> </ul>
<b>Loan Servicing &amp; Management</b>			
I. Loan Servicing & Management System	Backend Layer	<b>Loan Servicing &amp; Management Software:</b> automates administration, payment processing, collection, reporting, communication etc.	<ul style="list-style-type: none"> <li>(+) Scalability, automation ensures efficient loan servicing</li> <li>(+) Enhanced confidence</li> </ul>
II. Electronic Payment System	Backend Layer	<b>Integration with Electronic Payment Gateways:</b> borrowers and lenders can choose from various payment methods, debit/credit cards, bank transfers, digital wallets, cryptocurrencies, etc.	<ul style="list-style-type: none"> <li>(+) Global reach</li> <li>(+) Increase willingness to participate</li> <li>(+) Trust and Credibility</li> </ul>
III. Collateralized Loan System	Backend Layer	<p><b>Collateral Evaluation Tool:</b> AI and data analytics to estimate market value of a collateral</p> <p><b>Collateral Asset Tokenization:</b> create digital representation of the asset within the smart contract</p> <p><b>Smart Contracts (executed on the blockchain):</b> automate contract execution, reducing the need for intermediaries</p>	<ul style="list-style-type: none"> <li>(+) Simplify the tracking, transfer, and management of the collateral</li> <li>(+) Faster and more efficient</li> <li>(+) Transparency and trust</li> </ul>
IV. Crypto-Backed Collateral Loan System	Backend Layer	<p><b>Digital Wallet Infrastructure:</b> store the collateral cryptocurrencies (custody)</p> <p><b>Cryptocurrency Integration:</b> Integrate various cryptocurrencies that can be used as collateral and loan disbursement currencies</p>	<ul style="list-style-type: none"> <li>(+) Crypto are inherently liquid assets</li> <li>(+) Fractional ownership of the crypto-collateral</li> <li>(+) Transferability</li> </ul>
V. Stablecoin Collateral Integration	Backend Layer	<b>Stablecoin Integration:</b> Integrate stablecoins that can be used as collateral and loan disbursement currencies	<ul style="list-style-type: none"> <li>(+) Reduced volatility risks compared to other crypto currencies</li> </ul>
<b>Data &amp; Analytics</b>			
I. Database System	Backend Layer	<b>NoSQL Databases:</b> handle huge chunks of data with ease (structured, semi, and unstructured data)	<ul style="list-style-type: none"> <li>(+) High scalability and performance</li> </ul>

II. Data Integration Solutions	Backend Layer	<p><b>ETL (Extract, Transform, Load) Tools:</b> extract form mutiple data sources, transform data into data models, load into data warahouses</p> <p><b>Cloud Data Warehousing:</b> storing and aggregating data from multiple sources in a cloud-based repository</p>	<p>(+) Data is accessible from anywhere</p> <p>(+) Data form various sources is standardized</p> <p>(+) Efficient operations</p>
III. Data Analytics Solutions	Backend Layer	<p><b>Predictive Analyitics:</b> predicitive modelling to forecast customer behaviour, default rates and market trends</p> <p><b>Automated Reporting:</b> generate regular reports on platform performance, loan trends and user behaviour.</p>	<p>(+) Informed decision making</p> <p>(+) Risk management</p> <p>(+) Real-time monitoring</p>

Figure 10: Analysis: Peer-to-Peer Lending Platform Ecosystem: Potential Products, Services, and Partnerships.

	POTENTIAL PARTNERSHIP	GOVERNANCE	REASON	CONSIDERATIONS
<b>PRODUCTS</b>				
Bond-Like Product	Financial Institutions	Orchestrate	Maintain alignment with risk profile and user base	(+) Offer more stable returns than P2P loans (+) Attracting retail investors that are interested in fixed-income investments (-) Complexity (-) Regulatory Landscape
Structured Investment Product	Asset Management, Investment Funds	Orchestrate	Maintain control over complexity and risk	(+) Expand investment choices (+) Offer lower-risk investment option (-) Complexity (-) Regulatory Landscape
Bridge Loans	Real Estate Agencies, Property Developers	Orchestrate	Aligns closely with the platform's core value proposition (consumer loan)	(+) Aligns with the platform's core value proposition (+) speed is essence for bridging borrowers, P2P platforms are adapted for short term finance
Student Loans	Universities, Student Support Services	Complement	Entering the student loan market requires specific expertise and resources	(+) Integrate peer-to-peer lending technology into university systems (B2B SaaS) (+) Addressing a market need (-) Risk Management (-) Student loan's long-term duration might not be suited for P2P lending investors
Mortgages	Mortgage Brokers, Real Estate Agencies	Complement	Entering the mortgage market requires specific expertise and resources	(+) Integrate peer-to-peer lending technology into university systems (B2B SaaS) (-) Mortgages involve intricate regulatory compliance (-) Mortgage's long-term duration might not be suited for P2P lending investors
Car Financing	Auto Dealerships, Car Manufacturers	Orchestrate	Aligns closely with the platform's core value proposition (consumer loan)	(+) Niche Market (+) Cross-Selling Opportunities with dealerships, insurance providers, etc. (-) Capital Requirements may vary widely (-) Customer Service Challenges (quality, warranty, insurance)
Easy Access Savings	Banks, Neo-Banks	/	/	(-) User confusion on your platform's core value proposition

Fixed-Interest Savings	Banks, Neo-Banks	/	/	(-) User confusion on your platform's core value proposition
Venture-Like Financing	Start-up Incubators & Accelerators	Orchestrate	Maintain control over due diligence, investment decisions, and investor relations.	(+) Attracts retail investors interested in supporting innovative startups (-) Startups are inherently risky (-) broadens value proposition (equity crowdfunding) (-) User confusion on your platform's core value proposition. Yet, suited for peer-to-peer matchmaking
Community Financing	Local Community Organizations, NGO's, Social Entrepreneurship Ventures	Orchestrate	Aligns closely with the platform's core value proposition	(+) Addresses unmet needs within underserved segments
Secondary Market	Alternative Trading Platforms, P2P Lending Platforms Offering Secondary Market Platforms	Complement	Implementing a secondary market can be complex, resourceful and time-consuming	(+) Provide investors with more liquidity (+) Attract new investors interested in participating in P2P lending through tradable assets. (-) Information asymmetry about loan quality on third-party secondary market. (-) Market volatility

<b>SERVICES</b>				
<b>Financial Services</b>				<b>REASON</b>
I. Credit Scoring and Risk Assessment	Credit bureaus, Financial Data Analytics Firms, Machine Learning Companies	Orchestrate	Key technological competitive edge; Ensures accurate risk assessment, maintain control over lending criteria, and attract investors by demonstrating a robust risk management framework.	
II. Securitization Services	Investment banks, Financial Institutions, Asset Management Companies	Complement	leveraging their expertise in structuring and managing complex financial transactions, ensuring optimal loan packaging, regulatory compliance, and broader access to investment markets (e.g. secondary markets)	
III. Credit Collection Services	Debt Collection Agencies, Credit Recovery Firms, Legal Entities Handling Debt Collection	Orchestrate	Efficiently manage overdue payments, maintain borrower relationships, and mitigate default risks	

IV. Loan Originators	Banks, Credit Unions, Non-Bank Financial Institutions, Neo-Banks	Complement	Expand the range of loans offered on the platform, tap into specialized expertise
Transaction Services			
I. Electric Money Services	E-money institutions, payment service providers, or electronic payment platforms	Complement	ensures heightened security, regulatory compliance, and enhanced user convenience for trusted payment gateways
II. Digital Asset Management Services	Tokenization Platforms, Cryptocurrencies Exchanges, Asset Managers, Blockchain Consultancies	Complement	Digital asset Management partners often have advanced tools and workflows that streamline the management of digital assets.
Regulatory Compliance Services	Compliance Consultants, Financial Regulatory Law Firms, Compliance Service Providers.	Complement	Collaborating with compliance experts helps navigate complex regulations, ensuring adherence and minimizing legal risks.
Marketing Services	Digital Marketing Agencies, Advertising Firms	Orchestrate	Ensures direct control over strategies, brand consistency, and tailored messaging towards a specific public of lenders.
Capital Raising	High-Net-Worth Individuals, Private Credit Funds, Private Equity Funds	Orchestrate or Partner	Flexibility to choose between orchestrating its capital raising efforts in-house or partnering with external entities to leverage their expertise and resources.

## **6. Conclusion and limitations**

### **6.1. Conclusion**

In conclusion, this research has delved into the landscape of peer-to-peer lending and platform ecosystems. Through a comprehensive analysis of secondary data regarding the industry assessment, and primary data from semi-structured interviews, this study suggests that the successful improvement of a peer-to-peer lending platform ecosystem not only relies on technological advancements, but also on effective strategic managerial decisions. It first reflected on how to enhance a peer-to-peer lending platform from a technological perspective by analysing the existing system architecture and exploring innovative solutions to streamline processes. It then highlighted the collaborative nature of platform ecosystems, underscoring the importance of selecting the right partnership types when developing services.

For the “Analysis: Enhancing Technical Aspects of a Digital Peer-to-Peer Lending Platform”, the results emphasized key areas for improvement across various layers of the platform architecture. Firstly, front-end enhancements encompassed refinements for data standardization and real-time access to expand the functionality offering, engagement branding to attract a larger customer base, and user guidance and risk awareness to provide intuitive user experiences. Secondly, middleware upgrades included streamlining identity verification processes and automating regulatory protocols. Finally, backend improvements included optimizing loan origination and underwriting systems with automation and artificial intelligence. Additionally, loan service management systems can be enhanced through blockchain technology and the inclusion of cryptocurrencies. Furthermore, data and analytics can be refined through the implementation of advanced technologies such as NoSQL databases, ETL tools, cloud data warehousing, and predictive analytics.

Regarding the "Analysis: Peer-to-Peer Lending Platform Ecosystem: Potential Products, Services, and Partnerships," the key findings highlight diverse opportunities to enhance peer-to-peer lending platform ecosystems. In terms of products, bond-like offerings assure stable returns, structured investment products broaden choices, and bridge loans align with the platform's core value proposition. Exploring student loans and mortgages demands specialized expertise, while car financing targets niche markets. Venture-like financing attracts retail investors, community financing serves underserved segments, and secondary markets enhance liquidity. In the service realm, credit scoring and risk assessment are recommended for in-house development. Securitization and loan origination are better outsourced, credit collection

is best orchestrated by the platform. Collaborative efforts are ideal for transaction services (electric money, digital asset management) and regulatory compliance. Internally cultivating marketing services is prudent, and capital raising can be both orchestrated and in partnerships.

This thesis illuminates a path for managers within peer-to-peer lending platforms to boost efficiency and effectiveness. Much like a guiding light, it directs them through the complexities of technology and strategic decisions. These managers have the power to shape these platforms into thriving ecosystems that provide access to financial opportunities, particularly for individuals who have been historically underserved by traditional banking systems.

## **6.2. Limitations**

The academic thesis, while highlighting significant insights, does bear certain limitations that should be acknowledged. Firstly, it's important to note that not all components of the peer-to-peer lending platform's architecture were exhaustively covered within this study. In terms of data collection, the insights gathered were undeniably valuable. However, the author acknowledges that data saturation was not reached, which occurs when new insights emerge during the data collection process (Hennink & Kaiser, 2022), leading to the development of novel themes throughout the series of interviews. This phenomenon may have limit the study's ability to draw all the necessary conclusions. Conducting additional interviews could have potentially mitigated this issue, leading to a more thorough and nuanced understanding of the subject matter at hand. Furthermore, the scope of products and services examined within the peer-to-peer lending platform ecosystems is another area of limitation. The study primarily focused on those products and services that emerged from the interviews. Consequently, a wider array of products and services that exist around these ecosystems may not have been fully explored. Lastly, the managers should consider the analyses as a strategic roadmap for improving the efficiency and effectiveness of their peer-to-peer lending platform ecosystem. However, it's important to note that this is just one perspective among several potential approaches, and other viewpoints should also be taken into account.

### **6.3. Future Research**

Looking ahead to future research avenues, two key areas stand out in the context of peer-to-peer lending platform ecosystems. Firstly, while this study has outlined technological enhancements and strategies for product and service development, it leaves room for investigation into their practical implementation. Understanding the complexities of execution could provide valuable insights for managers. Secondly, delving into the systemic factors that influence platform ecosystem development, such as regulations, macroeconomic changes, and socio-economic trends, could offer a more holistic perspective. Research in these directions could provide practical guidance for managers and stakeholders in navigating the evolving landscape of managing peer-to-peer lending platforms ecosystems.

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## 8. Appendices

### Appendix A: Link to Semi-Structured Interviews Data

<https://docs.google.com/document/d/1X8bUGa-SUAVx8GayqwmDUMDIXnVGgcFVo2LIwwSj6So/edit?usp=sharing>

