

# The state of the art of innovation-driven business models in the financial services industry

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The state of the art of  
innovation-driven business models  
in the financial services industry

E. Lüftenegger<sup>1</sup>, S. Angelov<sup>1</sup>, E. van der Linden<sup>2</sup>, and P. Grefen<sup>1</sup>

<sup>1</sup>*School of Industrial Engineering, Eindhoven University of  
Technology*

<sup>2</sup>*De Lage Landen Financial Services*

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## **Abstract**

Emerging innovation-driven business models are changing the financial services landscape. Most companies are using innovation to sustain their business models. However, new entrants into the financial services market innovate in a way that disrupts the industry. Typically, directions for innovation initiatives in financial services are absent. In this report, we present a structured method to analyze innovation initiatives and their impact on the financial services industry. Our method is based on innovation and business model frameworks that let us analyze business models driven by different kinds of innovations. We apply our method to emerging innovation-driven business models providing an overview of the financial services industry. Companies in financial services can use this report as an overview of the state of the art and as a guiding tool for their innovation initiatives. We contribute to the innovation and business models research fields, presenting a unified method to analyze business models driven by innovation in financial services.

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# 1 Introduction

The financial services sector represents about 8% of the gross domestic product (GDP) and 4% of employment in the service economy (70% of the total GDP) of the Organization for Economic Cooperation and Development (OECD) countries [1]. Financial services include a broad range of businesses. They encompass businesses such as banks, consumer finance, stock brokerage, asset management, credit card companies and insurance companies [2].

The recent financial industry crisis caused by the meltdown in the U.S. market has generated huge losses in this sector leading to a new economic scenario called “the Great Disruption” [3] [4] [2]. The new economic environment requires financial services institutions to innovate, redefine their business models and restore the trust of their clients in order to improve the industry’s health and long-term growth [5].

Innovations and business models are related. Financial services companies are using innovations as a driver to support or change their business models. Innovations are used to support the current business model of a company through products, customer experiences, markets or channels. In contrast, innovating in business models implies a departure from how the company currently does business.

In this report, we explore the role of innovation on business models in financial services. We review innovation theory, concepts and frameworks to identify the innovation drivers in financial services. By integrating innovation and business model frameworks into one tool for analysis, we are able to discuss business models from business, innovation and technology perspectives. The business models that are analyzed in this report are selected on the basis of their potentially degree of impact on the financial services landscape.

Section 2 describes an overview of the current financial service industry landscape. It provides the context of the new economic environment in which innovative business models take place. Section 3 introduces innovation concepts and theories in the financial services industry domain. Section 4 discusses frameworks to analyze business models. Section 5 introduces our method to analyze the set of selected innovation-driven business models. In Section 6, we introduce the analysis of the selected set of innovation driven business models in the financial service industry. We end this document with conclusions.

## 2 Overview of the financial services landscape

The financial services industry has been traditionally a conservative industry that resists changes. Financial services industry used to have a stable structure with defined boundaries and clear business models. The stable set of players in the financial services made change linear and predictable in the past. In the last 20 years the financial services landscape changed significantly due to new market entrants and innovative business models [2].

The drivers of change in the financial industry includes advances in transaction and information technologies, geographic shifts in growth opportunities, regulatory changes, the fast evolution of client requirements and behavior. The transition to the changing landscape of financial services is a challenge for companies, requiring innovation as a source of profitable growth [2], [6].

This section presents an the overview of the current financial services landscape. We use a business model environment framework to analyze factors that affect business models in the financial services. We selected this framework because is an adaptation form management literature to analyze business models environments [7].

The business model environment framework identifies four main areas which are the key external forces (shown in Figure 2) that influence the business models in the financial industry. The market forces, industry forces, key trends and macroeconomic forces [7].

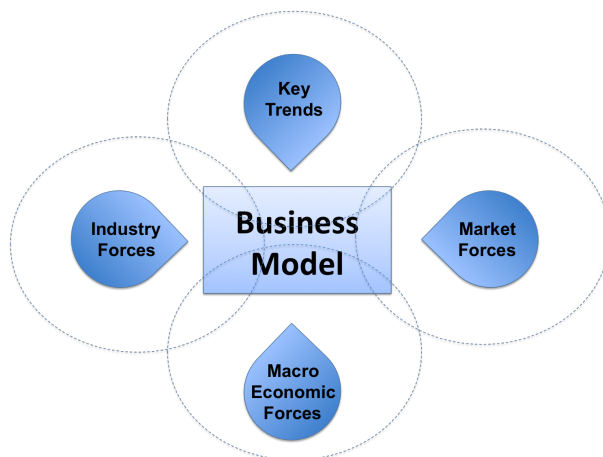


Figure 1: Business model environment diagram [7]

### 2.1 Market forces

We identify the market forces that are influencing the business models in financial services to perform a market analysis of the industry. The market forces that are shaping the financial services industry are depicted as follows:

**Market issues:** One of the key issues driving and transforming the financial services market is the entrance of new competitors into the sector. The sectors that are more susceptible to new entrants are insurance, pensions, leasing and credit card companies. Another key market issue is that financial service companies have started to diversify into non-banking businesses [8].

**Market segments:** The market segments in the financial industry are categorized by their target clients (e.g : retail, corporate, institutional), service types (e.g : investment banking, retail banking, wealth management) and geographical location (e.g : Europe, Asia, Americas) [8].

The three dimensional representation of the market is used to recognize and maximize “synergies”. Client driven linkages exist when financial institutions can supply services more efficiently to a client group in the same or other geographies. Service driven linkages exist when a financial institution already sells the same or similar service in other client or other geographic dimensions. Geographic linkages exist when a financial provider can supply services more efficiently in a particular location as a result of having an active relationship with that client in other geographic place [6].

**Needs and demands:** People without bank accounts and access to credits are underserved by financial services companies. New financial services by non-financial institutions are being developed to meet their demands [9].

**Switching costs:** Financial service customers have high switching costs to competitors. The customer lock-in is stronger when the financial service companies are based on a relationship rather than transactions. Customers find difficult to close bank accounts and refinance loans to competitors. Empirical evidence shows that first mover advantage is important in financial services, once a consumer learns to use a innovative product or service. Consumers do not want to switch to another provider due to the potential hassle of new learning [10], [8].

**Revenue attractiveness:** Financial services firms dominate the list of the world’s biggest firms. Equipment leasing is recognized as the most attractive profit generating activities for financial services holdings [8], [11].

## 2.2 Industry forces

The identification of the industry forces behind the financial services sector help us to generate a competitive analysis of the financial services industry. The industry forces are composed by incumbent competitors, insurgent players, substitute products and services, value chain actors and stakeholders [7].

**Incumbent competitors:** Incumbent competitors are traditional companies in the financial services like retail banks, private banks, speciality finance and asset managers [12].

**Insurgent players:** Insurgents in the financial industry are the new entrants into the market. The insurgents in this industry are web-based financial services start-ups companies, telecommunication companies, retailers, car manufactures and industrial corporations [13], [8].

**Substitute product and services:** Informal loans by friends and family, and informal credit providers for the poorest households [14].

**Stakeholders:** Governments have a strong stake in the stability of financial services to sustain their economic activities. People and companies are important stakeholders, financial institutions depends on them to provide services [6].

**Suppliers and other value chain actors:** Examples for value chain actors in the financial industry are investment research companies, software development companies, IT infrastructure and support providers, and consultancy service providers [15].

### 2.3 Key trends

The recognition of the key trends in the financial services industry give us a foresight vision in technology, regulation, socio-economic, societal and regulatory aspects [7].

**Technology trends:** Technologies which could threat, enable, improve or evolve business models in the financial services are the internet and the telephone as distribution channels. A quarter of the world's population of 6.7 billion of people use internet and the mobile phone access is available to 90% of the world population [8], [16].

Social networks became a mass communication tool, which "made people's personal relationships more visible and quantifiable than ever". Twitter, was the fastest growing social network in 2008. Facebook, the world's largest social network, is the second most popular site after Google [17].

**Regulatory trends:** We can observe an increase of government intervention and a rising regulatory complexity in the financial sector [12], [18].

**Societal and cultural trends :** The major societal trend in the financial services is the eroded public trust on the financial industry. The consumer is more informed and collaborative, feeling the desire to contribute and being part of a community [19], [18].

**Socioeconomic trends:** The major socio-economic trends are given by ethical investment funds, green mortgages (for houses using renewable energy) and banking offerings for underserved communities. Companies committed to their corporate values and ethics, demonstrating good corporate citizenship which will be also necessary to recruit next generation employees [18], [16].



## 2.4 Macroeconomic forces

The identification of the macroeconomic forces help us to understand the overall conditions of the market [7].

**Global market conditions:** The global market conditions of the financial services market are a result by restricted credit availability and negative economic outlook. Emerging economies like Brazil, Russia, India and China (BRIC) are growing faster than developed economies. Global financial services providers are expanding their operations to the BRIC markets for the massive potential of consumers, workforce and high GDP [12], [2].

**Capital markets:** New entrants into the financial services industry are faced to the availability of lower venture capital and restricted access to credit [12], [7].

**Commodities and other resources:** The main commodities and resources needed for business models in financial services are information technologies (IT) and highly skilled human resources (HR). IT is more affordable thanks to server virtualization. HR cost depends on each region. In developed countries, IT and business people cost are higher than in emerging economies [8].

**Economic infrastructure:** Financial services are present in global markets, each specific region in which a company operates has a different economic infrastructure. Access to telecommunications services are different in the United States and the European Union from underdeveloped regions. For example, in Africa the access to internet is not common for the population. These unique conditions in different markets, like public infrastructure, education quality, public services and quality of life must be considered as factors that influence a business model [7].

### 3 Financial services innovation framework

This section describes innovation concepts, theory and classifications relevant for the financial services industry. The content is based on the book “Innovation and the future proof bank” by James Gardner [13]. We selected this source as a guide because offers a structured approach to innovation in financial services that is not present in other works (in Section 7, we review the related literature).

#### 3.1 Innovation dimensions

Innovations in the financial services can be classified in two orthogonal dimensions: the newness dimension and the competitive dimension [13]. In the next subsections we explain each dimension and the kind of innovations that are part of it.

##### 3.1.1 Newness dimension

The newness dimension is related to the degree of newness of the innovation, i.e, how the new creation is compared with previous innovation. In this dimension we can distinguish three kinds of innovations: breakthrough innovations, revolutionary innovations and incremental innovations.

**Breakthrough innovations** are concerned with the exploration of new technologies which have a high growth potential, but also imply higher risk. The risk is attributed to the lack of experience with the innovation that departs from the established offer of the company and its knowledge of proven business practices. These innovations may change directions of entire industries or create new ones due to the unpredictability of their scope, dimensions or economic effects [2], [20], [21].

The introduction of computing to financial services by Bank of America and Stanford University is a well-known breakthrough innovation. In 1950, banks began to struggle with high volumes of paper processing due to the introduction of credit cards. Later in 1955, a machine known as ERMA, Electronic Recording Method of Accounting, in conjunction with the Magnetic Ink Character Reading (MICR) technology enabled the cheque processing. This breakthrough innovation changed the way banks did business using machine processing instead of manual processing and by 1965 all banks in U.K and U.S.A were using systems like ERMA.

**Revolutionary innovations** are superior to what they replace, becoming the standard choice for a relevant market share. Revolutionary innovations do not create a new category in the market like breakthrough innovations do. Revolutionary innovations also have less entry barriers than breakthrough innovations, because they can be copied more easily.

ING Direct is an example of a revolutionary innovation. They were not first branchless internet banking, but offered a low cost service. ING Direct innovated with a no charge high interest saving account for low margin customers.

**Incremental innovations** also known as continuous innovations are minor changes, exploiting existing technology. These kind of innovations are focused on cost or feature improvements in existing products, services, or processes. Incremental innovations are specific to an organization in the way of doing things which can be planned systematically [2].

An incremental innovation example is the mobile phone top-ups for Automated Teller Machines (ATMs). The mobile phone top-ups enable customers to add credit to pre-paid mobile phones from their bank account, entering their mobile phone number into the ATMs. This innovation uses what is already in place, the ATMs, and with minimal change in the functionality offers a new service.

### 3.1.2 Competitive dimension

The competitive dimension is related to relationship between the innovation in the firm and its competitive position. In this dimension, we distinguish two kinds of innovations: sustaining innovations and disruptive innovations. These innovations could sustain or disrupt the operations of institutions and markets, as we explain with the failure framework.

**Sustaining innovations** create additional value for a firm by enhancing the products or services that are already being offered. Sustaining innovations are those that resulted in an improved performance along the traditional value measure of the current market. Incumbents use sustaining innovations to differentiate among competitors to charge more or win more customers in the established market [22].

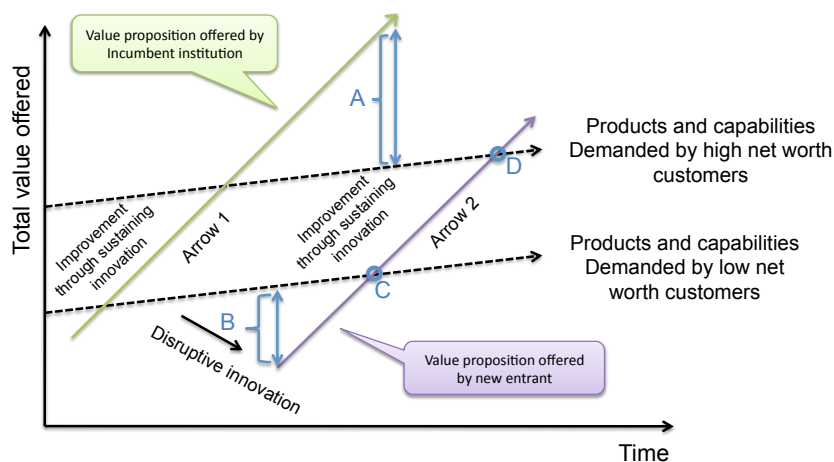
Sustaining innovations increase the capabilities of the current offer to make a more appealing value proposition to the more demanding customers which are willing to pay high prices to get such capabilities [22].

An example of sustaining innovation is internet banking. Internet banking is used by traditional companies to sustain their current business model [23].

**Disruptive innovations** usually starts as a poorly performing inferior product or service which does less than the current ones. Disruptive innovations are poor performers, because are measured against what historically matter in the mainstream market. Disruptive innovations are focused on convenience, simplicity, affordability or accessibility, creating new markets or transforming the current market [2], [22], [24], [2].

The disruption of the current market is made by targeting new or less demanding consumers. The new value proposition delivered by the new entrant is attractive to a small segment of the market, which is usually unattractive for the established firms [22].

A disruptive innovation in the financial industry is the Peer-to-Peer lending business model created by the U.K company Zopa. Zopa stands for “Zone of Possible Agreement” which refers to the price point reached when the borrow and lenders agree in the interest rate [13]. A deeper analysis of the Peer-to-Peer lending business model is provided in Section 6.1.1.



- A : Overshoot value offered to high end customers of incumbents.
- B : Undershoot value needed by the new entrant to attract low end customers of incumbent
- C : New entrant is able to attract core customers of incumbent with a better value proposition
- D : New entrant is able to attract all customers of incumbent with a better value proposition

Figure 2: Disruptive innovation mechanics in the financial industry [13]

**Failure framework** The disruptive innovation was identified by Clayton Christensen. Christensen introduced the failure framework to explain how disruptive innovation works. Figure 2 shows the disruptive innovation mechanics in financial services industry, which is an adaptation of Christensen's failure framework for the financial services industry made by Gardner [25], [22].

In Figure 2, "Arrow 1" represents the value proposition offered by the incumbent institution through sustaining innovation. Due to the pace of technological progress, incumbent's value proposition overshoots the value required by high net worth customers ( wealthy customers with capital ) to differentiate among competitors and charge higher prices. The overshoot value is represented by "A" in Figure 2 [22]. "Arrow 2", shown in Figure 2, represents the new value proposition offered by the new entrant generated by disruptive innovation. The disruptive innovation of new entrant starts as a lower value proposition than incumbents. New entrant undershoots value to attract low net worth ( low income ) customers of incumbent ( represented by "B" in Figure 2 ) [22].

Through sustaining innovation, the new entrant is able to offer a better value proposition than the incumbent and gain an established position in the low-end market. This behavior is shown in Figure 2 by the intersection point "C" of the dotted line that represents the low net worth customer's demand and the value proposition of new entrant [22].

After the disruptive innovation gains an established position in the new or low-end market, the new entrant starts to reach the demand of high net worth customers. We can observe this behavior in Figure 2, where the disruptor starts

moving from point “C” to point “D”. Then, the less performing innovation improves enough to satisfy the needs of more demanding customers, reaching point “D” in Figure 2 where the products and capabilities demanded by high net worth consumers are satisfied [2], [22].

A good example that is not related to the financial services industry, but useful to understand this failure framework is the video game hardware industry. Since the introduction of Atari, video games consoles evolved improving their power processing capacity. The PlayStation 3 is a sustaining innovation for Sony, because enhances a product that is already being offered (PlayStation 2). The traditional measure of the value is the graphics performance and the amount of polygons represented on the screen. Sony used this high processing power of PlayStation 3 to differentiate among the competition (Microsoft and Nintendo). Nintendo Wii is a disruptive innovation, changing the way people play video games by innovating the gaming controllers. If you compare the Nintendo Wii with the PlayStation 3 in processing power dimension, Nintendo Wii is a lower performer. Nintendo Wii changed the value in the video games industry. The disruption of the market is clear, Wii is leading the sales of the current generation of video game consoles. Nowadays, Sony and Microsoft are developing motion controllers to incorporate into their platforms the innovation introduced by Nintendo.

### 3.2 The innovation pentagram for the financial services industry

In this Subsection, we use the innovation dimensions explained in Subsection 3.1 to describe different innovation approaches that are used in the financial services industry.

The innovation pentagram shown in Figure 3 is a framework designed to visualize different innovation opportunities in the financial services industry. Each triangle of the innovation pentagram for the financial industry represents a field for innovation opportunity: products, markets, experiences, channels and business models [13].

The gray semi-circle areas in each triangle of the innovation pentagram in Figure 3 represents the probability for disruptive innovations and the remaining white area of the each triangle represents the probability for sustaining innovations from the competitive dimension.

The dotted lines within each innovation opportunity triangle represents the likely mix of newness innovations. The innovations dimensions are labeled by a letter inside a circle for each delimited dotted area. Incremental innovation is labeled by the letter “I”, revolutionary innovation is labeled by the the letter “R” and breakthrough innovation is labeled the letter “B”.

Next, we describe the innovation approaches identified in the innovation pentagram for the financial industry as presented in [13].

#### 3.2.1 Product innovation

The focus on product innovation is the main force of innovation in the financial services industry. Financial services companies are constantly developing new products and marketing to their clients to sustain the current business mod-

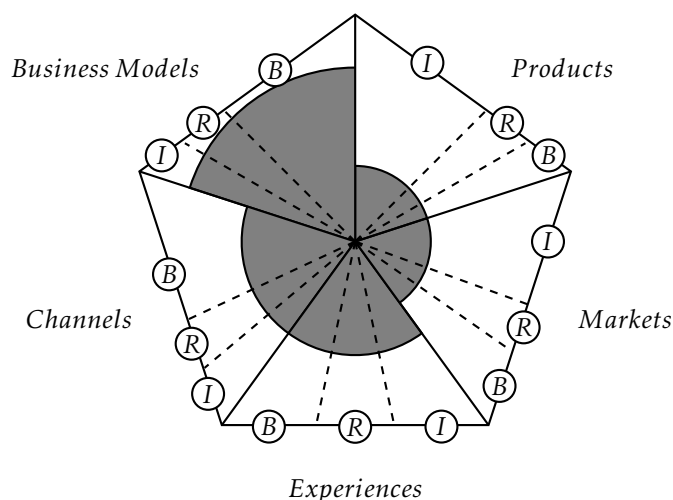


Figure 3: Innovation pentagram of the financial industry [13]

els. These new products do not deliver a sustainable competitive advantage because they can be easily imitated by the competition [26], [27].

In the innovation pentagram depicted in Figure 3, we can see that product innovation is mainly driven by incremental innovations. These incremental innovations are achieved by the introduction of modifications to an existing line of products [26].

### 3.2.2 Market innovation

A financial institution is not present in every market and customer segment. These unexplored markets are an innovation opportunity to expand the revenues of financial services companies [13].

Market innovations are used by incumbents to sustain their current strategy rather than disrupt the market. Innovating on markets is mostly incremental, because financial service companies find easier to adapt a current innovation to a new market rather than to create a new category for them. Since most financial service companies do not innovate specially for a market, breakthrough and revolutionary innovations are less likely to happen.

Financial service companies are used to buy foreign companies or create new ones to enter into a new market to sustain their business models. In 1960s multinational banks emerged to support U.S industrial companies that started to expand geographically. U.S banks like Citibank, Chase Manhattan, and JP Morgan followed their corporate clients abroad to service them and then entering into additional business segments. Incremental innovation has been used to improve their products and services using information technologies [8].

### 3.2.3 Experience innovation

Experience innovation is about focusing on the improvement of the interaction with the customers. The enhancement of the customer experience requires the

adoption of a customer oriented focus by the company (known as outside-in, meaning that the company takes care about the customer needs to enhance their experiences) [28].

Currently, the most common perspective used by organizations is the inside-out view, which only includes the internal vision to deliver a product or a service without the consideration of the customer needs. When the company considers the customer, they see the customer as a co-creator, because the inputs of the customer are key components of the customer experience and not just a one-way offer from the company to the consumers [29], [27], [30].

The experience innovation in the newness dimension is equally probable for breakthrough, revolutionary and incremental innovations, because the innovation on the customer experience could be equally applied using any kind of innovation.

In the competitive dimension, the probability for disruptive innovation on the experience innovation is medium because the financial industry is still organized in separated products instead of in an unified customer experience way. Disruptive innovations that are focused on the customer experience could gain market share taking away the customer loyalty [30].

An example of experience innovation is the pilot program in interactive tables that is being developed by Logica and Rabobank in The Netherlands. The project explores the new interactive Microsoft Surface tables technology, a breakthrough innovation to enhance the customer experience in financial services. Microsoft Surface is a “multi-touch computer that responds to natural hand gestures and real-world objects, helping people interact with digital content in a simple and intuitive way” [31]. The solution is aimed at enhancing the customer experience, allowing bank’s employees to explain mortgages and loans in an easy and interactive way. The interactive table experience innovation in the competitive dimension is a sustaining innovation. The interactive table experience sustains the banking business, differentiating from competitors and winning more customers in the established retail banking market [32] [33].

#### **3.2.4 Channel innovation**

Channel innovation is about reaching customers in innovative ways. Incumbents and insurgents in the financial service sector are using different channels innovations to reach customers. In the competitive dimension, the occurrence of disruptive or sustaining innovations is equally probable. In the newness dimension, breakthrough innovations is more probable because of the exploration of new technologies.

Revolutionary and incremental innovations of the newness dimension are equally probable to happen in the newness dimension [13].

An example of channel innovation that uses internet as a payment channel is the payment service in the Dutch market provided by iDeal. This innovation let customers to do on-line payments in electronic commerce stores using their bank account. In the newness dimension iDeal is a revolutionary innovation, because is a superior method of payment for the Dutch market. In the competitive dimension iDeal is sustaining innovation for the traditional banks [34].

### 3.2.5 Business model innovation

Financial service institutions can also innovate in business models. “A business model describes the rationale of how an organization, creates, delivers and captures value” [7]. Business model innovation is the capacity to reframe an existing business model in new ways that create new value for the customers. Business model innovation can be a path to gain competitive advantage if the model is sufficiently differentiated and hard to replicate for incumbents and insurgents [35], [36].

In the newness dimension, business models innovations are most feasible to achieve through breakthrough innovations. Revolutionary and Incremental innovations offer less opportunities to business model innovation. Breakthrough innovations, due to the exploration of new technologies, brings the best opportunity for companies to reframe their business models in new ways. Companies could achieve breakthrough innovations, but they tend to commercialize new technologies through their current business models.

In the competitive dimension, the disruption of the market is more feasible through business model innovation. Business model innovation is a key factor in harnessing a disruptive innovation in order to transform an industry [37]. The main problem for companies to innovate their business model is that the capability to disrupt themselves is quite low. Academic research shows that existing assets and business models are the barriers to business model innovation. The profit margins from disruptive innovations start relatively below the current sources of incomes. This fact makes companies to keep focused on their more profitable resources, leaving behind the possibilities of self-disruption [38], [39], [25], [22].

Business model innovation is vitally important, but difficult to achieve. Companies need to embrace an attitude toward business model experimentation. Some experimental models will fail, but provide information to new approaches. Organizational aspects will need to find ways to embrace a new business model, maintaining the effectiveness of the current business model until the new one is ready to fully take over [39].

An example of business model innovation is Peer-to-Peer lending created by Zopa ( analyzed in Section 6.1.1).



## 4 Business model frameworks

In this section we depict business model frameworks, since there is a relationship between innovations (from Section 3) and business models. Financial services companies are using innovations as a driver to support or change their business model. Innovations are used to support the current business model of a company through the enhancement of their products, reaching new markets, revamping customer experiences or improving their channels. Innovating in business models implies a departure from how the company currently do business, which explain why this kind of innovation is pushed by new entrants into the financial services market and not by established companies.

Innovations without a business model will fail to deliver value to their customers. “The essence of a business model is in defining the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit” [36]. Alexander Osterwalder did an extensive literature review about business models definitions and concepts in his Ph.D thesis. He define a business model as : “A business model describes the rationale of how an organization, creates, delivers and captures value” [7], [40].

In this section, we describe two selected frameworks to provide complementary visions. The first selected framework, the business model canvas by Alexander Osterwalder, is a visual representation to describe a business in an easy to understand manner. We selected this method because is based on an extensive research about business models and is currently used in organizations such as IBM, Ericsson, Delloite and many more [39], [40], [7].

Since financial services are being under a major transformation due to e-business, we need a specially designed a framework focused on the impact of e-business elements on business models [41]. The second selected framework is the business model for e-business by Paul Grefen. We selected this method because provides specific ingredients for a business model like business drivers, chains, directions and structures. This components are important to consider with financial service companies, because they do businesses as financial intermediaries. For example, using business chains we can analyze the disintermediation and reintermediation of financial services.

The two frameworks are complementary. With the business model canvas we can represent any kind of business, but we can not address in detail e-business elements. The business model canvas, complements the e-business vision because we can provide a better overview of the business model, thanks to the visual representation of the four business areas. The business for e-business complements the business model canvas, including specific e-business components that are needed to analyze innovative business models in the financial services industry.

### 4.1 The business model canvas

The business model canvas describes a business model through nine basic building blocks that show the logic of how a company intends to make money. The nine blocks cover the four main areas of a business: customers, offer, infrastructure and financial liability. The four areas are influenced by the Balanced Scorecard (BSC) of Kaplan and Norton, and more general management literature. The BSC influences the four areas as follows: the customer area

is influenced by the customer perspective, the offer area is influenced by the innovation and learning perspective, the infrastructure area is influenced by the internal business perspective and the financial area is influenced by the financial perspective. The customer area includes three building blocks: customer relationships, customer segments and channels. The offer area includes the value propositions building block. At last, the financial liability includes two building blocks: cost structure and revenue streams [40], [7]. The visual representation of the business model canvas is shown in Figure 4.

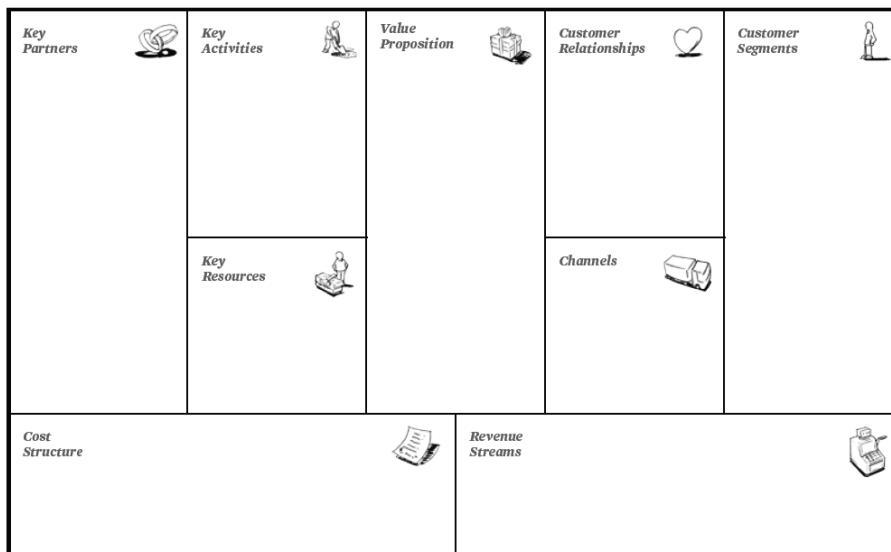


Figure 4: Business model canvas [7]

As presented in [7], the building blocks are:

- **Customer segments:** “defines different groups of people or organizations an enterprise aims to reach and serve”.
- **Value propositions:** “describes the bundle of products or services that create value for a specific customer segment”.
- **Channels:** “describes how a company communicates with and reaches its customer segments to deliver a value proposition”.
- **Customer relationships:** “describes the types of relationships a company establishes with specific customer segments”.
- **Revenue streams:** “represents the cash a company generates from each customer segment” .

- **Key resources:** “describes the most important assets required to make a business model work”.
- **Key activities:** “describes the most important things a company must do to make its business model work”.
- **Key partnerships:** “describe the network of suppliers and partners that make the business model work”.
- **Cost structure:** “describes all cost incurred to operate a business model”.

## 4.2 Business model for e-business

The business model for e-business framework is composed by the e-business classification space and the business (B) aspect of the BOAT framework. In Figure 5, the ingredients are shown to analyze a business model in the e-business. The vertical lines represent the classification dimension that are useful to categorize business models. The classification dimensions are parties, objects and time scopes. The horizontal line represent the B aspect and its components are business drivers, business chains, business directions and business structures.

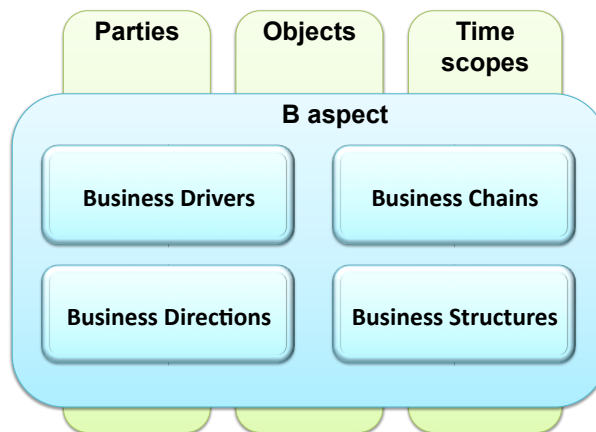


Figure 5: Business model for e-business

In the following sections we describe the business model fore-business components : the classification space and the B aspect of the BOAT framework.

### 4.2.1 E-business classification space

The classification space is a tool to classify business models in e-business in three orthogonal dimensions : parties, objects and time scopes. The dimensions are described as follows:

- **Parties:** Defines the parties that perform the e-business activities. The main party combinations that we can be distinguished are Business to Business (B2B) e-business, Business to Consumer (B2C) e-business and Consumer to Consumer (C2C) e-business.
- **Objects:** Defines the type of objects that are primary manipulated by e-business activities. The objects that we can distinguish are physical goods, digital goods, services, financial goods and hybrid objects (any combination of the above).
- **Time scopes:** Defines the duration of the collaboration between the parties involved on the e-business activities. The collaboration could be static, semi-dynamic, dynamic and ultra-dynamic.

#### 4.2.2 B aspect of the BOAT framework

The BOAT framework is a method to analyze and build e-business cases using four aspects: business (B), organization (O), architecture (A) and technology (T). In this report we only use the B aspect of BOAT, because is the related aspect with business models. The O, A and T aspects are not discussed on this report because the business model for e-business is a subset of e-business cases.

The topics in the B aspect could be the leverage of efficiency levels, access to new markets, reorientation of interaction with customers, etcetera. This aspect is focused in the why question, how things are done is not of interest in this aspect [42]. The B aspect components are described as follows:

- **Business drivers:** Contains the essential for contacting business parties, engaging into business with them and retaining them as a partners using information and communication technology (ICT). Through ICT we can increase reach and richness.
- **Business chains:** Describes the restructuring collaborations in a business chain like disintermediation, reintermediation, reconstruction and deconstruction, and integrated bricks and clicks.
- **Business directions:** Depict the new business directions that can be distinguished in the e-business domain like true on-time and on-line capability, enriched Customer Relationship Management (CRM) and time-compressed e-business.
- **Business structures:** Covers the new business structures of collaboration with consumers and between business partners. The traditional approach of supply chain is changed to demand chains, highly supply chains and dynamic service outsourcing.

### **4.3 Summary of this section**

In this section, we discussed two complementary business models frameworks. With the business model canvas framework, we can represent any kind of business model with a visual overview in an easy to understand manner. The business model for e-business complements this representation, including the specific e-business components. These components are needed to analyze insurgents with innovative business models, which are changing the business chains in the financial services industry. In Section 5, we use these two complementary frameworks to present our method to analyze innovation-driven business models in the financial services industry.

## 5 A method to analyze innovation-driven business models in the financial services industry

In this section, we describe an analysis method for business models driven by innovation. With our method, we can analyze a business model from the innovation, technology and business perspectives. The method is based on the combination of three frameworks.

The innovation perspective is needed to identify the innovation driver that changes or create business models. The innovation driver can be identified using the innovation pentagram for the financial services from Section 3.2, where we categorize the innovation by different kinds of innovation opportunities and by the competitive and newness dimensions from Section 3.1.

With the business perspective, we provide a complete overview of a business model. This perspective is described using the business model canvas from Section 4.1 which includes nine building blocks to provide a broad view in a simple manner.

In the financial services industry electronic business is being used by incumbents to support their business and by insurgents to disrupt the market. The technological perspective describe the electronic business elements needed using the business model for e-business framework from Section 4.2.

Our method contains three steps for the analysis of innovation driven-business models. The steps are as follows:

1. **Apply the business model canvas:** Describe the business model using the canvas from Section 4.1. Identify the nine building blocks and produce a visual representation as shown in Figure 4.
2. **Apply the business model for e-business:** Identify the components of the business model in e-business from section 4.2. Fill the components shown in Table 1 (listing the relevant e-business components).

Business model for e-business
Parties
Objects
Time scope
Business drivers
Business directions
Business chains
Business structures

Table 1: Business model for e-business

3. **Identify the Innovation driver:** Categorize the innovation opportunity using the innovation pentagram for the financial industry and categorize the innovation in the competitive and newness dimensions from Section 3. Fill the innovation driver summary, shown in Table 2 (listing the rele-

vant innovation concepts).

Innovation driver
Innovation opportunity
Competitive innovation dimension
Newness innovation dimension

Table 2: Innovation driver summary

The method presented is used in Section 6 to analyze the emerging innovation-driven business models in the financial services industry.

## 6 Emerging innovation-driven business models in the financial industry

In section 5, we described a method to analyze innovation-driven business models in the financial industry. In this section, we present a set of business models driven by innovation and analyze them using our method. The selection of the business models is made on the basis on their impact on the current financial industry [43], [13].

### 6.1 Peer-to-Peer lending

**Business model canvas:** The concept of borrowing money between people is not new. Even in the year 2000, Tapscott predicted the arrival of new internet based intermediaries referred by him as “investormediaries”. These “investormediaries” would be capable to manage lending at very low cost, inviting depositors to lend money to borrowers [44].

In deed, as predicted new electronic intermediaries emerged. Peer-to-Peer (P2P) lending, also known as social lending, is an emerging alternative to banks and personal loans that allows individuals to lend/borrow money to each other directly [45], [44].

The value proposition of P2P lending to borrowers is the opportunity to obtain loans at lower interest rates and costs. In P2P lending we can distinguish between two consumer segments: the borrowers and the lenders. A borrower is viewed as an investor. The investor’s money is divided across different lenders to distribute the risk. For lenders, the value proposition of P2P lending relies in the investment opportunity with higher rates of return on investment than traditional financial institutions [45]. The P2P lending business model is visualized in Figure 6.










<i>Key Partners</i> 	<i>Key Activities</i> 	<i>Value Proposition</i> 	<i>Customer Relationships</i> 	<i>Customer Segments</i> 
Credit Scoring companies	Platform Maintenance and development	Profitable Investment opportunities	community	Wealthy investors
Loan processing banks	<i>Key Resources</i>  P2P Lending Platform	Easier access to credit	<i>Channels</i>  P2P Website	Borrowers without traditional access to credit
<i>Cost Structure</i> 	IT infrastructure	<i>Revenue Streams</i> 	Partners fees	
Software Developments	Partners fees	Percentage or fixed fees for loans Percentage fees for received payments		

Figure 6: P2P lending business model canvas



The P2P lending business model uses a website to reach their customers. The key asset of the P2P lending business model is the lending platform that mediates between borrowers and lenders [46].

The revenue streams of P2P lending companies are based on fixed fees or a percentage. The percentage fee for borrowers is between 0.75 % and 3.5 % of their loan amounts. For lenders, the percentage fee is between 0.5 % and 1% of the payments received [46].

The cost structure fits concentrated in the maintenance and development of the platforms and the payment for the key partners services. These key partners companies are credit reporting institutions and loan processing banks.

**Business model for e-business:** P2P lending is a consumer-to-consumer (C2C) business model. The parties are consumers who exchange financial objects (money). The time scope is static, because P2P lending partners are the same for every user. The business drivers of this business model are the increased reach that let users to borrow/lend financial objects and the rich interactions that are developed between borrowers and lenders [47]. The business direction of this business model relies in the true on time and on line capability of the platform to exchange the financial objects between people that is used to disintermediate and reintermediate the traditional credit offered by incumbent financial companies. Business structures are traditional supply chains. A summary of the P2P lending business model for e-business is shown in Table 3.

Business model for e-business	
Parties	C2C
Objects	Financial
Time scope	Static
Business drivers	Increased reach and richness
Business directions	True On-time and On-line
Business chains	Disintermediation and reintermediation
Business structures	Supply chain

Table 3: P2P lending business model for e-business

**Innovation driver:** P2P lending is a disruptive, breakthrough, business model innovation. P2P lending is disruptive because is a lower performer in the financial industry when is compared with traditional financial services institutions. In the newness competitive dimension, P2P lending is a breakthrough innovation because this innovation creates a new category in the lending industry. A summary of the innovation driver is shown in Table 4.

Innovation driver	
Innovation opportunity	Business model
Competitive innovation dimension	Disruptive
Newness innovation dimension	Breakthrough

Table 4: Innovation driver of the P2P lending business model

In the following subsections we give two examples of the P2P lending business model : Zopa and Lending Club.

### 6.1.1 Example 1: Zopa

The name Zopa comes from the negotiation theory concept “Zone of Possible Agreement”. The company discovered the need of an undeserved market. The “freelancers” are self-employed, project-based or freelance workers that are not in a full time employment with irregular incomes and lifestyles [48].

Zopa adds value to consumers by eliminating the need to work with traditional financial institutions for obtaining credit. It eliminates the requirement for the many face-to-face interactions and manual processes that have traditionally been part of borrowing. The company also raises flexibility and transparency for customers well above the industry standard, as customers can borrow smaller amounts over shorter periods and are not charged additional fees if they repay early [48].

Zopa tried to lock down its key asset based on a proprietary marketplace-matching platform, but it recognizes that the business model concept of P2P lending can not be exclusive [48].

### 6.1.2 Example 2: Lending Club

Lending Club offer proposition is based on being cheaper and faster than traditional consumer credit. For example, Lending Club's rate for the best credit risks is 7.88%, whereas the bank rate for personal loans, on average is over 13%. A credit-worthy borrower gets the money faster and for 5% less. Lending Club starts with traditional credit scoring and adds a proprietary assessment of customer reputations within their social networks [47] . Lending Club is unique in that it makes nearly all that information public (aside from data that could lead to privacy concerns), tracking and publishing the history of every loan. Lending Club posted to its website the formula it uses to measure default risk and determine the interest rates its borrowers had to pay. Most banks keep in secret the risk assessment algorithm as a competitive advantage. Lending Club open-sourced their algorithm, asking readers to submit their own tweaks and improvements.

After receiving a slew of suggestions, the site's engineers decided to modify the equation, assigning less weight to debt-to-income ratio, for instance. Other Lending Club lenders downloaded the equation and came up with their own proprietary improvements, devising a better formula so they could cherry-pick borrowers who were wrongly categorized as risky and charge them higher interest rates without worrying about defaults. All this innovation benefited not just individual lenders but the entire ecosystem. Lending Club's default rate is a staggeringly low 2.7 % (versus nearly 5.5 % for prime credit cards) [49].

## 6.2 Social investing portfolio

**Business model canvas:** The value proposition of social investing portfolio business model is to offer transparent records for people who want to invest by following and replicating the trades made by successful investors. The investment records are transparent, because the followers can always see the moves

of a successful investor leader. A visual representation of the social investing portfolio business model is shown in Figure 7.

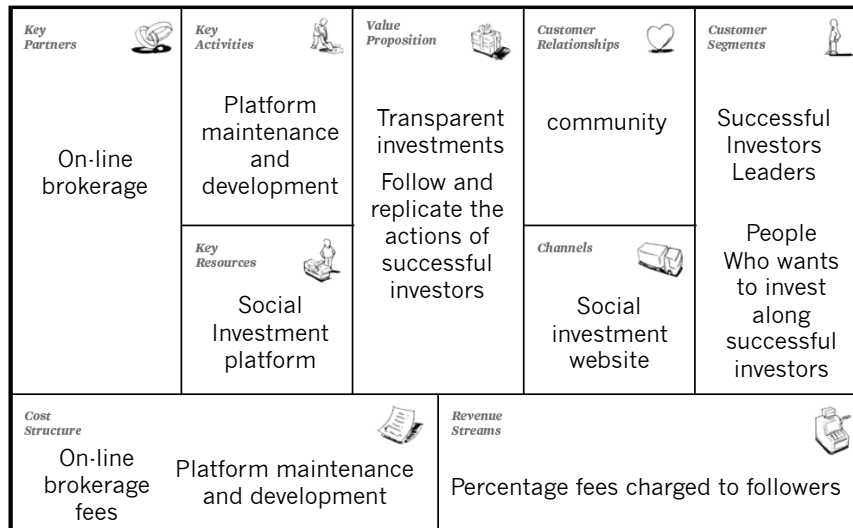


Figure 7: Social investing portfolio business model canvas

The customer segments are investors and followers. Investors who share investment strategies with an outstanding performance in stock trading and followers who are seeking for better investment opportunities. The customer relationship is made by the interaction of the investment community (investment leaders and followers) through the social investment website channel. The customer relationship is made by the interaction of the investment community between the investment leaders and followers through the channel represented by the social investment website.

The key resource is the social investment platform in which key activities like maintenance and development happen. The key partner is an on-line brokerage service, which provides the back-end for automated transactions that are triggered by investor's followers. The revenue stream comes from the percentage fees charged to the investment followers. The cost structure is driven by the platform maintenance and development, the percentage fees that are paid to the investor leaders for sharing their stock trading moves and the fees paid for the on-line brokerage partners that execute the transactions.

**Business model for e-business:** The social investing portfolio is a C2C business model. The parties involved are consumers who trade financial objects (stocks). The time scope is static, because the relationship with the on-line stock brokers is long-lasting.

The business drivers of this business model are increased reach delivered by the web-channel and the richness on investment opportunities and information available. The social investment portfolio business model changes the business chains disintermediating and reintermediating the access to investment experts that was previously available only for wealthy investors through

private banking. The business directions are true on-time and on-line capability, because the follower user can always look and stop following a leader investor at any time. Time-compressed is also a business direction, since the social investing platform automatically triggers the transactions made by a investor for a follower. The business structure of this business model is the standard supply chain provided by the on-line brokerage partners to accomplish the automated transactions in the social investment platform. A summary of the social investing portfolio business model for e-business is shown in the Table 5.

Business model for e-business	
Parties	C2C
Objects	Financial
Time scope	Static
Business drivers	Increased reach and richness
Business directions	True on-time and on-line Time-compressed e-business
Business chains	Disintermediation and reintermediation
Business structures	Supply chain

Table 5: Social investing portfolio business model for e-business

**Innovation driver:** The social investing portfolio business model is driven by business model innovation opportunity. The innovation is breakthrough, since it establishes a new category in the market. The innovation is disruptive as it introduces transparent investment which was not offered by traditional investment companies like mutual funds. The disruptive innovation started as a low performer, for example KaChing a social investment portfolio company started as a Facebook game about fantasy stock market. A summary of the innovation driver of the social investing business model is shown in the Table 6.

Innovation driver	
Innovation opportunity	Business model
Competitive innovation dimension	Disruptive
Newness innovation dimension	Breakthrough

Table 6: Innovation driver of the social investing business model

Next, we give two examples of the social investment business model : Covestor and KaChing.

### 6.2.1 Example 1: Covestor

Covestor is an investment site that recruits traders with strong track records, good returns and a defined strategy to become “model managers”. Covestor allows users to follow these “model managers” and replicate their market moves of traders with strong tracks records [50].

Covestor brings a service that was perviously available through firms only to wealthy individuals as separately managed accounts (SMAs). SMAs are individual investment accounts overseen by professional money managers. Money managers of SMAs usually handles clients who are seeking a particular investment style or strategy with investments between \$100.000 to \$250.000 U.S dollars per account who pays from 1% to 3% of account assets [51].

Covestor formed Covestor Investment Management (CVIM) a SEC registered investment advisor (RIA) that uses a separate brokerage account from TD Ameritrade Holding Corp. or Interactive Brokers Group Inc. to perform the actual trades that are linked to a “model manager” [51]. Covestor charges between 0.5 % to 1.5 % of traded funds [50] and the minim investments starts at \$10.000 U.S dollars [51].

### 6.2.2 Example 2: KaChing

KaChing is an investment site that lets professional investors and amateurs post their stock trades [52]. Each investor has its own investment IQ and strategy that are used to decide if they qualify as an outstanding investor which are known as Genius with the goal to earn money as stock trading advisors. To qualify as a Genius, an stock investment advisor, an IQ of at least 140 is required with an investment track record of at least twelve months in which no single position in the portfolio represents more than the 25% of the market value [53]. KaChing let users to follow or mirror the investments made by the Geniuses. Kaching ask for a the minimum amount of \$3.000 dollars to perform the mirror transactions of a Genius. The mirroring of the genius stocks are processed by their key partner Interactive Brokers [54] in which the automated trades are made. KaChing charges customers a single management fee between 0.25% to 3% set by each investor, keeping a quarter of the fee and the rest for the investor [54].

## 6.3 On-line personal finance

**Business model canvas:** The value proposition of the on-line personal finance (OPF) business model is the enhancement of customer experience that provides an easier way to manage expenses to save money. A visual representation of the OPF business model is shown in Figure 8.

The customer segments are the web savvy customers that want to save money. OPF uses a website and a smartphone application as channels to reach the customers. The cost structure is given by the platform development maintenance since they do not have physical facilities. The customer relationship is achieved through communities, where people access to aggregated data to compare their personal expending.

The key partners are banks, credit card companies and stock trading companies that use the platform to advertise their products. The OPF revenue streams comes from the payments on the recommendations that are made to the users by referred companies or by providing the service to banking and credit card companies.

The key resources of the OPF are the platform and the consumer data. The key activities of the OPF business model are the analysis of user data to compute the spending trends of the community and advise the users about the










<i>Key Partners</i> 	<i>Key Activities</i> 	<i>Value Proposition</i> 	<i>Customer Relationships</i> 	<i>Customer Segments</i> 
Banks	Search for best interest rates	Easier expense management	Communities	Web savvy consumers who wants to save money
Credit card companies	Spend trending analysis	Helps user Save money	<i>Channels</i> 	Traditional Financial institutions
Stock trading Brokers	<i>Key Resources</i>  OPF platform Consumer data	Enhanced customer experience	OPF website Smartphone application	
<i>Cost Structure</i>			<i>Revenue Streams</i> 	
Platform maintenance and development		Referrals for saving opportunities or paid services for financial institutions		

Figure 8: OPF business model canvas

lowest interest rates of financial service providers.

**Business model for e-business:** The OPF is a B2C business model when the users access directly the service and a B2B business model when the company sells OPF as a service for banks. A summary of the OPF business model for e-business is shown in Table 7.

Business model for e-business	
Parties	B2C, B2B
Objects	Financial
Time scope	Static
Business drivers	Increased reach and richness
Business directions	True on-time and on-line
Business chains	Multi channel business design
Business structures	Disintermediation and reintermediation
	Supply chain

Table 7: OPF business model for e-business

The parties involved in OPF are businesses and consumers who trade financial objects (money). The time scope of this business model is static, because the relationship of the partners involved in the collaboration is long-lasting. The business drivers of the OPF business model are increased reach through the web and smartphone channels that provide an increased richness. The increased richness is achieved thanks to the high level of interactivity that is provided by the manipulation of information and interaction with other users. The OPF disintermediate user's access to regular electronic banking websites because they gather and display the information from traditional banks, cre-

ating a new link in the chain between the user and their financial data [13]. The business directions of this business model are driven by the true on-time and on-line capability that gathers information from the traditional financial services accounts of the user and by the multi-channel business design that allows users to interact with the service through a smartphone application that is being synchronized with the OPF website.

**Innovation driver:** The OPF business model is driven by channel innovation. The competitive dimension, is disruptive innovation because is a lower performer compared to the features provided by financial desktop software and transactional electronic banking. OPF companies altered the finance software management industry forcing Microsoft to discontinue the production of the Money Plus desktop software [55]. OPF influenced banks, forcing them to integrate similar features into their electronic banking platforms to help customers to visualize their expending habits. OPF is a breakthrough innovation because created a new category previously dominated by desktop software.

A summary of the innovation driver of the OPF business model is shown in Table 8.

Innovation driver	
Innovation opportunity	Channel
Competitive innovation dimension	Disruptive
Newness innovation dimension	Breakthrough

Table 8: Innovation driver of the OPF business model

In the following subsections we give two examples of the OPF business model. Mint.com is the leading OPF company and Wesabe is a well known follower.

### 6.3.1 Example 1: Mint.com

Mint.com, an OPF start-up is recognized by the World Economic Forum as a pioneer. The start-up provides a free on-line money management service designed to help users to save money more easily. The service was launched officially in September 2007. In October 2009, mint.com had more than 1.5 million users. Users register anonymously, with only a valid email address and a postal code. The users need to provide Mint.com with the login details to all their bank accounts. By connecting to more than 7,500 U.S financial institutions, Mint.com applies technology to unscramble the transaction descriptions found on credit card, bank and brokerage statements. Mint.com processes data daily into neat graphs of cash flow and expenditure. Purchases are colorfully categorized to show how much a user spends in the pub, on parking, on rent or in restaurants. Users get a dashboard with their investment performance and fees that are clearly displayed [56].

The OPF Web site provides recommendations to their users to save money using cheaper credit cards, based on their own spending patterns. Mint.com makes its revenue from these referrals, obtaining fees from banks, brokers and other financial institutions. This service also alerts users when their bank bal-

ances are getting low or have any overdue bills. Mint.com also alerts about any potential suspicious activity on the customer accounts [56].

Another interesting Mint's feature is the "ways to save". This feature makes behavioral targeted advertising to customers based on credit score, purchasing history and other financial metrics. "Ways to save" is used by 20% of mint.com's customers.

### 6.3.2 Example 2: Wesabe.com

Wesabe is an OPF company that lets users visualize and track their spending automatically from over six thousands bank accounts and credit cards or manually by importing financial file types such OFX and QIF [57].

The service includes innovative comparison tools for spending habits, including a community platform which let users share tips on how to save money. The community interaction has three key features: Tips, Goals and Groups. The Tips feature can be used by users to get information about similar retailers and satisfaction ratings from their transaction information. The Goals feature can be used by users to track spendings in a specific tag where you can see and interact with other community members to share tips and experiences. The Groups feature is the common on-line forum where users can interact on s different topics [57].

Wesabe makes its revenue from offering a OPF solution for banks and credit unions called Springboard. For example, the platinum plan costs \$1.799 dollars per month for 120.000 users [58].

## 6.4 Electronic payment platform

**Business model canvas:** The value proposition of the electronic payment platform (EPP) is to provide a flexible payment infrastructure that can be accessed by any software developer.

The customer segments are startup companies, e-commerce websites and independent developers. EPP deliver flexibility, allowing their customers segments to incorporate innovative payment schemes into their business models. The customer relationship is engaged on the EPP's website channel where the developers can learn about the service and interact with other members of the community.

The key resource is the payment platform that is open to anyone who wants to implement an e-commerce solution. The key activities are the maintenance, development and documentation of the key resource represented by the electronic payment platform. The key partners are the developers and e-commerce partners that implement solutions, delivering the brand awareness of the payment providers across the internet.

The revenue streams come from transaction fees over the payments. The cost structure is given by the transaction fees from credit cards companies and banks and the platform maintenance, development and documentation.

A visual representation of the EPP business model is shown in Figure 9.

**Business model for e-business:** The electronic payment platform is a B2B business model. The parties involved are businesses who use the platform to



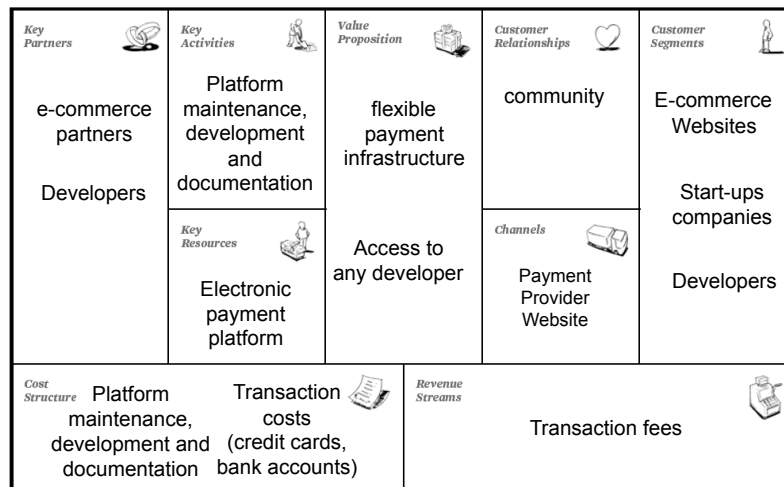


Figure 9: EPP business model canvas

trade financial objects. The time scope is static because the service offered is the same for all the business partners.

The business drivers are represented by an increased richness on the functionality and an increased reach through the internet channel. The business directions are true on-line and on-time access to the payment platform. The changing business chain is driven by the disintermediation and re-intermediation of the payment services with a powerful platform. The business structure is determined by the traditional supply chain.

A summary of the EPP business model for e-business is shown in Table 9.

Business model for e-business	
Parties	B2B
Objects	Financial
Time scope	Static
Business drivers	Increased reach and richness
Business directions	True on-line and on-time
Business chains	Disintermediation and re-intermediation
Business structures	Supply chain

Table 9: EPP business model for e-business

**Innovation driver:** The innovation opportunity of the EPP business model is channel innovation. The innovation is disruptive, because a specific payment functionality is offered targeting start-ups developers. The innovation is breakthrough, because the solution is a complete new category on the market.

A summary of the innovation driver of EPP business model is shown in Table 10.

In the following subsections we give two examples of the EPP business

Innovation driver	
Innovation opportunity	Channel
Competitive innovation dimension	Disruptive
Newness innovation dimension	Breakthrough

Table 10: Innovation driver of the EPP business model

model: Amazon Flexible Payments Service and PayPal Adaptive Payments.

#### 6.4.1 Example 1 : Amazon Flexible Payments Service (FPS)

Amazon FPS is a payment platform designed for clients who want to add a payment solution of their software. Amazon offers FPS Quick Start, which are sets of functionality to integrate payment transaction schemes into customer's websites. The Amazon FPS Quick Start are : Basic, Advanced, Marketplace and Aggregated [59].

Amazon FPS Basic Quick Start enables easy integration to websites that need to support one time payments through a payment button. Amazon FPS Advanced Quick Start provides input for a periodic or delayed payment required for subscriptions services like digital music or on-line storage. Amazon FPS Marketplace Quick start is designed for intermediaries that want to build their own marketplace, making it easier for them to have a share in a transaction made between a buyer and a third party seller. Amazon FPS Aggregated Payments Quick Start enables the developer to consolidate multiple transactions into a larger transaction to reduce payments cost, enabling end users to create prepaid balances that are used to make multiple smaller purchases or the developer can track multiple individual transactions and charge the aggregated amount later [59].

Amazon fees are per-transaction depending on the payment method used and the transaction amount. For example, the transaction fee for payments under \$10 U.S dollars that use credit cards as a payment method is 2.9 % of the transaction amount plus \$0.30 U.S dollars [59].

#### 6.4.2 Example 2 : PayPal Adaptive Payments

Paypal is the most successful internet payment scheme [60]. PayPal is extending their coverage as a platform through their Adaptive Payments. PayPal Adaptive Payments is designed to handle the payments between a sender and one or more receivers of the payments. PayPal defines three kind of Adaptive Payments : simple, parallel and chained payments [61].

"Simple payments" allows a sender to send a payment to the receiver, where the money of the sender is transferred from the customer's PayPal account to the receiver's PayPal account. An example of the usage of this payment method is a customized payment button on the receiver's website [61].

"Parallel payments" allows to a user of a website to send a single payment to multiple receivers. This payment method is useful for a website that integrates several merchants. In this case, the payment of an user will be deducted and transferred to the receiver's PayPal accounts.

“Chained payments” allows a sender to send a single payment to a single receiver who may keep part of the payment and send to secondary receivers the remaining amount. “Chained payments” are useful for an online travel agency which handles airline bookings, hotel reservations and car rentals. The sender sees the travel agency as the primary receiver that allocates a commission for the services. PayPal deduce the commission from the payments made by the user and deposits the remainder in the secondary receivers accounts [61].

## 6.5 Industrial equipment with telematics services

**Business model canvas:** The equipment with telematics services is not a financial service. However, since leasing companies finance equipments to their customers, this business model is relevant for them. The industrial equipment with telematics services (IETS) business model is focused on selling equipment that includes services based on telematics as a differentiator among the competition. Telematics is an asset management technology that helps industrial equipment customers like mining and rental companies to manage, monitor and maintain their physical resources. Nowadays, most major brands in the heavy construction equipment business are including telematics in their equipments [62]. A visual representation of the IETS business model is shown in Figure 10.

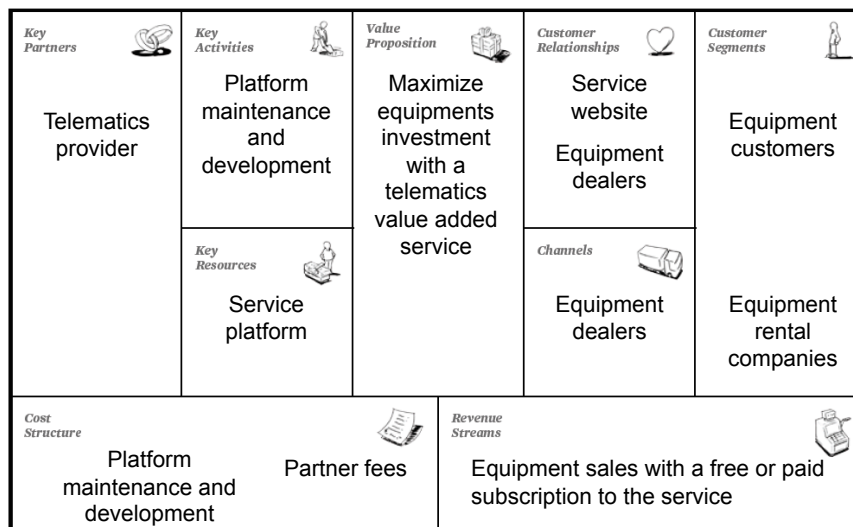


Figure 10: IETS business model canvas

The value proposition of the IETS business model is to maximize the return on investment (ROI) of industrial equipment through the value added service of telematics.

The key partner for the equipment provider on the IETS business model is the telematics partner who provides the asset management technology. The service is offered with the machine sales through the dealership channels which are targeted to equipment customers and rental companies that are attracted

to the value proposition [62].

The key activities of the business model are related with the maintenance and development of the key resource, the service platform. The cost structure of this business model are the partner fees and the platform maintenance and development. The revenue streams are driven by the sales of equipments bundled with the service or by optional payments for the service.

**Business model for e-business:** The parties involved are businesses (B2B) who trade hybrid objects composed by physical equipments with value added services. The time scope is static, because the relationship between the partners involved in the business models is long-lasting.

The business drivers of this model are the increased richness offered by the information delivered to the customer and the increased reach of the service across the world. The business directions of the business model are based on the true on-time and on-line access to the service, where the customer can access any time the information system through a website. Integrated brick and clicks is another business direction of this business model, since the traditional equipment sales integrates an electronic service to monitor them. The changing business chains is driven by reintermediation adding a link chain to the current equipment selling business. The business structure of this model is the traditional supply chain that is used to offer the equipment bundled with services. A summary of the IETS business model for e-business is shown in Table 11.

Business model for e-business	
Parties	B2B
Objects	Hybrid ( physical and services )
Time scope	Static
Business drivers	Increased reach and richness
Business directions	True on-time and on-line Integrated brick and clicks
Business chains	Reintermediation
Business structures	Supply chain

Table 11: The IETS business model for e-business

**Innovation driver:** The IETS business model is driven by experience innovation, since the focus is on helping the customers to maximize their equipment ROI. The experience on the way the customer interact with the maintenance of the equipment is truly enhanced thanks by the usage of breakthroughs innovations (newness dimension) on telematics that let users know more about their assets. This business model is a sustaining innovation, because supports equipment manufacturers current business model based on selling equipment with value added services. A summary of the innovation driver of the IETS business model is shown in Table 12.

Next, we describe two examples for the IETS business model: Komatsu's komtrax and Volvo's CareTrack.

Innovation driver	
Innovation opportunity	Experience
Competitive innovation dimension	Sustaining
Newness innovation dimension	Breakthrough

Table 12: Innovation driver of the IETS business model

### 6.5.1 Example 1: Komatsu's komtrax

Komatsu is an innovative company that is using services to add value to the equipment sales. Komatsu developed the Komtrax service that track the location of its heavy machinery anywhere in the world. The service also records how much fuel every vehicle consumes and the amount of strain on the most heavily used weight-bearing parts [63].

The original purpose of Komtrax was to monitor leased equipment to prevent theft. Komtrax lets Komatsu to know how much wear and tear its machinery is getting and when it should dispatch staff to perform maintenance to customers. The record is useful to calculate the resale value of vehicles that get traded in for new purchases [63].

Komtrax's biggest benefit is the real time snapshot it provides of construction activities on every country where Komatsu does business. The information retrieved from Komtrax gives Komatsu the ability to react to market shifts with real time information. Knowing the usage information they can forecast the demand and pass this information to their parts suppliers [63].

The Komtrax service let customers access to a Web application for machinery information (location, fuel consumption, maintenance alerts, daily and monthly status reports). Komtrax is being used at this moment in 144,000 machines. Komtrax partly explains why Komatsu has avoided losses despite the freezing in building and mining projects across the world [63]. The service supplied to the customers is free of charge for those who purchased the equipments with Komtrax [64].

### 6.5.2 Example 2: Volvo's CareTrack

CareTrack is a system to monitor equipment which provides mapping and tracking, operation reports and service management [65].

The mapping and tracking allows customers to track their machines in real-time with valuable information like fuel levels and usage. The reporting features helps customers to know about fuel consumption and usage time of the tools to know the real work made by the equipments. The service management helps the customer to plan the maintenance and look up for service history [65].

## 6.6 Money service provider for unbanked people

**Business model canvas:** The market segment of this business model is the people without access to banking services. "Unbanked people" is a potentially rich source of revenue for financial service providers [13]. The Consultative Group to Assist the Poor (CGP), housed at the World Bank, found that more

than a billion people worldwide had a phone but no bank account [66]. A study conducted by the “Group Speciale Mobile Association” shows that the estimated unbanked people that could be signed by mobile phone financial services by 2012 is up to 360 million [66]. A visual representation of the money service provider for unbanked people business model is shown in Figure 11.

<i>Key Partners</i> Cell phone Company Credit card company Bank	<i>Key Activities</i> POS services Physical POS  <i>Key Resources</i> Cell phone company brand and infrastructure	<i>Value Proposition</i> Money Transfers and payments  Use any cell phone  Lower Transaction fees	<i>Customer Relationships</i> Cellphones Physical POS  <i>Channels</i> Cellphones Physical POS	<i>Customer Segments</i> Unbanked people
<i>Cost Structure</i> Platform maintenance Partner fees Physical POS			<i>Revenue Streams</i> Transaction fees	

Figure 11: Money service provider for unbanked people business model canvas

The value proposition is based on lower transaction fees than the current providers to transfer money or do payments for unbanked people with the ease and convenience of using a basic cellular phone. The channels used are the cellphones and physical points of sale (POS) to enable customers to make deposits and retrieve money. The customer relationship between the company and the customer is developed through the physical POS.

The key activities involved are Physical POS services and infrastructure management. The key partners for this business model are cellphone companies, cellphone manufacturers or network operators with traditional banking institutions like a bank or a debit card provider to store money and perform the financial transactions. The cost structure of this model is based on the platform maintenance, partner fees and the POS costs. The revenue streams are the transaction fees that are charged to the customers.

**Business model for e-business:** The parties involved in this business model are business and consumers who use financial objects to do payments and money transfers. The partners in this business model are static, since they have a long-term relationship to offer the service. The business driver is an increased reach thanks to the mobile phone devices that give a true on-line and on-time financial service access to unbanked people. Companies from the cellphone industry are using their resources to re-intermediate the banking chain [13]. A summary of the money service provider for unbanked people business model for e-business is shown in Table 13.

Business model for e-business	
Parties	B2C
Objects	Financial
Time scope	Static
Business drivers	Increased reach
Business directions	True on-line and on-time
Business chains	Reintermediation
Business structures	Supply chain

Table 13: Money service provider for unbanked people business model for e-business

**Innovation driver:** The money service provider for unbanked people business model is a market innovation. The innovation is disruptive because is a low performer compared with the current services offered by banks. After gaining market share this innovation could be improved using sustaining innovation to please the high-end segments of the market. It is revolutionary, because brings a superior designed service for people with basic cellphones, becoming a standard choice for a relevant market share. A summary of the innovation driver of the money service provider for unbanked people business model is shown in Table 14.

Innovation driver	
Innovation opportunity	Market
Competitive innovation dimension	Disruptive
Newness innovation dimension	Revolutionary

Table 14: Innovation driver of the money service provider for unbanked people business model

Next, we describe two examples of the money service provider for unbanked people business model.

### 6.6.1 Example 1: M-pesa

M-pesa stands for mobile cash (pesa is the Swahili word for cash). The M-pesa service is provided by the largest mobile phone operator in Kenya called Safaricom, part of the Vodafone group. M-pesa customers can use their mobile phones to transfer money between mobile phone users. The market targeted by Safaricom is the people without access to financial services. The customers do not need to have a bank account, they just need to register with Safaricom for a M-pesa account [67].

The M-pesa network has reached more than 6.5 million customers in two years. The average daily transaction of the whole M-pesa network is 1.96 million dollars with an average of 20 dollars per transaction. The cost per transaction is much cheaper and convenient than the competition in Kenya. For example, to send 25 dollars by Western Union the charge is 57.6 % plus the 5 % for the post office. In contrast, M-pesa charges 2.8 percentage for each transaction [66].

### 6.6.2 Example 2: G-cash

G-cash brings payments and money transfers services by mobile phones in three predominant low-income rural provinces in the Philippines targeting over 100,000 people. This project aims to reduce the physical time-consuming way to send money by trucks with a more convenient and secure way [68].

G-cash project is led by GXI inc., a subsidiary of Globe Telecom, which already has opened over 120,000 new G-cash accounts which have been used to send money domestically among other payment services [68].

### 6.7 Summary of the analysis

In Figure 12, we position the analysis of innovation-driven business models contextualized in the innovation pentagram from Section 3.2. Each business model is represented by a circle labeled with a number.

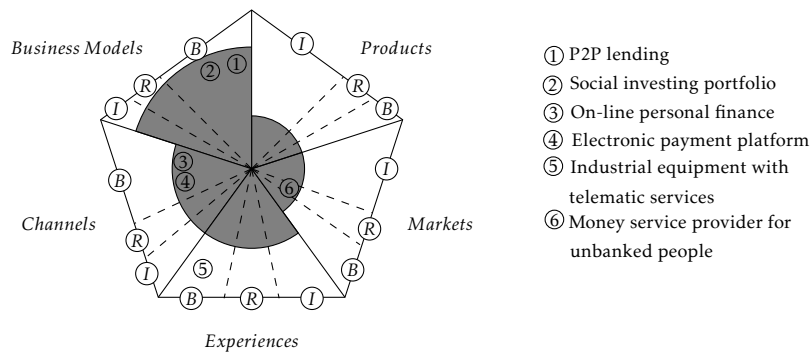


Figure 12: Emerging innovations visualization on the innovation pentagram for the financial industry

Business models innovations are P2P lending (labeled by the number “1”) and social investing portfolio (labeled by the number “2”). These business model innovations are based on breakthrough innovations that are disrupting the market. On-line personal finance (labeled by the number “3”) and electronic payment platform (labeled by the number “4”) business models that are driven by channel innovation, which are based on breakthrough innovations, defining a new category in the market. The industrial equipment with telematics services business model (labeled by the number “5”) is driven by experience innovation. In this case, the customer experience is enhanced by breakthrough innovation. The money service provider for unbanked people (labeled by the number “6”) business model is driven by market innovation, using revolutionary innovation to disrupt the market. Business models driven by product innovation opportunity are not present in the analysis, because represents how incumbents commonly sustain their business models.



## 7 Related work

This work integrates innovation and business models frameworks to provide a method to analyze innovation-driven business models that are emerging in the financial services industry.

Most of the literature in financial services innovations focuses on the technological aspect. In [23], the innovation theory sustaining and disruptive innovations is depicted, but only exemplifies the electronic banking case without describing a general method to study innovations and does not address the business perspective.

[23] describes an extensive coverage of technological advances in financial services. The book covers technological aspects that are being currently used by traditional financial services companies and does not cover new entrants to this field. In [69], M.Shahrokhi presents an extensive literature survey on technological innovations in financial services. The paper lacks any kind of innovation and business model concepts. However, it offers a complete overview of electronic innovations in traditional financial services.

In [2], Daniel Fasnacht describes the benefits of open innovation in the financial services. It is a good guide to innovation, describing methods on how to embrace open innovation [2]. In [13], Gardner provides a framework of innovation opportunities in financial services based on innovation concepts and theories. In this report, we extend the innovations opportunities identified by Gardner to depict an analysis method for innovation-driven business models.

In [27], innovation opportunities for financial services are identified, but the innovation concepts and theory are missing. The inclusion of the innovation theory is important, because they don not address if the identified opportunity will sustain of change the business model of a company

In [13], Gardner identify innovation opportunities in the financial services to provide an innovation framework for the industry. We extended the innovation opportunities described on the book, incorporating business models frameworks to provide a structured method to analyze innovation-driven business models.

## 8 Conclusions

This report is a contribution to the innovation and business models fields for financial services, describing a unified method to analyze business models driven by innovations. Financial services companies can use this method to derive an overview of the state of the art and as a strategic tool to plan innovation initiatives.

In this report, we have described different innovation opportunities in the financial services industry. These opportunities are reached through the newness dimension of innovation, in which we can distinguish three kinds of innovations: breakthrough, revolutionary and incremental. Breakthrough innovations, are concerned with the exploration of new technologies. Revolutionary innovations are superior to what replace, becoming a standard choice for a relevant market share. Incremental innovations are minor changes, exploiting existing technology.

From the competitive position of the firm (competitive dimension), innovations can be disruptive or sustaining. Disruptive innovations are focused on simplicity, affordability or accessibility. The disruption of the market is made targeting new or less demanding customers. Sustaining innovations, increase the capabilities of the current offer, making more appealing the value proposition to the more demanding customers.

In this report, we have analyzed six emerging innovation-driven business models. Five business models are from insurgents and one is from incumbents. The proportion is explained by the less risk-averse culture by insurgents which are more prone to disrupt the market.

Business model innovation is the most disruptive kind of innovation opportunity. Creating new business models is not an easy task to incumbents, due to the conflict of interest with their currently successful business model. Incumbents may face the choice of disrupting the market or being disrupted by insurgents. Being aware of this is the first step to explore new business models that are often postponed due to operational priorities.

Innovating in business models is most natural to achieve through breakthrough innovation. However, breakthroughs innovations require to take risk in a risk-adverse industry like financial services. This duality is the cause of the low level of attention to the breakthrough innovations in established companies in the financial industry. Insurgents are leading business model innovation. Examples driven by breakthrough innovations are P2P lending and social investing portfolio. The exploration of new technologies is a convenient tool to disrupt the market, but it will not have an impact if these are not applied in an innovative business model.

Incumbents are using incremental innovations to innovate in channels to sustain their business models. In the meantime, insurgents are innovating in channels using breakthrough innovations to disrupt the market. Examples for channel innovation made by insurgents, are the on-line personal finance and electronic payment platform business models.

Presently, incumbents master product and market innovation to sustain their business model using incremental innovations. Products are delivered with more features and markets segments are reached without modifying the core product and business of the company. These incremental innovations do

not offer the changes needed to disrupt the market. Insurgents, are using revolutionary innovation to provide specifically oriented solutions to new markets. An example for this kind of innovation is the money service provider for unbanked people which is specially designed for people without access to traditional bank accounts.

The main conclusion for the financial industry is that incumbents which only focus on improvement have limited options for future growth. A focus on breakthrough innovations is essential for incumbents to explore disruptive innovation. Companies must balance the exploitation of the current business with the exploration of new opportunities. However, this balance is hard to achieve due to the risk-averse culture in financial services. Chief executives need to position the exploration of breakthrough innovations as an important activity on financial services companies.

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