

**Barriers to innovation within large financial services firms**

**An in-depth study into disruptive and radical innovation projects at a bank**

Das, Patrick; Verburg, Robert; Verbraeck, Alexander; Bonebakker, Lodewijk

**DOI**

[10.1108/EJIM-03-2017-0028](https://doi.org/10.1108/EJIM-03-2017-0028)

**Publication date**

2017

**Document Version**

Final published version

**Published in**

European Journal of Innovation Management

**Citation (APA)**

Das, P., Verburg, R., Verbraeck, A., & Bonebakker, L. (2017). Barriers to innovation within large financial services firms: An in-depth study into disruptive and radical innovation projects at a bank. *European Journal of Innovation Management*. DOI: 10.1108/EJIM-03-2017-0028

**Important note**

To cite this publication, please use the final published version (if applicable). Please check the document version above.

**Copyright**

Other than for strictly personal use, it is not permitted to download, forward or distribute the text or part of it, without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license such as Creative Commons.

**Takedown policy**

Please contact us and provide details if you believe this document breaches copyrights. We will remove access to the work immediately and investigate your claim.



## European Journal of Innovation Management

Barriers to innovation within large financial services firms: An in-depth study into disruptive and radical innovation projects at a bank

Patrick Das, Robert Verburg, Alexander Verbraeck, Lodewijk Bonebakker,

### Article information:

To cite this document:

Patrick Das, Robert Verburg, Alexander Verbraeck, Lodewijk Bonebakker, (2017) "Barriers to innovation within large financial services firms: An in-depth study into disruptive and radical innovation projects at a bank", European Journal of Innovation Management, <https://doi.org/10.1108/EJIM-03-2017-0028>

Permanent link to this document:

<https://doi.org/10.1108/EJIM-03-2017-0028>

Downloaded on: 21 August 2017, At: 05:20 (PT)

References: this document contains references to 52 other documents.

The fulltext of this document has been downloaded 16 times since 2017\*

Access to this document was granted through an Emerald subscription provided by All users group

### For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit [www.emeraldinsight.com/authors](http://www.emeraldinsight.com/authors) for more information.

### About Emerald [www.emeraldinsight.com](http://www.emeraldinsight.com)

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

\*Related content and download information correct at time of download.

# Barriers to innovation within large financial services firms

## An in-depth study into disruptive and radical innovation projects at a bank

Patrick Das

*Department of Multi Actor Systems, Delft University of Technology, Delft,  
The Netherlands*

Robert Verburg

*Department of Values, Technology and Innovation,  
Delft University of Technology, Delft, The Netherlands*

Alexander Verbraeck

*Department of Multi Actor Systems, Delft University of Technology, Delft,  
The Netherlands, and*

Lodewijk Bonebakker

*ACM, Amersfoort, The Netherlands*

Received 14 March 2017  
Revised 2 June 2017  
Accepted 3 July 2017

### Abstract

**Purpose** – Since the 2008 financial crisis, the financial industry is in need of innovation to increase stability and improve quality of services. The purpose of this paper is to explore internal barriers that influence the effectiveness of projects within large financial services firms focussing on potentially disruptive and radical innovations. While literature has generally focused on barriers within traditional technology and manufacturing firms, few researchers have identified barriers for these type of firms.

**Design/methodology/approach** – A framework of internal barriers was developed and validated by means of an explorative case study. Data were collected at a European bank by exploring how innovation is organized and what barriers influence effectiveness of eight innovation projects.

**Findings** – Six items were identified as key barrier for potentially disruptive and radical innovations (e.g. traditional risk-avoidance focus, and inertia caused by systems architecture). As such, in the sample these were more important than traditionally defined barriers such as sources of finance, and lacking exploration competences.

**Research limitations/implications** – Based on a small number of projects within one firm, the results highlight the need for more in-depth research on the effects of barriers and how barriers can be overcome within this industry.

**Originality/value** – The results show that there is a discrepancy between the societal demand for radical change within the financial industry and the ability of large financial services firms to innovate. The study identifies which unique internal barriers hamper potentially disruptive and radical innovation in large financial services firms.

**Keywords** Innovation projects, Financial services, Disruptive innovation, Radical innovation, Innovation barriers

**Paper type** Research paper

### 1. Introduction

Established firms are continuously under threat of game-changing transformations and new firms that disrupt the market (Christensen, 1997). Globalization and digitalization are currently the main drivers of change; both governments and established firms have to adapt

© Patrick Das, Robert Verburg, Alexander Verbraeck and Lodewijk Bonebakker. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>



---

now to the challenges related to these changes (Parida *et al.*, 2015). So far, many established firms have embraced the necessity for innovation and have created processes, procedures, or even complete R&D departments to explore new technologies and opportunities. For example, since the 1990s, financial services firms have started to significantly improve their offerings. Such firms have digitized most of their business processes and used digital technologies to both improve and create new products and services. As a result more and more products and services are now available through both online and offline channels. Nevertheless, new players that mainly offer improved online products and services are continuously challenging established financial services firms to come up with new and improved services. Especially since the financial crisis in 2008, it proves hard to remain competitive and stay relevant in a rapidly changing environment with new global players and increasing market volatility. The current environment can be characterized as very dynamic because of a growing number of new global players (i.e. large technology providers as well as financial start-ups) that now offer traditional financial services, usually offered exclusively by established firms. For decades financial services firms could easily rely on mere incremental improvements of their service offerings, yet few were able to create innovations that could shape or create (new) markets (Berry *et al.*, 2006). Under the current market conditions, established financial services firms experience difficulties with embedding emerging technologies in order to explore and exploit new disruptive business propositions (Tushman and O'Reilly, 1996; Christensen, 1997). Whether they like it or not, such radical innovations are needed in order to survive.

Many barriers, challenges, and obstacles for effective innovation within established firms have been documented in literature (e.g. Cooper and Edgett, 2012; D'Este *et al.*, 2012; O'Reilly and Tushman, 2013). However, the growing literature in the area of innovation barriers focuses strongly on obstacles related to product firms and R&D teams in manufacturing firms. Less is known about the nature of such barriers for disruptive innovations within large financial services firms. This is especially relevant since such firms are continuously challenged by new legislation aimed at market stability and competitiveness (e.g. Basel III[1], MIFID II[2], and PSD II[3]). In addition, enabled by new technologies, new market entrants offer new and improved services that are traditionally not offered by the industry. Thereby, they force large financial services firms to also embed new technologies and offer new and competitive services. Unlike product and manufacturing firms, established financial services firms generally do not have an R&D tradition and are primarily focused on incremental improvements of current offerings. This implies that such firms need to leverage "new to the firm" capabilities, create structures, and embed processes to enable innovation (Geerts *et al.*, 2010). Consequently, successfully embedding this type of changes requires will impact a firm's subsystems (i.e. IT, HR, sales and market systems) and is associated with devastating organizational change effects (Henderson and Clark, 1990).

In this paper, we explore some of the key barriers for the development of potentially disruptive and radical innovations within large financial services firms. We focus on the internal barriers to innovation rather than the external ones, as we are particularly interested in the internal firm dynamics. First, we identify key traditional barriers to innovation of large firms on the basis of the current literature. Second, we identify a number of additional barriers through our empirical study. We conducted a case study at a large multinational bank in Europe. This particular bank introduced an innovation department in order to explore, develop, and commercialize new financial services more effectively. We focus on a selection of projects that were undertaken since 2014. We analyze a number of potentially disruptive or radical innovations in order to understand the specific barriers.

In the following, we first review the existing literature about innovation in financial services, types of innovation, and barriers to innovation. We also describe in detail our focus

---

area: large financial services firms undertaking potentially disruptive and radical innovation after the financial crisis of 2008. Second, we outline the research approach, substantiate selected cases for our study, present our framework to assess key barriers to innovation, and provide details regarding data collection and analysis. Third, we discuss our findings about barriers to innovation. Finally, we discuss the contributions of our research and conclude with limitations, suggestions for future research, and managerial implications to cope with barriers to innovation.

## 2. Literature review

Giving the societal and policy debate on innovation in financial services, there is a lack of empirical studies on internal barriers to innovation within financial services. Studies focus on consumer adoption barriers (Lee *et al.*, 2003) or cultural differences that result in barriers to implement innovations (Singer *et al.*, 2008). A number of relevant studies after 2008 focus on the impact of financial innovations on the market and customer behavior (e.g. Gerardi *et al.*, 2010; Amin *et al.*, 2008), the relationships between financial innovation and growth (Beck *et al.*, 2016), or the effect of an innovation such as the internet on a banks' profitability (DeYoung *et al.*, 2007). Hence, empirical research on the internal difficulties experienced by financial services firms to develop and launch innovations effectively is absent.

### 2.1 Types of innovation

Both practitioners and scientists have continuously introduced new types of innovation or loosely used existing types to invoke the concept of innovation to support of what is being studied or managed (Christensen *et al.*, 2015). In this study, we distinguish four types of innovation based on well-known dichotomies: the sustaining and disruptive innovation dichotomy (Christensen *et al.*, 2015), and the incremental and radical innovation dichotomy (Dewar and Dutton, 1986). In our study, we will use these four types of innovation in order to distinguish the different nature of the innovation projects under study.

A sustaining innovation focuses on improving products and services of established firms, also named incumbents (Mitchell, 1991), in the eyes of existing customers. Such innovations enable incumbents to sell more products to their most profitable customers and do not necessarily affect existing markets, as it involves new product releases or improved services (Christensen *et al.*, 2015). A disruptive innovation is usually targeted at an emerging market. It creates a new market by applying a different set of values for users, which ultimately (and unexpectedly) overtakes an existing market (Christensen and Bower, 1995).

Incremental innovations are minor improvements or simple adjustments in current technology (Dewar and Dutton, 1986), and are those that improve price/performance advance at a rate consistent with existing technical trajectories (Gatignon *et al.*, 2002). Radical innovations are those that incorporate different technologies, involve changes in a company's trajectory, and provide more benefits to the customer than what was previously available in the industry (Dewar and Dutton, 1986; Gatignon *et al.*, 2002, Chandy and Tellis, 1998). More recently, scholars have distinguished between radical product and radical service innovations. A radical product innovation draws on substantially new technology and could initially be targeted at both mainstream and emerging markets (Govindarajan *et al.*, 2011). Radical service innovations lead to significant changes in organizational activities and the overall service system. Such innovations have the potential to shift market structures, induce behavior changes of customers, and are increasingly the outcome of interfirm co-operations in the form of networks (Perks *et al.*, 2012).

Gatignon *et al.* (2002) argue that the boundaries of these definitions, among other definitions of innovation, are not exclusive and that the different dichotomies overlap.

A radical innovation could also be a disruptive innovation and vice versa. In our study, we focus on innovations that have the potential to disrupt the market or bring a radical change to a subsystems of the firm (e.g. by means of incorporating a new technology). In our study, we select innovation projects that can be categorized either as a disruptive or a radical innovation.

Corporate practices that allow for sustaining and incremental innovation have been widely embedded. Incrementally improving products and services to satisfy customer needs are proven growth strategies of firms. Non-established market players, who are new to the market, are often the main initiators of disruptive innovations. While established firms focus on selling more products and services to existing customers, entrants tend to target “overlooked” segments and rapidly scale up to established markets (Christensen *et al.*, 2015). The successful commercialization of radical innovations is generally linked to large traditional technology firms (Chandy and Tellis, 2000) and new market entrants (e.g. Apple Inc. entering the music and telephone market, and Tesla entering the electric vehicle market). Hence, in order not to end up as the victim of disruptive or radical change, large established financial services firms have to increase their agility to quickly react upon market changes and organize for disruptive and radical innovation.

## 2.2 Innovation barriers

In order to facilitate innovation, many firms have incorporated processes, such as the stage-gate model by Cooper and Edgett (2012). These authors divide the innovation process into a set of stages, subdivided by control checkpoints or gates that require predetermined deliverables (Cooper, 1990). These processes help firms to reach innovation outcomes by driving new products and services from idea to market faster and with fewer mistakes. Nevertheless, large firms such as Kodak and Nokia failed to react in a timely manner to radical market changes. Numerous challenges, impediments, and obstacles hampered the process of innovation for such firms (Chandy and Tellis, 2000) and a growing number of studies show the nature of such barriers to innovation in different contexts, such as barriers in relation to manufacturing firms (Baldwin and Lin, 2002; Galia and Legros, 2004), barriers for product innovation (Nagano *et al.*, 2016), barriers in relation to governments (Meijer, 2015), and barriers in small firms (Hadjimanolis, 2003). In addition, D’Este *et al.* (2012) show that innovation barriers are dynamic, as their presence and relevance tend to vary throughout the innovation process and size of the firm.

Successfully developing and launching innovations depends on a multitude of internal and external firm aspects. For example, a firm needs to be able to explore and embed new technologies, implement new-to-the-firm innovation-oriented practices and to adapt internal mechanisms that allow for exploration and the development of new ideas. Both internal and external barriers to the firm affect the ability to succeed in innovation. Distinguishing internal and external barriers enables recognition of the ones that a firm can influence, and the ones that are partially or completely beyond its influence (Piatier, 1984). The most common internal barriers are a firm’s strategy, organizational architecture, leadership, organizational culture, the organization of research and development, and performance incentives (Baldwin and von Hippel, 2011; Cohen and Levinthal, 1990; Tushman and Benner, 2015; Tushman and O’Reilly, 1996). The often mentioned external barriers are market dynamics, competitor behavior, and market and technology turbulence (Alexiev *et al.*, 2016; Hung and Chou, 2013; Lichtenthaler, 2011).

A literature review by Sandberg and Aarikka-Stenroos (2014) on critical barriers to radical innovation for small and large firms identified a set of critical barriers for large firms in particular. Here, we label them as traditional barriers for large firms. Traditional internal barriers are a restrictive mindset, a lack of discovery competences, and an unsupportive organizational structure. Traditional external barriers are customer resistance, an undeveloped network, ecosystem dynamics, and technological turbulence. In their

analysis, Sandberg and Aarikka-Stenroos (2014) classify manufacturing firms, service industries, and governments as large firms. This generalization gives insight into which barriers are specific for large firms and which barriers are specific for small firms. Moreover, they show that barriers are dependent on firm size. Unfortunately, this does not provide us with sufficient understanding why large financial services firms, in particular, fail to organize for disruptive and radical innovation. Especially, since the need to do so has been apparent since 2008.

### 2.3 Preliminary framework of barriers to innovation

Based on the list of barriers to innovation as put forward in the literature, we have created a preliminary framework of barriers to potentially disruptive and radical innovation. Our literature search did not reveal any specific literature on project barriers to potentially disruptive innovations. We did find, however, literature in relation to radical innovations. Sandberg and Aarikka-Stenroos (2014) identified barriers to radical innovation and distinguish these on two different dimensions. The first dimension is the distinction between internal and external barriers in relation to the firm. The second dimension is about firm size (small vs large firms). We selected the three traditional internal barriers to radical innovation that apply to large firms. These barriers are “a restrictive mindset,” “a lack of discovery competences,” and “an unsupportive organizational structure.” Also, Hölzl and Janger (2011) distinguish five potential innovation barriers for firms on the basis of their study across different European countries. As one of those barriers was external oriented, we included all four internal oriented barriers: “financial barriers to innovation,” “skill barriers to innovation,” “lack of information on markets,” “lack of information on technologies (see Table I for an overview).

### 2.4 Organizing for change within the financial industry

Since the financial crisis of 2008, established firms in the financial services industry face the challenge of organizing for change. Their continuity and stability is at risk due to a variety of reasons.

First, new legislation resulting from the global financial crisis of 2008 requires banks to revisit their strategy and operations. Two major examples of such legislation are the Payments Service Directive that aims to modernize cross-border EU-wide payments (Donnelly, 2016), and Basel III that aims to improve the banking sector’s stability, risk management, and transparency (Allen *et al.*, 2012). In response to this, banks have to re-assess their business model to remain profitable and adapt current processes in order to comply with these new regulations. Second, new technologies such as near-field-communication (Tan *et al.*, 2014), cloud computing (Berman *et al.*, 2012), and blockchain (Tapscott and Tapscott, 2017) have the potential to not only change society, but could also enable established firms and new entrants to offer new products, services, and business models. However, the challenge for established firms is to experiment with new technologies

No.	Description of barrier	Source
1	A restrictive mindset	Sandberg and Aarikka-Stenroos (2014)
2	A lack of discovery competences	Sandberg and Aarikka-Stenroos (2014)
3	An unsupportive organizational structure	Sandberg and Aarikka-Stenroos (2014)
4	Financial barriers to innovation	Hölzl and Janger (2011))
5	Skill barriers to innovation	Hölzl and Janger (2011)
6	A lack of information on markets	Hölzl and Janger (2011)
7	A lack of information on technologies	Hölzl and Janger (2011)

**Table I.**  
Literature framework  
of internal barriers  
to innovation

and decide which technologies to embed at what moment in time within their established systems. Third, both digitalization of society and globalization have resulted in increasing pressure on revenue streams and growth (partially resulting from competitors that adopt new technologies more quickly). Digital service providers have taken over some of the traditional bank tasks by providing services, such as online payment platforms (e.g. PayPal and Adyen) and alternative ways of financing (e.g. crowd funding). As a result of this new competition many large financial services firms have started to organize for innovation. Large firms have cautiously forecasted their role in the coming years and have implemented strategies to enhance their organizational innovative capacity. Many of such large firms have started innovation trajectories and play a role in start-up ecosystems (Spender *et al.*, 2017). They have initiated internal innovation programs, such as idea sourcing competitions and internal project accelerators, incubators to come up with new ideas for products, services, and business models that build upon new technologies.

More and more large financial services firms are organizing for innovation, but it turns out that disruptive and radical innovations oftentimes do not come from established players, even though they have expressed the need for this to happen[4]. Traditionally, society benefits from stable financial markets, and therefore financial market authorities exercise a tight regime. On the flip side, this tight regime has restricted access for new entrants and ideas. The resulting lack of innovative competitive pressure has created inertia within established firms to organize for change.

### *2.5 Synthesis: exploring internal barriers to innovation in large financial services firms*

We see that many large financial services firms have become aware of the need to bring disruptive and radical innovations to the market. However, realizing this poses a number of organizational challenges due to various internal and external barriers. External barriers have been widely addressed, but empirical studies focusing on the internal difficulties impeding large financial services to develop and launch innovations effectively is absent. Therefore, in this study, we aim to empirically explore the specific barriers to innovation projects within banks and then generalize for large financial services firms.

Our study focuses on innovation projects that were undertaken in a large multinational bank in Europe. This particular firm implemented an innovation strategy and tried out multiple trajectories to increase its innovative capacity across its different markets. By integrating earlier work on internal barriers to potentially disruptive and radical innovation, we have created a framework to test our assumptions.

## **3. Research method**

### *3.1 Approach*

In order to identify barriers to potentially disruptive and radical innovations in large financial firms, a literature survey has resulted in a preliminary framework of internal barriers to innovation (see Section 2.3). To assess, enrich, and validate this framework, an in-depth case study was conducted at a large European bank. Here, we evaluated and compared a number of innovation projects. The case study method allows us to gain a greater understanding of complex issues such as innovation within large financial firms (Eisenhardt, 1989; Yin, 2003). In order to build theory from case studies, we explore multiple cases to ultimately create propositions (Eisenhardt and Graebner, 2007).

The first step was to select innovation projects for our study. Within the selected firm a total of 25 innovation projects were identified. These projects were supported by a separate innovation office alongside current business. Of these 25 projects, a total of eight projects fit with our strict criteria of dealing with potentially disruptive or radical innovations, rather than dealing with sustaining or incremental innovations that focus on improving current



services or internal processes (see the Appendix for the applied criteria). The selected eight projects were executed across Europe within different markets, geographical and service areas (see Table II for an overview).

The second step in assessing and enriching the framework was an analysis of project documents of the selected cases. We analyzed quarterly project reports, meeting minutes, and progress reviews in order to find perceived barriers by the projects in our sample. We did a text analysis of these documents and searched for impediments, obstacles, challenges, issues, and reasons for not meeting expectations, overruns in terms of budget or time, or project failure. Next, this list was discussed with two internal innovation experts that had a coaching and monitoring relationship with the projects. The goal of this step was to further assess our findings. As a result, we added 16 barriers that affected projects that were either successful or terminated.

The third step was to validate our framework of innovation barriers through interviews with project managers (also named project leads, CEOs, or product owners) of innovation projects that were not selected for our main study. Here, we could test if our listed barriers were mutually exclusive and properly formulated.

As a result, we removed some elements with overlap and reformulated some items for clarification. To increase clarity, the three traditional barriers for radical innovation as defined by Sandberg and Aarikka-Stenroos (2014) were substantiated into seven barriers to innovation. Also, the four potential barriers as defined by Hölzl and Janger (2011) were substantiated into eight barriers to innovation (see Table III).

In Table IV an overview of the total framework is presented. Here a distinction is made between barriers to innovation gathered from literature and empirical barriers to innovation.

The fourth and final step was to conduct a number of semi-structured interviews with the project managers of the selected projects. Thus, we could gain insight into perceived innovation barriers and validate what are the key barriers to innovation based on our framework.

### 3.2 Operationalization of interviews

In order to validate which innovation barriers apply in the process of developing innovations and to ultimately gain understanding on how to overcome these barriers, we interviewed all project managers of the innovation projects under study (see Table II). In our

No.	Innovation type	Initiation	Area	Market	Country
1	Potentially disruptive	Top-down	New payment system	Retail banking	The Netherlands and Belgium
2	Radical service innovation	Top-down	Big data analytics	Commercial banking	The Netherlands
3	Potentially disruptive	Bottom-up	Business dashboards	Small and medium enterprise banking	The Netherlands
4	Radical product innovation	Top-down	New payment system	Retail banking	Spain
5	Potentially disruptive	Bottom-up	New digital client services	Small and medium enterprise banking	The Netherlands and Belgium
6	Potentially disruptive	Bottom-up	Customer money management	Retail banking	Italy
7	Radical service innovation	Bottom-up	New payment system	Retail banking and SME banking	The Netherlands
8	Potentially disruptive	Top-down	Customer money management	Retail banking	UK

**Table II.**  
Innovation projects  
under study

Traditional internal barrier	A restrictive mindset	A lack of discovery competences	An unsupportive organizational structure
Barriers used in our study related to the key traditional internal barrier	1 Overzealous risk management	A lack of discovery/ exploring competences	An unsupportive organization structure
	2 Resistance or lack of support from key internal stakeholders		Inertia caused by compliance focus
	3		Gap between business and IT
	4		Too many management layers
European firm level barriers	Financial barriers to innovation	Skill barriers to innovation	Information barriers to innovation
Barriers used in our study related to the potential barriers identified by Hölzl and Janger (2011) across Europe at firm level	1 Innovation projects have too low business value compared to original business cases	A lack of qualified personnel	A lack of information on markets' and "a lack of information on technologies" has been combined into: "a lack of information on markets or technologies"
	2 A lack of focus on innovation caused by local profit and loss priority	A lack of ability to maintain new technologies	
	3 A lack of appropriate sources of finance	A lack of incubation competences	
	4	A lack of commercialization competences	

**Table III.**  
Literature barriers substantiated

selected cases, all project managers follow the same innovation process, but their projects differ in team composition, reporting lines, business unit, and target market.

By applying a semi-structured approach, we could follow up on topical trajectories in the interviews in order to get a better understanding of the cause and effects of the experienced barriers (Bernard, 1988).

Each interview took approximately an hour, was digitally recorded, and was transcribed. Agreement on which barriers to innovation apply was measured by assessing if project managers agreed, disagreed, or had a neutral opinion on the presence of a barrier in their innovation process. Because the study represents only eight cases, and interviewees tend to not select extreme values due to personality factors (Hernández *et al.*, 2004), we choose to only take these three values into account.

### 3.3 Internal and external validity of the study

At the time of interviewing all projects had passed the early-stages of idea formulation and were developing their ideas supported by resources provided by the organization. All projects had formed their team, had a functioning project organization, and were minimally six months under way. This is important for the internal validity of the study, as project managers have had the time to grasp the complexities of the entire system and form an opinion on key barriers faced in their innovation process. In the invite to the interview both the goal of the study and the nature of the questions were shared to make sure project managers could prepare. In addition, we asked questions regarding the respondents experience and role. Finally, project managers were asked if they were best equipped to participate in the interview, if not alternatives could be suggested. This allowed us to validate if the respondents would be the most reliable or suitable sources.

## Barriers to innovation

No.	Description of barrier	Literature barrier
1	Innovation projects have too low business value compared to original business plans	✓
2	Lack of focus on innovation caused by local profit and loss priority	✓
3	Lack of appropriate sources of finance	✓
4	Lack of commercialization caused by KPIs	
5	Lack of active management support	
6	Unsupportive innovation strategies	
7	Overzealous risk management (i.e. too much focus on risk avoidance)	✓
8	Too many management layers	✓
9	Gap between business and IT	✓
10	Unsupportive organizational structure	✓
11	Inertia caused by compliance focus (i.e. slowness by internal processes)	✓
12	Inertia caused by used project management styles	
13	Lack of room for incubation	
14	Lack of ability to maintain new technologies	✓
15	Lack of ability to embed new technologies	
16	Too many (local) legacy systems	
17	Inertia caused by (local) systems architecture	
18	Lack of new and good radical/disruptive ideas	
19	Lack of discovery/exploring competences	✓
20	Lack of information on markets or technologies	✓
21	No patenting or IP-protection mechanisms	
22	No fundamental internal R&D	
23	Lack of exploiting new ideas	
24	Lack of scaling up ideas for large-scale use	
25	Firm is more risk-averse than other firms	
26	Firm is more trust-oriented than other firms	
27	Not-invented-here syndrome	
28	Resistance or lack of support from key internal stakeholders	✓
29	Lack of qualified and available personnel	✓
30	Lack of incubation competences	✓
31	Lack of commercialization competences	✓

**Table IV.**  
Framework of internal barriers to potentially disruptive and radical innovation within large firms

In our sampling model, we focused on innovation projects in a large financial services firm that pursue potentially disruptive or radical innovations. Our sample, as shown in Table II, represents cases across five different markets and customer segments within Europe. Projects are undertaken at different branches with their own culture and operational model. As projects are all focusing on the European market, we control for European legislative changes. As our sample consists of four top-down, and four bottom-up initiated projects, we can also control for a decision-making bias of top management. Innovation projects need to be managed in a different way compared to traditional, exploitation focused projects that are steered on efficiency, control, certainty, and variance reduction, while innovation is about search, discovery, autonomy, and experimentation (O'Reilly and Tushman, 2013). Top-down projects have more visibility in the firm and have top management sponsors. We will assess if this impacts empowerment of projects and thus positively or negatively affects project barriers.

## 4. Results

### 4.1 Innovation process

All selected projects went through the same innovation process composed of stages and gates with entry and exit criteria (Cooper and Edgett, 2012). This firms' innovation process consists of five distinct stages as visualized in Figure 1. These five stages correspond with five project maturity levels: ideas, early-stage initiatives, mid-stage initiatives, mature

initiatives, and late-stage initiatives. Early-stage initiatives are in the process of formulating their ideas, setting up the team, and validating their ideas by means of minimum viable products (Moogk, 2012). Mid-stage initiatives are in the process of proving both their product and business value with proof of concepts and pilots; mature initiatives have proven the product and business value and are in the process of rolling out a full-scale solution. Finally, late-stage initiatives are scaling up the solution to different environments. At the time of our data collection, all selected projects already passed the first and second stages. A total of two projects already entered the fourth stage.

All selected projects received support from the firm's innovation office, but had different project goals (see Table V for a brief overview of these project goals). At the moment of interviewing all projects passed the first stage and were either in the second or third innovation stage.

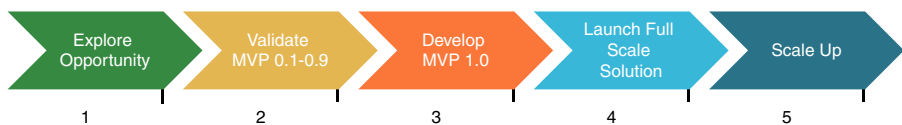
#### 4.2 Findings about barriers to innovation in large financial services firms

In the eight projects under study, we found a clear distinction between barriers to innovation and elements that were not experienced as such. Also, some elements were perceived as indifferent. We focused on the barriers with general consensus among the different projects in our case study. We assumed consensus when at least five out of eight of the projects (dis)agree on a certain barrier and when the agree/disagree ratio is less than 3. Following this process, we found consensus for six key barriers to innovation, as well as consensus for the absence of one traditional barrier to innovation. The absence or presence of two traditional key barriers to innovation were not mentioned by the interviewees.

The remainder of this section describes the outcomes of the interviews with project managers. We will highlight barriers for which we find strong consensus and we will highlight traditional barriers for which we do not find consensus. We include examples in order to provide more insights into the origin, causes, and the effects of the barriers. All key barriers highlighted in the next paragraphs of this section are complemented with the score in the following format: (number of projects that: disagree – neutral/no opinion – agree).

4.2.1 Key identified internal barriers to potentially disruptive and radical innovation projects. Five out of eight projects experienced “a lack of exploiting new ideas by the firm” (No. 23) and “inertia caused by (local) systems architecture” (No. 17) and three projects either

**Figure 1.**  
Firms innovation process



**No. Project description**

- 1 Allow for mobile payments between merchants and customers, and additionally run online loyalty programs
- 2 Use the potential of big data analytics tools to present tailored solutions to commercial banking clients
- 3 Support small and medium enterprises online with setting up their own business in a few clicks
- 4 Enable peer-to-peer payments for customers via smartphones
- 5 Support entrepreneurs to increase turnover with a digital integrated personalized financial dashboard
- 6 Overcome financial illiteracy by gamification for children
- 7 A solution to take away the risk for both customers and merchants in the transaction of slow-moving consumer goods
- 8 Support customers with better management of their finances and give instant personal advice

**Table V.**  
Brief project descriptions

---

had no opinion or scored neutral (0-3-5). Five projects experienced these aspects as a key barrier to innovation. The firm has developed multiple programs to support exploration such as innovation competitions, a fund to protect and support accelerating rough ideas toward implementations and work streams, but exploiting value from new ideas by effective commercialization has been lacking. An example given by a project manager: "If we look at the power to execute disruptive ideas, the power of realizing these ideas within this firm [...] this is definitely a barrier to innovation."

Local entities of the bank have their own systems architecture due to a variety of reasons. For example, local clearing systems, regulatory restrictions, or historical reasons such as mergers and acquisitions have resulted in standalone systems. This proved to be a hurdle and as one project manager put it: "Everybody wants to protect his or her domain and IT-castle." The firm has created a separate department that incubates innovations before handing them over to business. However, as another project manager explained this supports exploration, but hampers exploitation: "If solution [X] is modified to integrate within business unit [Y] and has to be modified for each country in which it will be implemented afterwards, that cannot work."

In close relation to this, six projects experienced an "unsupportive organizational structure" (No. 10) and one project did not see this as a barrier (1-1-6). The firm has a decentralized business model with entities in multiple markets. Innovation projects have to prove their value proposition in one or more markets and integrate their solution with the local banking systems. As an example a project manager explained: "The way this firm is organized, is very locally oriented with local processes and systems. FinTechs [read: financial technology firms] are worldwide oriented; they will provide uniform services everywhere [...]" Another project manager amplified this: "Business units put their own interest first and assess what the impact of an innovation is on their KPIs before embracing it, I call it silo-innovation."

Next, six projects experienced "overzealous risk management practices (i.e. too much focus on risk avoidance)" (No. 7) (2-0-6). Together with the previous identified barrier: an unsupportive organizational structure, these are the only two traditional barriers to innovation that showed to have strong evidence in this study. To explain the focus on risk-avoidance, we can go back to the 2008 financial crises. Consumer trust in the financial services industry had significantly dropped (Edelman, 2015), and as a consequence improving accountability, stability, and responsibility was stressed by market authorities. To quote an interviewee "historically, when innovation was not part of the agenda, a lot of processes were driven by legislation and governance on how money was spent [read: accountability], but if you over tighten that tap you hinder speed to get certain things done." Hence, in this new world existing risk-avoidance practices should be adapted to innovation processes. One project manager used local procurement processes as an example "There are impracticalities in procurement processes. If you can avoid certain formalities in the procurement process we can increase speed, as in the innovation process it is extremely important to run lots of experiments in a short time-frame." In line with literature on project management the "not-invented-here syndrome" (No. 27) was identified as a key barrier for projects (2-0-6). A logical explanation is that the firm operates with local entities in different markets experiencing different cultures, organizational structures, and processes.

Finally, there is no fundamental R&D function within the firm and five projects experienced this as a barrier to innovation (1-2-5). Therefore, we regard "the absence of fundamental R&D" (No. 22) as a key barrier to innovation. Multiple project managers stressed this "There is no central R&D and no focus" and "We miss a comprehensive vision as all are doing innovation and all are doing research for their own purpose." The next quote sums it all up: "We don't do enough R&D, we need to do more."

*4.2.2 Absence of consensus for barriers to potentially disruptive and radical innovation projects.* Many elements in our framework were not perceived as a barrier to innovation. One element that requires attention is the “lack of appropriate sources of finance” (No. 3), as it was not perceived as a barrier to innovation in our sample. Unanimously none of the projects experienced this as a challenge, in line with previous work of Sandberg and Aarikka-Stenroos (2014) that shows this traditional barrier is mainly perceived by small- and medium-sized enterprises. Moreover, in our interviews we identified that this barrier is not perceived because of the creation of a separate fund dedicated to innovation projects by the firm. In short, an innovation office was created in 2014 that, in order to secure the budget, is the primary budget holder for innovation projects that meet strategic ambitions. It aims to protect projects from the “exploit” organization and allows for exploration of new areas and opportunities. In accordance with Tushman and O’Reilly (1996), this structure aims to allow for an ambidextrous organization that can successfully pursue both exploration and exploitation activities.

*4.2.3 No clear consensus on traditional barriers to potentially disruptive and radical innovation projects.* In our sample no clear consensus was found on two traditional barriers to innovation. Both a “lack of discovery/exploring competences (No. 19) and “resistance or lack of support from internal key internal stakeholders” (No. 28) were not identified as a clear barrier to innovation.

Additionally, we distinguished top-down and bottom-up initiated projects. Although top-down projects were granted more resources from the start and had direct top management attention, we did not find any evidence on differences between experienced barriers to innovation in relation to bottom-up initiated projects. Nevertheless, our data show that top-down supported projects got at least five times more funding at the start of the project, and easier access to top management as compared to bottom-up supported projects.

## 5. Discussion

There is limited research available on barriers for potentially disruptive and radical innovation at large financial services firms. We have identified a number of key internal barriers from eight different innovation projects within a large multinational bank in Europe. These barriers are unique for financial services firms and contribute to the growing literature on the management of innovation within the financial services sector. Prior research primarily focused on the distinction between large firms and SMEs, or internal and external barriers, but not on industry specific barriers. In line with this literature, our study echoes that a restrictive mindset (overzealous risk management) and an unsupportive organizational structure constitute key barriers in large financial services firms as well. However, we did not find evidence that a lack of discovery competences could be a barrier to innovation. In addition, we found that four other key barriers were present in the innovation projects under study: inertia caused by local systems architecture, a lack of exploiting new ideas by the firm, the not-invented-here syndrome, and a lack of fundamental internal R&D, which are perceived as key barriers to potentially disruptive and radical innovation (see Table VI).

**Table VI.**  
Key internal barriers  
to innovation within  
large financial firms

No.	Description of barrier	Traditional barrier to innovation
1	Lack of exploiting new ideas	
2	Inertia caused by (local) systems architecture	✓
3	Unsupportive organizational structure	✓
4	Overzealous risk management (i.e. too much focus on risk avoidance)	✓
5	Not-invented-here syndrome	
6	No fundamental internal R&D	

---

On the basis of our findings, we suggest the following three propositions:

- P1.* Unique industry characteristics result in differentiating sets of key internal barriers to potentially disruptive and radical innovations for large financial services firms.
- P2.* Separate governance structures for innovation within large financial services firms support exploration, but do not remove barriers that impede exploitation of innovations within a firm with a decentralized organizational structure.
- P3.* A lack of fundamental internal research and development activities hamper the ability of large financial services firms to exploit potentially disruptive and radical innovation.

These propositions are worth further exploration in future research on barriers to innovations in the area of financial services. Moreover, we see three directions for future research: researchers can go in-depth to increase understanding of the identified barriers to innovation, they can investigate also external innovation barriers to create an extensive overview, and they can conduct quantitative studies to increase generalizability of the results.

## 6. Implications and limitations

The results of our study align with the work of Sandberg and Aarikka-Stenroos (2014), but we have tried to further narrow down the specific barriers that are unique for innovation within large financial services firms. Our work offers a valuable perspective for managers in the area of financial services to further re-establish the natural flow of innovation in order to increase effectiveness and to reduce waste of innovation efforts. When organizing for disruptive and radical innovation within large financial service firms, managers need to prioritize identified key barriers over traditional barriers in the design of an effective innovation process. In addition, as we find no difference in barriers perceived by bottom-up and top-down initiated projects, managers should carefully decide upon allocation of resources as the latter in our sample are structurally allocated more resources.

Our study is not without limitations. In this study, we did not focus on external barriers, but on internal barriers to innovation that can be influenced by the firm. This focus increases applicability for managers, but limits insights into effects of external dynamics on internal barriers to innovation. Also, our study was conducted at a single firm, which may limit the scope of our research. However, although we were able to study only a limited amount of projects, we believe that our results can be generalized further. As selected cases have been undertaken across different European markets operating in various bank entities such as private, corporate, and retail banking, we believe that projects in other large firms within the financial industry face similar barriers when undertaking potentially disruptive and radical innovations. In addition, due to the fact that we conducted an in-depth case study at a single firm, we could not control for firm dynamics. All cases in this study are subject to the same internal dynamics such as strategy and leadership changes, and external dynamics in the industry such as market dynamics and regulation that affect the firm.

## 7. Conclusion

Barriers to potentially disruptive and radical innovations have drawn a great deal of attention by researchers. However, the focus has been primarily on traditional product and manufacturing firms, and not so much on how innovation barriers impact the growing number of projects in the financial services sector. This paper has explored the unique internal barriers that seem to be key in potentially disruptive and radical innovation projects in large financial services firms.

We have shown that organizing for potentially disruptive and radical innovation within large financial services firms by means of innovation programs and projects partially

supports exploration, but not necessarily the exploitation of these types of innovations. This study highlights that if an innovation strategy, active management support, and a separate governance structure for innovation are in place, projects get stimulated in the exploration phase as projects do not experience a lack of appropriate resources or competition with traditional projects. But, barriers such as a restricted mindset, a lack of exploiting new ideas, an unsupportive organizational structure, and inertia caused by (local) systems architecture do hamper further exploitation of innovations.

Our findings can be the start of a theoretical framework of barriers to potentially disruptive and radical innovations within large financial services firms. We have identified six key barriers to these type of innovation projects: “a lack of exploiting new ideas,” “inertia caused by (local) systems architecture,” “an unsupportive organizational structure,” “too much focus on risk avoidance,” “absence of fundamental research and development,” and “the not-invented-here-syndrome.”

### Notes

1. A global regulator framework of more resilient banks and banking systems (see: [bis.org/publ](http://bis.org/publ)).
2. Market in Financial Instruments Directive (see: European Commission – ESMA10-872942901-3).
3. Payment Service Directive II (see: European Commission – Directive 2015/2366).
4. Semantic analysis of six annual reports in 2016 (i.e. Banco Santander, BNP Paribas, ING Bank, Barclays PLC, Citibank and Deutsche Bank).

### References

- Alexiev, A.S., Volberda, H.W. and Van den Bosch, F.A.J. (2016), “Interorganizational collaboration and firm innovativeness: unpacking the role of the organizational environment”, *Journal of Business Research*, Vol. 69 No. 2, pp. 974-984.
- Allen, W.A., Chan, K.K., Alistair, M. and Thomas, S. (2012), “Basel III: is the cure worse than the disease?”, *International Review of Financial Analysis*, Vol. 25, pp. 159-166.
- Amin, H., Hamid, R., Lada, S. and Anis, Z. (2008), “The adoption of mobile banking in Malaysia: the case of Bank Islam Malaysia Berhad (BIMB)”, *International Journal of Business and Society*, Vol. 9 No. 2, pp. 43-53.
- Baldwin, C. and von Hippel, E. (2011), “Modeling a paradigm shift: from producer innovation to user and open collaborative innovation”, *Organization Science*, Vol. 22 No. 6, pp. 1399-1417.
- Baldwin, J. and Lin, Z. (2002), “Impediments to advanced technology adoption for Canadian manufacturers”, *Research Policy*, Vol. 31 No. 1, pp. 1-18.
- Beck, T., Chen, T., Lin, C. and Song, F.M. (2016), “Financial innovation: the bright and the dark sides”, *Journal of Banking and Finance*, Vol. 72, pp. 25-51.
- Berman, S.J., Kesterson-Townes, L., Marshall, A. and Srivathsa, R. (2012), “How cloud computing enables process and business model innovation”, *Strategy & Leadership*, Vol. 40 No. 4, pp. 27-35.
- Bernard, H. (1988), *Research Methods in Cultural Anthropology*, Sage Publications, Newbury Park, CA.
- Berry, L., Shankar, J.T. and Parish, S. (2006), “Creating new markets through service innovations”, *MIT Sloan Management Review*, Vol. 37 No. 2, pp. 56-63.
- Chandy, R. and Tellis, G.J. (1998), “Organizing for radical product innovation: the overlooked role of willingness to cannibalize”, *Journal of Marketing Research*, Vol. 34 No. 4, pp. 474-487.
- Chandy, R. and Tellis, G.J. (2000), “The incumbent’s curse? Incumbency, size, and radical product innovation”, *Journal of Marketing*, Vol. 64 No. 3, pp. 1-17.
- Christensen, C.M. (1997), *The Innovator’s Dilemma*, Harvard Business School Press, Boston, MA.



- 
- Christensen, C.M. and Bower, J.L. (1995), "Disruptive technologies: catching the wave", *Harvard Business Review*, Vol. 73 No. 1, pp. 45-53.
- Christensen, C.M., Raynor, M.E. and McDonald, R. (2015), "What is disruptive innovation?", *Harvard Business Review*, Vol. 93 No. 12, pp. 44-53.
- Cohen, W.M. and Levinthal, D.A. (1990), "Absorptive capacity: a new perspective on learning and innovation", *Administrative Science Quarterly*, Vol. 35 No. 1, pp. 128-152.
- Cooper, R. (1990), "Stage-gate systems: a tool for managing new products", *Business Horizons*, Vol. 33 No. 3, pp. 44-54.
- Cooper, R.G. and Edgett, S.J. (2012), "Best practices in the idea-to-launch process and its governance", *Research Technology Management*, Vol. 55 No. 2, pp. 43-54.
- D'Este, P., Iammarino, S., Savona, M. and van Tunzelmann, N. (2012), "What hampers innovation? Revealed barriers versus deterring barriers", *Research Policy*, Vol. 41 No. 2, pp. 482-488.
- Dewar, R.D. and Dutton, J.E. (1986), "The adoption of radical and incremental innovations: an empirical analysis", *Management Science*, Vol. 32 No. 11, pp. 1422-1433.
- DeYoung, R., Lang, W. and Nolle, B. (2007), "How the internet affects output and performance at community banks", *Journal of Finance and Banking*, Vol. 31 No. 4, pp. 1033-1060.
- Donnelly, M. (2016), "Payments in the digital market: evaluating the contribution of payment services directive II", *Computer Law and Security Review*, Vol. 32 No. 6, pp. 827-839.
- Edelman (2015), "Annual Edelman trust barometer", New York, NY, available at: [www.edelman.com/insights/intellectual-property/2015-edelman-trust-barometer/trust-and-innovationedelman-trust-barometer/executive-summary/](http://www.edelman.com/insights/intellectual-property/2015-edelman-trust-barometer/trust-and-innovationedelman-trust-barometer/executive-summary/) (accessed January 19, 2017).
- Eisenhardt, K.M. (1989), "Making fast strategic decisions in high-velocity environments", *Academy of Management Review*, Vol. 32 No. 3, pp. 543-576.
- Eisenhardt, K.M. and Graebner, M.E. (2007), "Theory building from cases: opportunities and challenges", *Academy of Management Journal*, Vol. 50 No. 1, pp. 25-32.
- Galia, F. and Legros, D. (2004), "Complementarities between obstacles to innovation: evidence from France", *Research Policy*, Vol. 33 No. 8, pp. 1185-1199.
- Gatignon, H., Tushman, M.L., Smit, W. and Anderson, P. (2002), "A structural approach to assessing innovation: construct development on innovation locus, type, and characteristics", *Management Science*, Vol. 48 No. 9, pp. 1103-1122.
- Geerts, A., Blindenbach-Driessen, F. and Gemmel, P. (2010), "Achieving a balance between exploration and exploitation in service firms: a longitudinal study", *Academy of Management Annual Meeting Proceedings, Montreal*, pp. 1-6.
- Gerardi, K., Rosen, K. and Willen, P. (2010), "The impact of deregulation and financial innovation on consumers: the case of the mortgage market", *Journal of Finance*, Vol. 65 No. 1, pp. 333-360.
- Govindarajan, V., Kopalle, P.K. and Danneels, E. (2011), "The effects of mainstream and emerging customer orientations on radical and disruptive innovations", *Journal of Product Innovation Management*, Vol. 28 No. S1, pp. 121-132.
- Hadjimanolis, A. (2003), "The barriers approach to innovation", in Shavinina, E.L.V. (Ed.), *The International Handbook on Innovation*, Elsevier Science, Oxford, pp. 559-573.
- Henderson, R.M. and Clark, K.B. (1990), "Architectural innovation: the reconfiguration of existing product technologies and the failure of established firms", *Administrative Science Quarterly*, Vol. 35 No. 1, pp. 9-30.
- Hernández, A., Drasgow, F. and González-Roma, V. (2004), "Investigating the functioning of a middle category by means of a mixed-measurement model", *Journal of Applied Psychology*, Vol. 89 No. 4, pp. 687-699.
- Hölzl, W. and Janger, J. (2011), "Innovation barriers across firms and countries", working paper, Österreichisches Institut für Wirtschaftsforschung, Wien, April 6.

- Hung, K.P. and Chou, C. (2013), "The impact of open innovation on firm performance: the moderating effects of internal R&D and environmental turbulence", *Technovation*, Vol. 33 Nos 10-11, pp. 368-380.
- Lee, M., McGoldrick, P. and Keeling, K. (2003), "Using ZMET to explore barriers to adoption of 3G mobile banking services", *International Journal of Retail & Distribution Management*, Vol. 31 No. 6, pp. 340-348.
- Lichtenthaler, U. (2011), "The evolution of technology licensing management: identifying five strategic approaches", *R&D Management*, Vol. 41 No. 2, pp. 173-189.
- Meijer, A. (2015), "E-governance innovation: barriers and strategies", *Government Information Quarterly*, Vol. 32 No. 2, pp. 198-206.
- Mitchell, W. (1991), "Dual clocks: entry order influences on industry incumbent and newcomer market share and survival when specialized investments retain their value", *Strategic Management Journal*, Vol. 12 No. 1, pp. 85-100.
- Moogk, D.R. (2012), "Minimum viable product and the importance of experimentation in technology startups", *Technology Innovation Management Review*, Vol. 2 No. 3, pp. 23-26.
- Nagano, M.S., Stefanovitz, J.P. and Guimaraes, T. (2016), "Assessing some important factors to reduce obstacles in product innovation", *International Journal of Innovation Management*, Vol. 20 No. 3, pp. 1-29.
- O'Reilly, C.A. and Tushman, M.L. (2013), "Organizational ambidexterity: past, present, and future", *Academy of Management Perspectives*, Vol. 27 No. 4, pp. 324-338.
- Parida, V., Sjodin, D.R., Lenka, S. and Wincent, J. (2015), "Developing global service innovation capabilities: how global manufacturers address the challenges of market heterogeneity", *Research Technology Management*, Vol. 58 No. 5, pp. 35-44.
- Perks, H., Gruber, T. and Edvardsson, B. (2012), "Co-creation in radical service innovation: a systematic analysis of microlevel processes", *Journal of Product Innovation Management*, Vol. 29 No. 6, pp. 935-951.
- Piatier, A. (1984), *Barriers to Innovation*, Frances Printer, London.
- Sandberg, B. and Aarikka-Stenroos, L. (2014), "What makes it so difficult? A systematic review on barriers to radical innovation", *Industrial Marketing Management*, Vol. 43 No. 8, pp. 1293-1305.
- Singer, D., Avery, A. and Baradwaj, B. (2008), "Management innovation and cultural adaptivity in international online banking", *Management Research News*, Vol. 31 No. 4, pp. 258-272.
- Spender, J.C., Corvello, V., Grimaldi, M. and Pierluigi, R. (2017), "Startups and open innovation: a review of the literature", *European Journal of Innovation Management*, Vol. 20 No. 1, pp. 4-30.
- Tan, G.-H., Ooi, K.-B., Chong, S.-C. and Hew, T.-S. (2014), "NFC mobile credit card: the next frontier of mobile payment?", *Telematics and Informatics*, Vol. 31 No. 6, pp. 292-307.
- Tapscott, D. and Tapscott, A. (2017), "How blockchain will change organizations", *MIT Sloan Management Review*, Vol. 58 No. 2, pp. 10-13.
- Tushman, M.L. and Benner, M.J. (2015), "Reflections on the 2013 decade award – 'exploitation, exploration, and process management: the productivity dilemma revisited' ten years later", *Academy of Management Review*, Vol. 40 No. 4, pp. 497-514.
- Tushman, M.L. and O'Reilly, C.A. (1996), "Ambidextrous organizations: managing evolutionary and revolutionary change", *California Management Review*, Vol. 38 No. 4, pp. 8-30.
- Yin, R.K. (2003), *Case Study Research*, *Design and Methods*, 3rd ed., Sage Publications, Thousand Oaks, CA.

#### Appendix. Criteria for selecting innovation projects

In order to select innovation projects that could potentially disrupt the market or radically change a subsystem of the firm and thus are associated with devastating organizational change effects (Henderson and Clark, 1990), we distilled seven criteria from literature targeting (see Table A1). Projects that meet either one or more of these criteria were selected for the case study.

---



---

**Barriers to  
innovation**

No.	Criteria	Corresponding innovation type
1	Could create a new market by applying a different set of values for users, which ultimately overtakes an existing market	Disruptive innovation
2	Incorporates a new (to the firm) technology	Radical innovation
3	Involves a change in a company's trajectory	Radical innovation
4	Provides more benefits to the customer than what was previously available in the industry	Radical product innovation
5	Draws on substantially new (to the firm) technology targeted at both mainstream and emerging markets	Radical service innovation
6	Can lead to significant changes in organizational activities and the overall service system	Radical service innovation
7	Has the potential to shift market structures and industry behavior changes of customers	Radical service innovation

---

**Table AI.**  
Criteria for selecting  
innovation projects

**Corresponding author**

Patrick Das can be contacted at: [patrick.das@tudelft.nl](mailto:patrick.das@tudelft.nl)

---

For instructions on how to order reprints of this article, please visit our website:

[www.emeraldgrouppublishing.com/licensing/reprints.htm](http://www.emeraldgrouppublishing.com/licensing/reprints.htm)

Or contact us for further details: [permissions@emeraldinsight.com](mailto:permissions@emeraldinsight.com)