

Fintech Arena and Creative Disruption in Financial Services

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Abstract

The Research Paper studies the Fintech arena within the financial community. A new “digital ecosystem” with the symbiosis of four vectors - Artificial Intelligence, Internet of Things, Digital Platforms and the young Wi-Fi Generation - reinvents the rules. Concepts drawn from Stacey’s complexity theory and MacMillan’s uncertainty matrix offer a spectrum to observe the FinTech phenomenon. Exploratory modelling on creative disruption can be useful for analysing the new financial services arena. Special attention is paid to the various business models. The conclusion provides an ambitious research agenda on the subject.

Keywords: FinTech, Disruption, Business Models, Crowdfunding

1 Introduction: Purpose Statement, Terms and Methodology

The paper’s first challenge encapsulates the elements of theoretical models despite the complexity of the FinTech sector. Qualitative data provides a conceptual representation for business models of new types of financial services. The models will be original and intuitional but based on a series of events and case studies. The second focal point of the paper will help to demystify the creative disruption arena. Ultimately, the research paper will shed new light on FinTech and propose an ambitious research agenda.

According to *The Economist* magazine, North Americans are investing billions of dollars in FinTech: “Investors have poured billions of dollars into “fintech” startups, creating hundreds of new firms determined to shake up lending, payments, broking and data, among other financial niches” (“Against the Odds”, 2016). But what exactly is “FinTech”? The Oxford Dictionary defines it as “Computer programs and other technology used to support or enable banking and financial services”. Our research team defines it as follows: *A field or sector arising from the symbiosis of digital platforms and artificial intelligence in financial services, generally at odds with traditional financial services* (Lacasse et al 2016).

As academic knowledge of FinTech continues to be relatively limited, we agree with Henry Mintzberg of McGill University, who states that: “*It seems far more important to research important topics with soft methodologies than marginal topics with elegant methodologies. (...) Most of the real insight has come from studies that used soft*

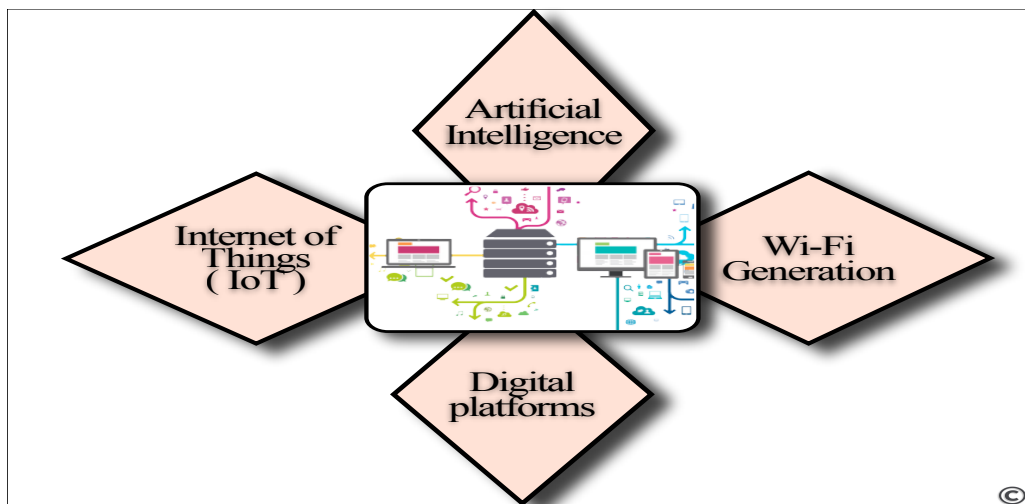
methodologies.” (Mintzberg, 1979) A qualitative approach was selected because of the constraints of the exponential growth of FinTech, which results in the 2014 database being already obsolete. Although the Université du Québec research team investigated the phenomenon in the United States and Belgium, fieldwork was done in Canada.

Data sources ranged from classical ethnography to state and governmental studies, documentary evidence, local case studies, participant observation, semi-structured interviews and action-research with a crowdfunding platform. Data out of solid Research Reports on FinTech from the Big Four (PwC, Deloitte, EY and KPMG) were also very useful; these international professional firms offer audit, assurance, tax, advisory, actuarial, corporate finance, and legal service. Davos’ 2016 World Economic Forum reports on digital economy gave also new insight in the future of financial services.

2 The Advent of Interactive Intelligent Digital Platforms

It took many years for a machine to be able to beat a human at chess, but Deep Blue finally beat Kasparov, the chess Grandmaster, in 1997. At first, artificial intelligence (IA) machines were programmed to calculate and perform specific tasks, but we now use Machine Learning (a set of algorithms that attempt to model high-level abstractions in data). In 2016, the game of Go, viewed as a big challenge for artificial intelligence, was tamed by AlphaGo, a new search algorithm, defeating the European Go champion by 5 games to 0.

Figure 1 Ecosystem of Creative Disruption



A new “digital ecosystem” with the symbiosis of four vectors - Artificial Intelligence, Internet of Things, Digital Platforms and the young Wi-Fi Generation - reinvents the rules (see Figure 1). Santander Innoventures defines the Internet of Things (IoT) as « *widespread embedding of sensory and wireless technology within objects, giving them the ability to transmit data about themselves: their identity, condition and environment* » (2015). The advent of IoT has brought about an economic tsunami: “*Innovations in*

IoT, which has its roots at MIT, are driving remarkable new technologies and enhancing existing platforms in almost every major industry.” (Conner-Simons, 2016). Geographical limitations no longer matter; information is relayed in real time; consumption patterns changed, particularly for the new Wi-Fi generation.

In the world of FinTech, IA is starting to have a major impact on investing and how consultants and analysts behave. In some cases, IA itself plays the role of consultant, interacting directly with the user, with no human interface. Big names like Stephen Hawking, Elon Musk, and Bill Gates have joined hundreds of others to warn about artificial intelligence, penning an open letter claiming that “*artificial intelligence can potentially be more dangerous than nuclear weapons*” (Sainato, 2015).

According to the BBC News, a computer algorithm has been appointed to the board of directors of Deep Knowledge Ventures, a company in Hong Kong; the robot is entitled to vote and supplies statistics on subjects discussed by the board. In January 2016, Microsoft, Google and Facebook open-sourced their deep learning tools, claiming it would enable artificial intelligence to grow much faster. Many private banks already use IBM’s Watson IA to predict the stock market.

Business models in every field of activity need to be updated and redesigned with intelligent digital platforms. For instance, faxing has been supplanted by emailing; the music industry has become subject to the rules of *iTunes*; *Netflix* has completely superseded the once-mighty *Blockbuster*; *Kodak* has given way to *iPhoto*; small libraries struggle in their war against *Amazon*; and so on. Will online and mobile banking disrupt the brick-and-mortar banks?

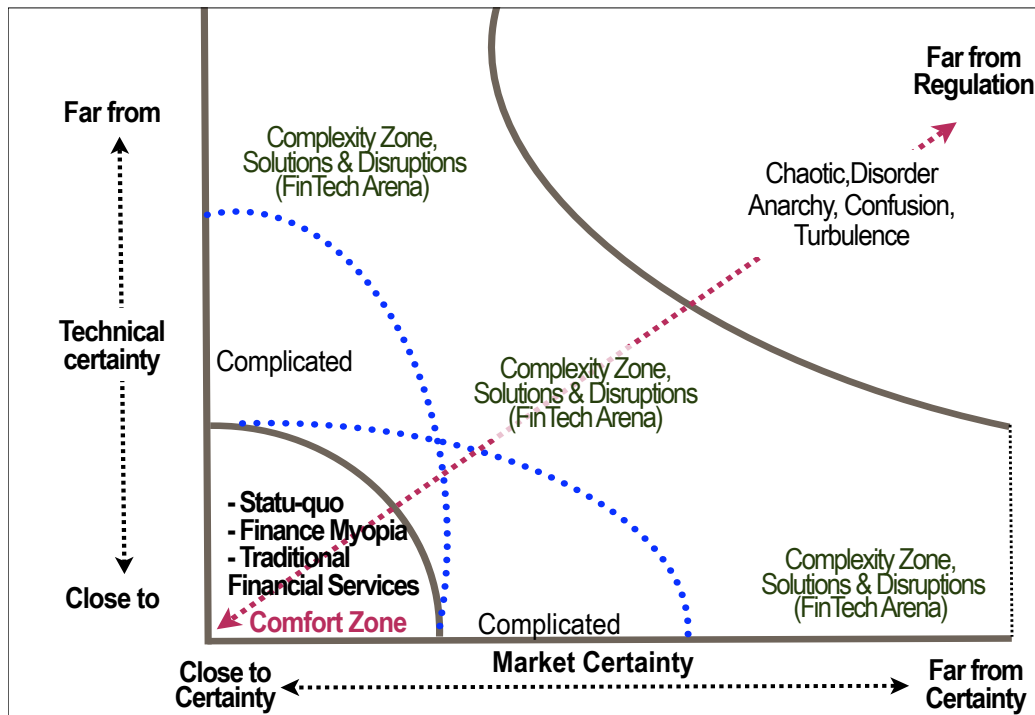
3 Complexity and Ambiguity in Financial Services

The 2008 financial crisis threw the financial sector into disarray. With the emergence of intelligent digital tools, it brought about the FinTech industry. Revealingly, the MIT Sloan School of Management now has a specific course on “*FinTech disruption*”. The term “disruption” describes a process whereby a smaller company with fewer resources is able to successfully challenge established incumbent businesses. (Christensen 2015)

Concepts drawn from Stacey’s complexity theory (1996) and MacMillan and MacGrath’s uncertainty matrix (2000) offer a spectrum to observe the FinTech phenomenon. Exploratory modelling on creative disruption can be useful for analysing the new financial services arena. Our model shown in Figure 2 discloses issues according to the level of certainty among stakeholders concerning solutions to a problem versus certainty that a given intervention will have the desired result. The vertical axis indicates movement from technological solutions close to certainty toward solutions far from certainty, while the horizontal axis indicates movement from stable markets to uncertain markets. If there is a lot of certainty in technological solutions and a lot of certainty in the market, the problems are simple, i.e., a right answer exists and the traditional players stay in the comfort zone. Moving away from certainty, issues become complicated, complex, or even chaotic. The traditional financial services

generally prefer to operate within comfort zones; on the other hand, FinTech players are excited and attracted toward the “complexity zone”.

Figure 2 Exploratory Model of Disruption in Financial Services



Traditional financial services prefer to operate in the “comfort zone”, whereas the new generation of digital entrepreneurs tends to prefer the “complexity zone”. In conditions “very far from certainty” (confusion, ambiguity, chaos, far from regulation), standard tools and techniques cannot be used. Some of the more complex aspects of a situation cannot be known ahead of time.

Cutting edge FinTech projects usually threads its way in the complexity or confusion zone. FinTech entrepreneurs construct business models that operate at the boundary of national compliance and regulation. Determining if, and how, regulation applies to your FinTech business is the key. A survey of financial technology founders and investors released in the Wall Street Journal (2015) identified regulation as the biggest impediment to growth. The issue? Ambiguity and confusion on the part of regulation authorities.

Generally speaking, FinTech ecosystems prefer a mix of complicated and complex situations. For instance, Baidu, a Chinese research engine, is beginning to apply artificial intelligence to insurance and loan underwriting to better assess risk. *"In insurance and consumer loans, A.I. and machine learning can help you identify all the patterns to help you reduce risk."* (Kahn 2016).

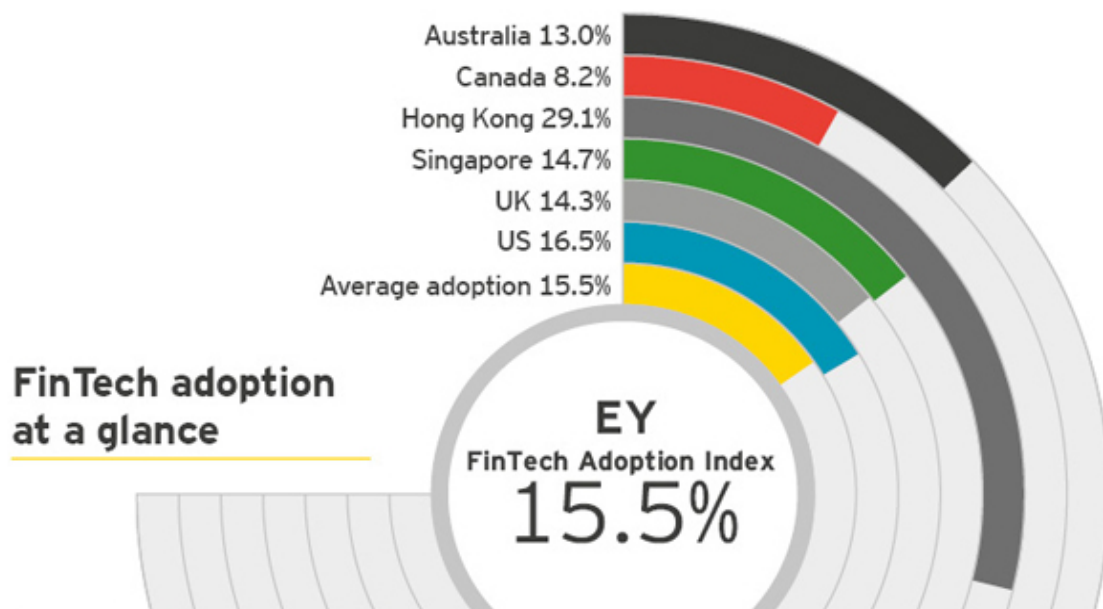
4 Current State of FinTech and Taxonomy of Disruptive Clusters

According to the World Economic Forum, thousands of new players are disrupting the traditional financial services sector (“The Future”, 2015). The 2016 *EY FinTech Adoption Index* shows that 15.5% of digitally active consumers used at least two FinTech products in 2015 (see Figure 4). EY (one of the Big Four) studied the world’s most advanced FinTech countries (the Eurozone appears to lag far behind).

Hong Kong has the highest rate of FinTech use of all the markets surveyed (29.1%). The United States has the second-highest adoption rate (16.5%), followed by Singapore (14.7%), the UK (14.3%), Australia (13%) and Canada (8.2%). Adoption rates could double within the year, however, as awareness of available products and services increases. EY states that “*FinTechs are moving in on the traditional financial services landscape and their products and services are catching on. For traditional services companies, including banks, insurers and wealth and asset management companies, the risk of disruption is real.*” (“EY Fintech”, 2015).

Digital payment platforms are invading and modelling the cashless payment landscape, with non-traditional payment formulas. IoT and online platforms are reinventing the value chain of wealth management and insurance industry. Manulife and Fitbit introduced an new online of life insurance program rewarding people for healthy living : clients can easily log their activities using online and intelligent fitness wristbands.

Figure 4 EY FinTech Adoption Index



Digital deposits and lending suggest alternative models of lending, thereby changing the market dynamics of traditional lenders. Both virtual currencies and cryptocurrencies can be used to buy goods and services: Startup R3, headquartered in New York, is leading a consortium of 42 major banks to design and deploy advanced shared ledger (block chain) technology in the global financial sector. In the coming years, digital capital

raising will transform the role of traditional merchant banks, and the empowerment of clients through intelligent systems will transform the role of traditional investment advisors. Intelligent digital tools will disrupt capital markets and bring about a world where buyers and sellers will be better connected than ever before.

Traditional financial transactions will be on the decline. In the next decade, human involvement will become more and more irrelevant; financial institutions will need to adapt computer systems and distribution networks accordingly. Traditional insurance and financial services are now confronted in a regulated industry that is less and less able to compete with the low operating costs of virtual insurance agents. Some companies have already automated the process of providing advice to customers; asset allocation, management services and tax optimization are all provided online. This further democratizes access to financial advice. Some FinTechs have met with very high success, currently doubling their sales every six months. In response, traditional wealth management funds have adopted similar tactics through robo-advisors.

Figure 5 Taxonomy of disruptive clusters in financial services



The Davos World Economic Forum’s research report on the future of financial services has established a taxonomy for disruptive innovation in financial services. The research team has structured an original framework of six financial services functions and eleven

disruptive innovation clusters. The six core functions, described in Figure 5, are the following: payments, market provisioning, investment management, insurance, deposits and lending, and capital raising. Embedded in the six functions are the eleven disruptive innovation clusters that exert pressure on traditional business models (“The Future”, 2015).

Peru provides a good example of creative disruption and how it can compete with traditional banking. Bloomberg reports that Peru, an emerging-economy country with 30 million people, has 32 million cell phones. Since 80% of Peruvians do not have a bank account, Peruvian banks have teamed up to channel money through those phones: “*Peru Digital Payments, a company owned and operated by the country’s leading financial institutions, launched Bim, a mobile payment program that unites all their online customer interfaces on one system.*” (Elton, 2015). Peru is now a new FinTech leader with a first-of-its-kind software: “*While there are 255 mobile money programs in 89 countries around the world, no other program includes all of a country’s banks, and the majority allow transactions only between customers of the same phone company.*” (Elton, 2015).

Eventually, FinTech will completely transform the financial services sector of every country. In every case, the advent of digital technology benefits the customer: new services meet or exceed expectations, and often provide a product that is superior to that of the traditional industry. The following sections give a special attention to the various business models of in the FinTech sector.

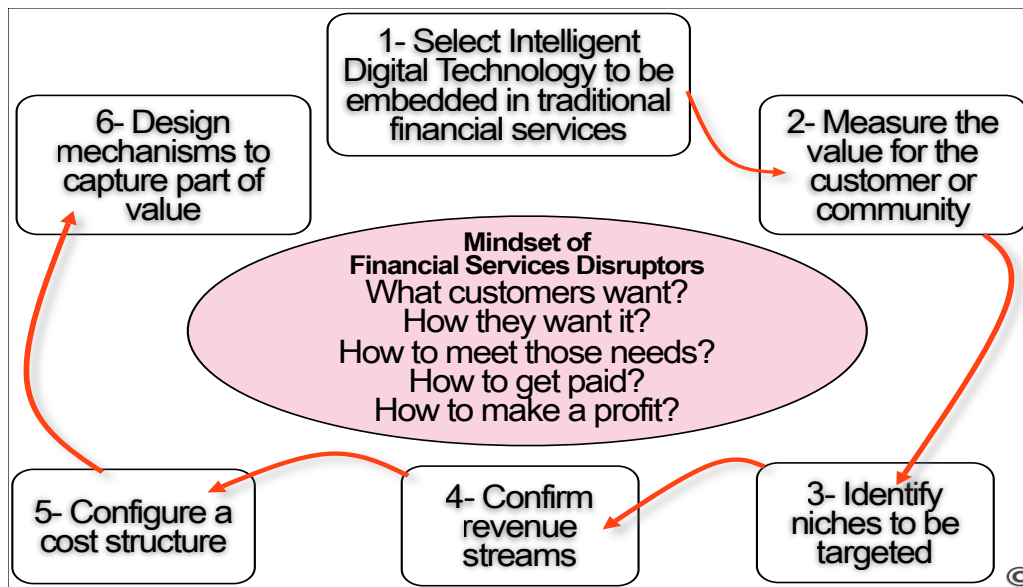
5 Cracking the Code of a FinTech Business Model

A business model describes the means by which an organization creates, delivers, and captures value – whether this value is economic, social, cultural, or of any other form. When a FinTech entrepreneur receives money, he has an obligation to create value. Whatever the model, FinTech entrepreneurs use intelligent digital platforms in creative ways as they attempt to craft solutions that are more cost-effective than traditional financial services. They often draw on original activities to generate a better return on investment reducing transaction costs. FinTech entrepreneurs are inventive regarding cost structures, revenues, and capital requirements.

The theoretical model, inspired by Teece (2010) shown in Figure 3 consists of interlocking elements that create and deliver value for stakeholders. FinTech ventures must create a customer value proposition that is better than traditional financial services. The profitable formula is the blueprint that defines how a FinTech venture creates value for itself while providing value to customers. It consists of the following formula: revenues often come from very small fees originating from a large community. The cost structure is predominantly driven by efficient digital platforms and good marketing strategies. It is important to identify key resources, which are the assets such as technology, “whiz kids”, facilities, venture funds, logistics required to deliver the value proposition to the targeted customers. The aim is to effectively interlock the key resources: charismatic leaders, major business sponsors, media, and expertise.

Successful FinTech ventures design complex digital and managerial processes that allow them to deliver value in such a way as to successfully repeat their activities and increase their revenue every month. Digital entrepreneurs can be very creative when it comes to seducing customers, especially via online and viral marketing. Some multinational FinTech enterprises also have a complex legal structure and an opaque accounting system, making it impossible to accurately measure the efficiency of their activities.

Figure 3 Typical FinTech Business Model



To sum up, FinTech ventures usually navigate at the edges of banking and varied financial services, and contribute to reinventing the industry’s core infrastructure and processes. These new models are generally agile, swift-flowing, flexible, efficient and user-friendly. FinTech takes advantage from new digital technologies ; they offer banking products more convenient, costing less to deliver and optimised for digital networks. FinTech entrepreneurs often circumnavigate around regulatory compliance focusing on single-purpose solutions designed for an improved experience ; they are also on the same wavelength with the new Wi-Fi generation and the peer-to-peer (P2P) culture engendered by the explosion of social media.

A typical successful business model ? The French-born, Renaud Laplanche’s Lending Club built in nine years the world's largest peer-to-peer lending platform having a value of US \$3 billion on the New-York Stock Exchange (NYSE) ; in 2015, Lending Club, having 1.4 million customers, facilitated \$8.4 billion in loans. Laplanche is not alone in the billionaire FinTech club. There are approximately 40 new FinTech start-ups (Unicorns) with valuations of over \$1 billion (Bruene 2015). As a benchmark, the Laurentian Bank of Canada, a traditional bank, founded in 1846 has a value of only \$1.3 billion.

6 The Astonishing Case of Crowdfunding

In 2003, Brian Camelio, a musician, launched a platform to support music ventures while giving rewards in return: the first crowdfunding platform was born. Its success has inspired thousands of similar websites around the world. Crowdfunding, however, is not entirely safe from potential abuse: according to the FBI, after the tragedy of Hurricane Katrina in 2005, more than 2,400 malevolent web platforms stole millions of dollars from donors (Stern, 2013). Ezubao, a Chinese peer-to-peer (P2P) platform, stole more than \$7.6 billion from 900 investors (Gough, 2016).

On the bright side, the *Kickstarter* platform, based in New York, has taken crowdfunding to unprecedented heights: since its creation in 2009, it has collected more than \$2.2 billion in pledges, from 10 million backers, to fund 100,000 creative projects and start-ups in such diversified areas as technology, sports, films, music, and the arts. Lending-based models are still the biggest players in the field, with US \$64 billion raised in 2015 (Wills and Jablonska, 2015). Most of the platforms are stationed in North America, but the UK is jumping on the bandwagon: according to an assessment from a consortium of researchers from the University of Cambridge and the University of Berkeley who studied the phenomenon in UK, promoters raised US \$8 billion in 2015 via crowdfunding (Wardrop *et al.*, 2015). The main crowdfunding business models are Donations, Lending, Pre-Sales, Equity and Rewards (see below).

Donations – Non-profit organizations use this model. Funds are collected for altruistic or spiritual causes. Donors are loyal, and promoters will often keep them updated on the progress of the philanthropic venture to ensure recurring donations.

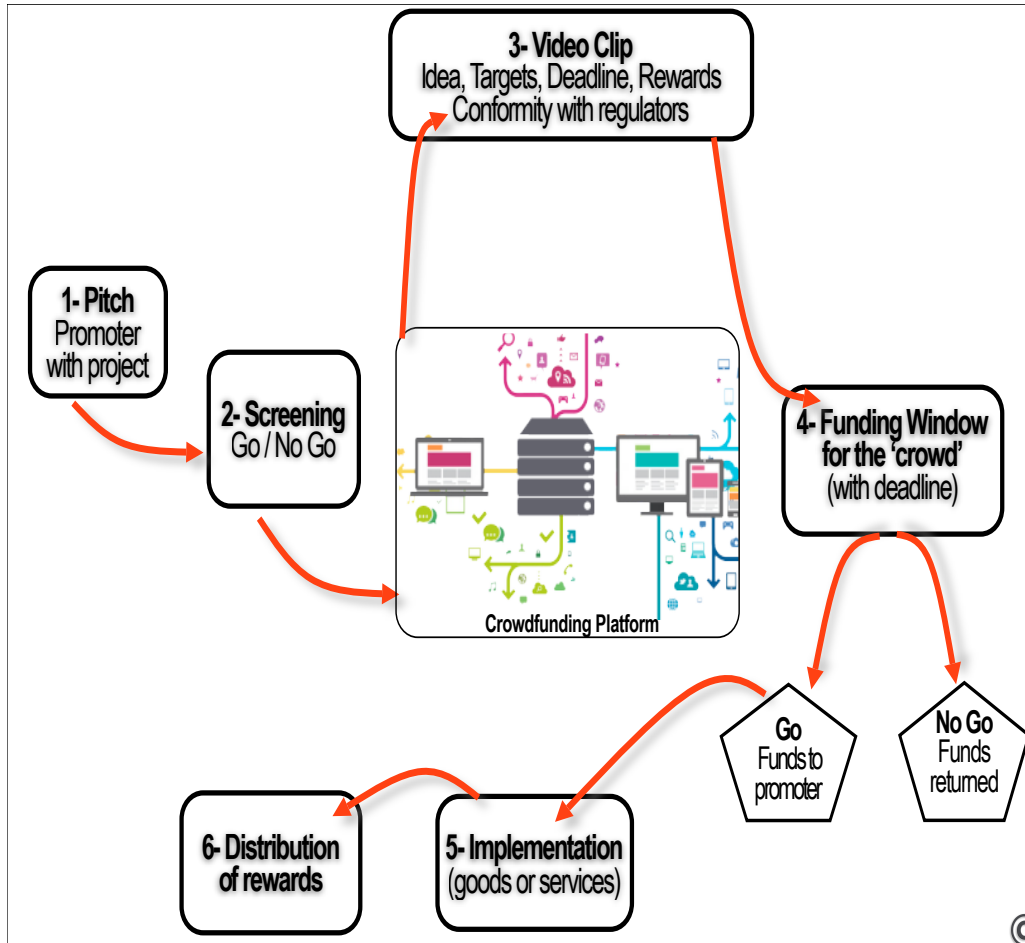
Lending – Online lending platform that enables borrowers to obtain a loan, and investors to purchase notes backed by payments made on loans. The platform acts as a middle-man or matchmaker. Online lending is subject to compliance and national regulations.

Pre-Sales – In a Pre-Sales crowdfunding campaign, a new product or service is placed online, and funders are asked whether they are interested in ordering it and paying for it in advance. This process replaces traditional market research, as well as validating demand and providing working capital.

Equity – Equity crowdfunding takes place when a promoter wants to attract venture capital from the crowd instead of investment bankers. It generally includes the issue of shares, subject to compliance and national regulations. In the US, equity crowdfunding was made legal through the JOBS act in 2013. Canada lags far behind the US; Canadian provincial and territorial governments do not currently have a coherent vision or policy on FinTech and crowdfunding.

Rewards – A Rewards-based model is best for social entrepreneurs who wish to collect donations for a small venture or social project by giving non-financial rewards in return, generally of a symbolic value (see Figure 6).

Figure 6 Typical Crowdfunding Business Model



A World Bank report suggests that crowdfunding may be the way for emerging countries to expand on an entrepreneurial level while avoiding the entanglements of traditional funding methods: “Developing economies have the potential to drive growth by employing crowdfunding to leapfrog the traditional capital market structures and financial regulatory regimes... (...) Together, they have the ability to deploy up to US\$96 billion a year by 2025 in crowdfunding investments.” (“Crowdfunding’s Potential for the Developing World”, 2013). In this regard, crowdfunding may become a very powerful driver for growth across the world.

7 Conclusion and Research Agenda

FinTech will completely transform financial services all over the world. In every case, the advent of digital technology will benefit the customer: new services will meet or exceed expectations, and will often provide a product that is superior to that of the traditional industry.

Academics have a plethora of new research avenues:

- How does FinTech create value?
- How will smarter and faster machines transform capital markets?
- How will customer needs and behaviours change in a cashless payment ecosystem?
- Why is there an odd mismatch between the attitudes of FinTech players and compliance practitioners?
- How FinTech will transform the value chain of the insurance industry?
- What is the social return on investment (SROI) of the FinTech industry?
- What will be the impact FinTech on future employment and the job market?
- What will be the fundamental changes to the infrastructure and processes in the traditional financial services industry ?
- How will cyber security landscape develop ?
- How did Hong Kong become the world leader in FinTech?
- Should European countries develop a vision and a national policy like the United Kingdom?
- Finally, how does one explain the relatively slow development of FinTech in the Eurozone?

Acknowledgement

The authors wish to acknowledge the magnificent support of the research team: Claude Couture, Roberto Genest, Francis Nadeau, Hazel de Neeve, Éric Osmani, Nicholas Roy and Jean Sylvain.

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