

A Consolidated Business Model Canvas of Blockchain-Based FinTech Startups: Evidence from Initial Coin Offerings

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Abstract. *FinTech* (financial technology) applications are evolving at a rapid speed and are increasingly based on blockchain technology. Startups developing and offering such blockchain-based FinTech applications frequently raise capital through initial coin offerings (ICOs). Against this backdrop, it remains unclear to what extent these startups exploit the disruptive potential of blockchain. Therefore, the present article examines business models of current FinTech startups funding themselves through ICOs. The authors present their results in a consolidated business model canvas, which illustrates the current state of blockchain-based FinTech startups.

Keywords: FinTech, Blockchain, Business Model Canvas, Initial Coin Offering, Startup

1 Introduction

Blockchain technology can be described as a distributed ledger database, which holds the potential to disrupt traditional business models [3, 8]. Even though the technology is applicable in many industries, applications in the financial and insurance sectors are seen as possessing the greatest disruptive potential [8, 11]. Apart from that, financial technology, or *FinTech*, emerged within the industry and is currently evolving at a rapid speed [12]. FinTech applications began threatening traditional financial firms by being the first to combine “e-finance, internet technologies, social networking services, social media, artificial intelligence, and big data analytics” [12]. Consequently, recent FinTech startups have begun to build their applications upon blockchain in order to exploit the technology’s disruptive potential [11]. A common way for such startups to fund themselves is through initial coin offerings (ICOs)—a type of crowdfunding similar to initial public offerings (IPOs) [17]. As opposed to IPOs, however, ICOs aim to raise “capital by creating and selling a virtual currency [...] which provides a set of rights to its holders [...] and can be resold in the secondary market” [13].

Against this background, previous studies have already investigated (i) the different facets of ICOs without a specific emphasis on FinTechs [7]; (ii) the

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characteristics of FinTech startups without a focus on blockchain-based applications [10]; and (iii) the “business models of startups using blockchain in the financial sector” [4] without the requirement of ICO funding. Moreover, none of these studies has examined to what extent current FinTech ICOs leverage blockchain’s disruptive potential, which arises from the technology’s characteristics. The core advantages enabled by these characteristics are (i) decentralization, (ii) cryptographic security, (iii) transparency, and (iv) data immutability [5]. In order to shed light on the presence of these advantages within FinTech ICO solutions, the present study investigates the business models of actual FinTech ICOs. Thereby, we aim to answer the following research question:

RQ: Are current FinTech ICOs exploiting the disruptive potential of blockchain?

To this end, we collect relevant ICO data from FinTech startups, categorize them, extract their business models’ key elements, and integrate these elements into a consolidated business model canvas [15]. The canvas aims to represent the status quo of blockchain-based FinTech startups’ business models. Finally, we briefly analyze and discuss the extent to which blockchain’s disruptive potential currently reflects itself within the described business model canvas.

2 Analysis

2.1 Data Collection

In order to collect relevant data, we made use of the ICO rating platform *ICObench.com*. For each ICO, the platform provides a description, expert evaluation, and general information such as token name, price, start and end dates, team, milestones, and a whitepaper (if available). Moreover, the ICOs are grouped into categories with the category “Banking” consisting of FinTechs. We collected ICO data from the “Banking” category with the following characteristics¹: (i) a whitepaper must have been accessible; (ii) the ICO must have been finished at the time of data collection; (iii) the ICO must have earned funding; and (iv) the startup needed to be from a European country. We opted for these restrictions in order to obtain a reasonable number of startups that would allow for a qualitative analysis. After performing the search at ICObench, we identified 75 ICOs that met our requirements. Out of these 75 ICOs, 19 had to be removed due to (i) incorrectly assigned categories or (ii) inaccessible websites. The remaining 56 ICOs serve as the data basis for this study.

2.2 FinTech ICO Categories

We identify five sub-categories in our data, which semantically correspond to the findings of Teigland et al. [16] and are distributed as follows:

¹ The data were collected on December 5, 2018. The total number of ICOs at the time of data collection was 5.676 with 555 belonging to the category “Banking”.

- Wallets (32%): These FinTech applications allow for the storage and administration of cryptographic money [9].
- Lending (27%): These FinTech applications allow for direct peer-to-peer lending, which is enabled by smart contracts.
- Savings (5%): These FinTech applications allow for asset management including crypto-currencies and also provide other offerings such as trading in different stock markets.
- Comprehensive financial platforms (27%): These FinTech applications comprise capabilities of the three categories above and are closest to being a substitute for a traditional bank.
- Others (9%): FinTech applications within this category are not assignable to one of the categories above (e.g., market analyses or a decentralized accounting platform).

2.3 FinTech Business Models

In order to identify the key elements of the startups' business models under examination, we loosely follow the process for taxonomy development put forward by Nickerson et al. [14]. Taxonomies are frequently used by scholars to describe "groupings that are derived conceptually or empirically" [14]. Against this backdrop, Beinke et al. [4] show that this approach is applicable for the purpose of extracting information from business models. For our study, it is thus highly illustrative to elaborate the key elements of business models in terms of a taxonomy.

In a first iteration of the process, we applied a *conceptual-to-empirical approach* [14] in order to derive generic components of a business model. To this end, we utilized the business model canvas of Osterwalder and Pigneur [15]. The authors describe the canvas as "a tool for describing, analyzing, and designing business models". Although a business model canvas usually serves to develop a business model for a single company [15], it is also suited to representing key elements from the business models of multiple organizations, or classes of organizations (as shown by e.g., Dijkman et al. [6]). According to the canvas, a business model consists of the following components: *customer segments*, *value propositions*, *channels*, *customer relationships*, *revenue streams*, *key resources*, *key activities*, *key partners*, and *cost structure* [15].

In a second iteration, we applied an *empirical-to-conceptual approach* [14]. Here, we reviewed the whitepapers, websites, and information available at ICObench regarding the 56 FinTech startups under consideration in order to obtain information about the components of the business model canvas. As we could identify obvious similarities among the FinTechs' business models (such as *software offering* as a key resource or *ICO earnings* as a revenue stream), we consolidated these similarities as key elements. Consequently, the elements within the components (i) key partners, (ii) key activities, (iii) customer relationships, (iv) channels, and (v) cost structure are similar across all FinTech startups. Moreover, the elements within the components (vi) key resources, (vii) value propositions, (viii) customer segments, and (ix) revenue streams are similar within the FinTechs' categories described above, but are partially different across categories. We therefore tagged the elements within components (vi)–

(ix) with their respective categories. Figure 1 depicts the consolidated business model canvas.

Key Partners <ul style="list-style-type: none"> • Technical partners (e.g., IT-security) • Strategic partners (e.g., external consultants) • Investors 	Key Activities <ul style="list-style-type: none"> • Administration • Sales and marketing • Research and development • Customer service • Business partnering 	Value Propositions <ul style="list-style-type: none"> • Real-time transaction (W, L, CFP, O) • Secure transaction (W, O) • Transparent contracts (L, S, CFP, O) • Immutable contracts (L, S, CFP, O) • Low costs through disintermediation (all) 	Customer Relationships <ul style="list-style-type: none"> • Social media, blogs, newsletter • Customer support • Involvement through open source projects • Loyalty bonus 	Customer Segments <ul style="list-style-type: none"> • Cryptocurrency traders (all) • Individuals without access to financial services (L, CFP) • New customers without cryptocurrency experience (W, CFP) • Companies and startups (L, S, CFP, O) • Niche groups (e.g., migrant workers) (W)
	Key Resources <ul style="list-style-type: none"> • Software (all) • Expert know-how (all) • Credit card (W, CFP) • Smart contracts and algorithms (L, S, CFP, O) 		Channels <ul style="list-style-type: none"> • Online platform • Mobile application • Open source code • APIs 	
Cost Structure <ul style="list-style-type: none"> • Research and development costs • Marketing costs • Licences and legal costs • Operating costs (incl. labor costs) 			Revenue Streams <ul style="list-style-type: none"> • ICO earnings (all) • Platform fees and subscriptions (all) • Transaction costs (W, CFP, O) • Fees for additional services (e.g., smart assistants, credit cards) (W, L, S, CFP) • APIs (W, O) 	
<input type="checkbox"/> Elements apply to all categories		W:= Wallets L:= Lending S:= Savings CFP:= Comprehensive financial platforms O:= Others		
<input type="checkbox"/> Elements vary across categories				

Figure 1. Consolidated business model canvas of FinTech startups

3 Discussion and Outlook

Observing Figure 1, we find key elements enabled by blockchain’s core advantages (i.e., decentralization, cryptographic security, transparency, data immutability) within the value propositions of the canvas. Here cryptographic security (represented by the key element *secure transaction*), transparency (represented by the key element *transparent contracts*), and data immutability (represented by the key element *immutable contracts*) are included within a range of business models, whereas decentralization itself is not directly represented by a key element. However, decentralization enables disintermediation, which in turn enables the key elements *low cost through disintermediation* [1] and *real-time transaction* [2]. Thus, in order to answer our research question, we conclude that—at least on paper—current FinTech ICOs’ broadly exploit blockchain’s disruptive potential given that the technology’s core advantages enable their business models’ value propositions. In practice, however, this conclusion has to be treated with caution as ICOs are frequently subject to fraudulent behavior by their vendors [17]. Therefore, in our future work, we will built upon the results from this study in order to investigate the distinction between successful and fraudulent ICOs in the FinTech sector.

References

1. Avital, M., Beck, R., King, J., Rossi, M., Teigland, R.: Jumping on the Blockchain Bandwagon: Lessons of the Past and Outlook to the Future. In: 37th International Conference on Information Systems, pp. 1-6. Dublin (2016)
2. Beck, R.: Beyond Bitcoin: The Rise of Blockchain World. *Computer* 51, 54–58 (2018)
3. Beck, R., Avital, M., Rossi, M., Thatcher, J.B.: Blockchain Technology in Business and Information Systems Research. *Business & Information Systems Engineering* 59, 381–384 (2017)
4. Beinke, J.H., Nguyen, D., Teuteberg, F.: Towards a Business Model Taxonomy of Startups in the Finance Sector using Blockchain. In: 39th International Conference on Information Systems, pp. 1-9. San Francisco (2018)
5. Carson, B., Romanelli, G., Walsh, P. and Zhumaev, A.: Blockchain Beyond the Hype: What is the Strategic Business Value?, <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/blockchain-beyond-the-hype-what-is-the-strategic-business-value> (Accessed: 20.11.2019)
6. Dijkman, R.M., Sprenkels, B., Peeters, T., Janssen, A.: Business Models for the Internet of Things. *International Journal of Information Management* 35, 672–678 (2015)
7. Fridgen, G., Regner, F., Schweizer, A., Urbach, N.: Don't Slip on the ICO-a Taxonomy for a Blockchain-Enabled Form of Crowdfunding. 26th European Conference on Information Systems, pp. 1-17. Portsmouth (2018)
8. Friedlmaier, Maximilian, Andranik Tumasjan, and Isabell M. Welpe: Disrupting industries with blockchain: The industry, venture capital funding, and regional distribution of blockchain ventures. In: 51st Hawaii International Conference on System Sciences, pp. 3517-3526. Waikoloa Village (2018)
9. Gennaro, Rosario, Steven Goldfeder, and Arvind Narayanan: Threshold-Optimal DSA/ECDSA Signatures and an Application to Bitcoin Wallet Security. In: International Conference on Applied Cryptography and Network Security, pp. 156-174. London (2016)
10. Gimpel, H., Rau, D., Röglinger, M.: Understanding FinTech Start-Ups—a Taxonomy of Consumer-Oriented Service Offerings. *Electronic Markets* 28, 245–264 (2018)
11. Guo, Y., Liang, C.: Blockchain Application and Outlook in the Banking Industry. *Financial Innovation* 2, 24 (2016)
12. Lee, I., Shin, Y.J.: Fintech: Ecosystem, Business Models, Investment Decisions, and Challenges. *Business Horizons* 61, 35–46 (2018)
13. Lee, J., Li, T., Shin, D.: The Wisdom of Crowds and Information Cascades in FinTech: Evidence from Initial Coin Offerings. *SSRN Journal* (2018)
14. Nickerson, R.C., Varshney, U., Muntermann, J.: A Method for Taxonomy Development and its Application in Information Systems. *European Journal of Information Systems* 22, 336–359 (2013)

15. Osterwalder, A., Pigneur, Y.: *Business Model Generation: a Handbook for Visionaries, Game Changers, and Challengers*. John Wiley & Sons (2010)
16. Teigland, R., Siri, S., Larsson, A., Puertas, A.M., Bogusz, C.I.: *The Rise and Development of FinTech: Accounts of Disruption from Sweden and Beyond*. Routledge. SSRN Journal (2018)
17. Zetsche, D.A., Buckley, R.P., Arner, D.W., Föhr, L.: *The ICO Gold Rush: It's a Scam, it's a Bubble, it's a Super Challenge for Regulators*. University of Luxembourg Law Working Paper, 17–83 (2017)