

## Contemporary issues in Financial Technology: the role of the Internet

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### **Abstract**

*This paper investigates contemporary issues in financial technology (fintech). These are classified into six broad areas covering (1) disruption, (2) digital payments, (3) decentralization, (4) artificial intelligence, (5) open finance, and (6) financial inclusion. They are then critiqued in the context of the role of the Internet in financial services. The development and ontology of fintech is discussed, alongside the migration of financial services to the Internet. The discourse is supported by reference to the literature, as relates to the philosophical, academic, practical, and legal aspects of the issues. The paper's contribution is in providing thoughtful insight into current events and trends, and six key questions which can help to deepen our understanding of fintech and the issues surrounding it.*

**Keywords:** Finance; Fintech; Internet; Contemporary issues; Disruption.

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### **1. Introduction**

This paper critiques and evaluates contemporary issues in financial technology (fintech). Specifically, how the Internet relates to, and is shaping, the global marketplace in international financial services (Lewan (2018); Economides et al. (2001)). In this respect, the definition of a contemporary issue encompasses the implications, applicability, relevance, significance, and effect of the adoption of innovative financial technology in capital markets. By focusing a scholarly lens on such issues, the paper contributes to a discourse on new ideas and perspectives in respect of the role of the Internet in finance.

The premise is that one has to understand the role that the Internet plays in financial intermediation. This is so as to conceptualize the issues that arise through fintech adoption. In this respect, the Internet can be used to match lenders with savers, and investors with investments. The Internet, as a system of interconnected computer nodes, is disintermediating

centralized markets.<sup>1</sup> As a result, mediators are becoming less important. This impacts both the way financial services are delivered, and the way customers experience their interaction with financial institutions (Hawkins, Mansell, and Steinmueller (1999)).

Thakor (2020) defines fintech as the use of technology to provide new and improved financial services. Although useful, the shortcoming of this definition is that it does not encompass the importance of the Internet in the evolution of fintech. Broby (2021), meanwhile, uses the more focused term "strategic fintech". This relates to the process of thinking, acting and influencing in financial services in the Internet era. It enables the ecosystem to promote the success of both organizations and society.

Understanding the implications of this migration to the Internet is important. It goes beyond the democratization that decentralized finance (DeFi) can achieve. It is enabling financial service innovation in respect of the use of mobile devices, social networks, robotic automation, crypto assets, blockchain, distributed ledgers, and cloud computing. It is driving what Gomber, Kauffman, Parker, and Weber (2018) call the "fintech revolution". Through these medium, financial services are being delivered securely online, and in a more bespoke fashion.

The use of the Internet is enabling faster, more secure and more efficient financial transactions and services (Liang and Chen (2009)). The way that finance is conducted physically is changing. There are many ways that this is being manifested. The first is the increasing use of mobile devices to conduct transactions. This is happening alongside the migration of traditional banks to the Internet. Daniel and Storey (1997) suggest several catalysts for this, including a desire to add value, deliver mass customisation, and to establish reputation as a digital thought leader.

The changes, prompted by the Internet, require businesses to be redesigned. O'Reilly and Finnegan (2003) argue that, in the context of finance, the Internet is making "bricks and mortar" an operational rather than a competitive decision. Bernstein, Song, and Zheng (2008) suggest that the "clicks and mortar" model, is not a decision, but a strategic imperative. Many proponents of fintech view such nuances as key to understanding the impact of the Internet (see Knorr Cetina and Bruegger (2002)).

In summary, several issues arise as a result of the greater use of Internet. These have philosophical, academic, practical and legal implications. These manifest themselves at the personal, industry and societal level, some of which are now explored.

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<sup>1</sup> The Internet is a global network of linked computing devices that use a common communications protocol, TCP/IP (Transmission Control Protocol/ Internet Protocol). TCP/IP provides a common language for interoperation between networks, switches and routers (MacKie-Mason and Varian (1994)). These in turn use a variety of local protocols (Netware, AppleTalk, DECnet and others).

## **2. Method – Issue identification**

The working hypothesis of this paper is that the Internet is fundamentally changing the way financial services are being conducted. These changes include, but are not limited to, inter-connectivity, access to data, privacy, the nature of transactions, the future of mediation, there benefit to society, and the value of mass customization. These are need to be conceptualized relative to contemporary issues (Casula, Rangarajan, and Shields (2021)).

Issue identification is important because the contemporary use of fintech, and its intersection with the Internet, impact the way financial firms handle third party data, privacy and digital transactions. This in turn has further implications for the nature of financial mediation, and the very way financial services are delivered. It also has implications for professional competencies, skills and attitudes (Karkkainen et al (2017)).

Based on a broad review of the scholarly literature, the issues can be broken down into several typologies (Buchi et al. (2019)). This is an effective way to identify them, and helps with an understanding of the current state of knowledge. Whilst some financial technologies are innovative, many are now in widespread use. As such, identifying them is a moving goal post.

A combination of keyword searches and advanced search techniques were used to ensure a comprehensive set of sources. Criteria, such as the reputation of the journal, the credentials of the authors, and the rigor of the research methods, were used to determine the quality of these sources. The common denominator is its linkage to the Internet (Heng et al (2007)).

Once the literature search had identified common themes, the broad contemporary issue terms were put into the Web-based Google Trends in order to see how they were trending over time. Google Trends is considered a reliable tool for predicting changes in issues under discussion. Scharnow and Vogelgesang (2011) argue that it is an accurate measure of the public’s interest in a topic. The results of the search are shown in Table 1.

**Table 1. This shows the Google Trends search terms weekly worldwide results 01/01/2017 - 01/01/2024. A = fintech disruption; B = digital payments; ; C = decentralization; D = artificial intelligence in finance; E = open finance; F = financial inclusion.**

<b>Variable</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
Stan Dev	17.3	13.7	15.7	16.0	16.1	12.1
Average	48.0	70.8	60.1	49.4	65.5	60.3
High	100	100	100	100	100	100
Low	0	47	33	28	43	36

The search terms encompass many of the more granular innovations. For example, blockchain. This is being widely embraced, and fits under A, C and D in the table. The technology has the ability to support a secure transaction environment where parties operate in a trustless

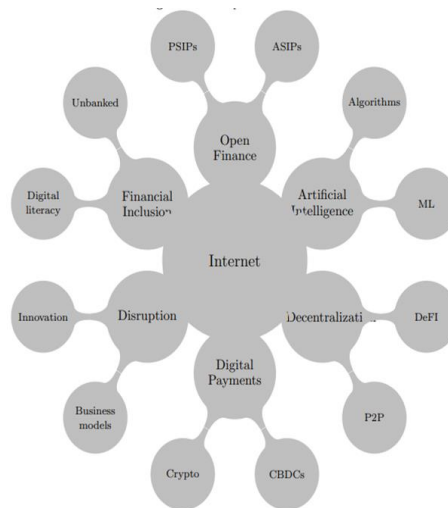
environment (Shin (2019)). That said, its integration with legacy systems, and the contemporary issues surrounding its use, need to be explored more by scholars.

### **3. The key issues**

Identifying the key issues will never be definitive (Suyano et al (2020)). However, exploring them leads to a more informed debate. Also, several aspects of fintech and the Internet can be controversial. For example, disruption to established financial norms can result in job losses, and a reshaping of the status quo. The transformation of digital banking, lending, and investment platforms raises valid consumer protection concerns.

One of the challenges of the migration to the Internet lies in the vast amounts of personal and financial data. In this respect, privacy and ownership concerns add a layer of complexity to the ethical dimensions of fintech practices. As such, there is a need to strike a balance between innovation and safeguarding user information.

Figure 1 illustrates a mind map encapsulating the identified contemporary issues. This includes the worldwide impact of fintech disruption, the pervasive influence of digital payments, the implications of decentralization, the integration of artificial intelligence in finance, the emergence of open finance models, and efforts towards financial inclusion. Addressing these challenges necessitates collaboration among fintech entities, regulators, and stakeholders to foster responsible and sustainable development.



*Figure 1. Depicts how the internet is at the centre of the six identified contemporary issues in Financial Technology. The key themes branch out into sub themes.*

### **3.1. Disruption**

The Internet is a known disruptor. In the context of fintech innovation, disruption refers to its ability to impact and disintermediate existing financial institutions and business models, and the need for a proactive response from incumbent financial service providers to adapt to the changing landscape. Contemporary issues that arise from disruption relate to the direction of innovation and the resulting change to business models.

The role of disruption is articulated by the concept of disruptive innovation theory. This theory posits that the introduction of new products or services can revolutionize markets, rendering existing ones obsolete and propelling technological and economic progress. Firms failing to innovate risk obsolescence, as encapsulated in the "innovator's dilemma". Theory suggests that disruptive innovations targets underserved market segments, before expanding into mainstream markets and displacing incumbents.

Within fintech, the Internet is the catalyst for innovation, reshaping distribution methods, data access, payment forms, and data analysis. In turn, this leads to the disruption of traditional financial models. Fintech's potential is due to its capacity to transform financial institutions and business models. Its disruptive potential prompts the need for new regulations to govern the responsible and ethical use of technology, which gives rise to the following question: ***Q1. How do we navigate the legal challenges associated with fintech innovation?***

### **3.2. Digital payments**

The Internet also provides a global platform that enables seamless and instantaneous transactions across borders. It allows for real-time payment processing. As such, security is the paramount concern. Allied to this is the reliability of the infrastructure and its resilience. There are now a whole host of innovative ways to make digital payments. These include the use of mobile wallets, blockchain payment platforms, and cryptocurrencies. Traditional payments are also undergoing transformation due to QR code payments, contactless cards, and online purchases.

Digital payments encompass digital instructions, central bank digital currencies (CBDCs), stablecoins, and cryptocurrencies (Broby (2022)). The rise of these alternatives to fiat money has implications for the financial system, financial stability and payments. The Technology Acceptance Model (TAM), the Unified Theory of Acceptance (UTA) and the Use of Technology (UTAUT) can be used to explain their adoption. These do not, however, answer the fundamental question of: ***Q2. Who will issue digital money in the future and how will it be structured?***

### **3.3. Decentralization**

The role of decentralization in democratizing finance, and the potential for fintech to lead to a new financial architecture, is one of the most hotly discussed contemporary issues. Two strands of thought exist regarding DeFi. One perspective foresees a non-custodial, permission-less financial architecture, while the other emphasizes the risks of a poorly regulated ecosystem susceptible to financial crime. Scholars like Harvey et al (2021) maintain a balanced outlook, acknowledging the optimism surrounding blockchain-enabled DeFi, but highlight challenges such as the risks of centralized control, limited access, inefficiency, lack of interoperability, and opacity.

From a technological standpoint, developing blockchain and distributed ledger technologies has advantages. In the practical context, DeFi empowers users with greater control over their financial assets and data, opening avenues for a wider range of financial services. This may contribute to a more inclusive and democratized financial system. Concerns include the potential for illegal activities, jurisdictional ambiguity, smart contract liability, cybersecurity risks, and taxation issues. That said, DeFi represents the possibility to establish a more transparent, open, and accessible financial system. The question is: **Q3 How will DeFi co-exist alongside traditional centralized marketplaces?**

### **3.4. Open finance**

Open finance leverages Application Programming Interfaces (APIs) to enable the secure and seamless sharing of financial data. The contemporary issue relates to the potential for this to disrupt existing financial institutions through the provision of Banking as a Service (BaaS). There is also the need for a proactive response from traditional financial firms to adapt.

Open finance is driven by the philosophy of promoting transparency and accessibility. The underlying principle is to provide greater control over their financial data, facilitating easier access and sharing. It promotes increased competition, innovation, and consumer choice as a result. The issue is whether this will create a more personalized approach to financial services by allowing companies to offer more targeted and relevant products and services.

Incumbent financial institutions need to respond to the changing landscape. This requires investing in new technologies and designing new business models. It involves collaborating with third-party data providers, and fostering a culture of innovation and experimentation. Needless to say, such actions are not without cost, and therefore debated. The question is: **Q4. What will be the impact of open finance on banking, and what are the associated risks and challenges?**

### **3.5. Financial inclusion**

There are a many contemporary issues related to financial inclusion. Contemporary questions arise around sustainable finance, inclusiveness and impact investing. Also, around the potential for fintech to help drive positive social and environmental change.

The "beggar on the street" problem represents the potential negative impact of financial technology and digital technology on individuals unable to access or use these technologies. If financial services are primarily available through digital channels, those without internet or mobile device access may be excluded. As a result, laws and regulations need to be well defined in order to determine access to financial services. Fintech, through technology, can enhance financial inclusion. For example, by using mobile and online platforms to reach remote or underserved areas. Also, employing artificial intelligence and machine learning can improve the accessibility of financial services.

Fintech contributes to financial literacy by providing accessible and engaging tools for understanding and managing finances. It can also support the development of socially and environmentally responsible financial products and services. Used for good, it can facilitate impact investing, provide access to microfinance, and develop platforms for sustainable finance. The question is: ***Q5. How do we ensure inclusivity in a world where not everyone has access to the Internet?***

### **3.6. Artificial Intelligence**

The use of artificial intelligence (AI) and machine learning in finance, mass customization, and the potential impacts on jobs and the economy. A contemporary debate exists regarding consciousness, human thought, and the limitations of artificial systems. Some contend that despite AI's remarkable capabilities, it lacks essential human qualities such as subjective experience, self-awareness, and genuine understanding.

AI's potential to revolutionize finance is acknowledged by all. It enables computers to make complex financial decisions, automate processes, and handle challenging tasks. However, ethical considerations arise, questioning the replacement of human decision-makers. The employment implications, potential biases, and transparency also need to be considered, as does the risk of unintended consequences. Liability and privacy concerns arise from the vast data processed by AI systems, prompting the question: ***Q6. How is individual data protected when used to generate tailored financial solutions?***

## **4. Conclusion**

In conclusion, there are many contemporary issues in financial technology. The Internet is reshaping the global marketplace and the delivery of financial services. It is resulting in a

process of disintermediation. Understanding these issues contributes to a deeper understanding and enhanced scholarly discourse.

Six broad contemporary issue classifications are identified based on an aggregation of Internet related fintech dynamics. These include (1) disruption, (2) digital payments, (3) decentralization, (4) artificial intelligence, (5) open finance and, (6) financial inclusion. Within each, there are several underlying contemporary issues. Six questions derived from these focus on (1) legal challenges, (2) issuance of money, (3) the role of central marketplaces, (4) impact on banking, (5) inclusivity and (6) data and privacy.

In summary, the paper contributes to the discourse on new ideas and perspectives regarding the role of the Internet in finance and provides valuable insights to inform policy decisions and improve society. It highlights the many ways in which the Internet is enabling financial service innovation and changing the way finance is conducted physically. However, the changes prompted by the Internet also require businesses to be redesigned. This has philosophical, academic, practical, and legal implications. These manifest themselves at the personal, industry, and societal level.

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