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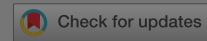
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On the Fintech Revolution: Interpreting the Forces of Innovation, Disruption, and Transformation in Financial Services

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have affected lending and deposit services, peer-to-peer (P2P) lending, and social media use; issues with respect to investments, financial markets, trading, risk management, robo-advisory and services influenced by blockchain and fintech innovations.

Q Key words and phrases: [business models](#) [digital banking](#) [financial services](#) [Fintech Revolution](#) [lending](#) [markets](#) [market operations](#) [payments](#) [process transformation](#) [technology disruption](#) [technology innovation](#)

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Notes

¹. The IS... ven... and market... t al. [33] on... [73] on IT... ownership amid market transformation; Goh and Kauffman [65] on firm strategy and

including: the likelihood of long-term network sustainability; the extent of process standards that support a network; the extent of firm and customer informedness about network and system performance; demand-driven complementary network value; sustainable network value; performance monitoring and fair value sharing [88].

⁸. For several reviews of payment, clearing, and settlement systems around the world by the Committee on Payment and Settlement Systems (CPSS) economists of the Bank for International Settlements (BIS), the interested reader should see the series of white papers that the BIS published in the 2010s [40-42].

⁹. In an interview that the SWIFT Institute [133] conducted in 2015, NPP's chief executive officer Chris Hamilton pointed out the contrast between the low-value payment focus of NPP and its approach to managing liquidity, in comparison to the hybrid settlement system.

Each participant would keep a pool of funds at the central bank segregated for the NPP. The liquidity inside each pool would be managed by a set of highly automated and effective tools that monitor the transactions of each participant in their respective pool and allow draw-down and top-up on parameters set by the participant. Each individual payment is settled through the pools in real time, creating an account-netting effect in each pool. The

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digital currencies—is fraught with technological and public policy issues that parallel

those faced in other complex and sensitive domains, such as cybersecurity, the control of fake news, the patenting of digital innovations, and the control of sharing economy innovation [35].

¹². These kinds of innovations reflect Chesbrough's [28] argument about breakthrough innovations for which the general problem is identified (digital cryptography, in this instance), but the domain will only become known over time as entrepreneurs develop new ideas for their application.

¹³. This is much like what the University of Pennsylvania Wharton School start-up, buySAFE, did. It originally teamed with eBay to diminish the all-in transaction costs between buyers and sellers, who had asymmetric information about the demeanor and performance reliability of their counterparties [32].

¹⁴. This parallels what was observed with airline price forecasting tools like FareCast (acquired by Microsoft in April 2008), and other oil and gasoline forecasting tools for energy producers and transportation fleet cost management.

¹⁵. Unlike several of the other fintech innovation areas that we have discussed, the applications in lending services have been very well-studied since the mid-2000s, especially P2P lending, and more recently, charitable crowdfunding and equity

crowdfunding. Some of the most interesting work that has been done in the literature to date is on P2P lending. For P2P lending, researchers have studied how to design P2P lending platforms; how to design P2P loan contracts; how to design P2P loan repayment schedules; how to design P2P loan interest rates; how to design P2P loan default rates; how to design P2P loan herding; how to design P2P loan the finding of P2P loan transactions; how to design P2P loan to be made; how to design P2P loan online cash flow; how to design P2P loan funding



which information hiding and participant contributions influence crowd campaign outcomes [21].

¹⁶. For studies on financial markets and firm strategies in the investment and trading industry, see: Clemons and Weber [37, 38] on competition between exchange and off-exchange venues for equity trading; Weber [146] on open-outcry and order-matching systems in futures markets; Levecq and Weber [101] on the strategic implications of financial market design choices; Han et al. [72] on JPMorgan's partial divestment of RiskMetrics for value-at-risk metrics infrastructure to Reuters [117]; Parker and Weber [11] on the effects of order-routing on new option market success; and Kauffman et al. [89] on technology ecosystem transformation in high-frequency trading systems.

¹⁷. This will likely be caused by their lack of technical expertise in some domains of emerging technologies, including ML and AI, natural language processing, blockchain app development, data science and IoT sensors, and the exploitation of open APIs. It is unlikely that the demand for the software development and hardware specialists, along with cybersecurity experts, will abate anytime soon. As a result, financial services firms in many countries around the world will be forced to outsource for application, product, and service development assistance.

¹⁸. Dietz et al. [50] have pointed to multiple kinds of changes that are likely to occur:

expansion; fintech startups; partnerships; value, as well as increase in value involvement larger



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