Telecommunications Policy 40 (2016) 168–181

Contents lists available at ScienceDirect

Telecommunications Policy

URL: www.elsevier.com/locate/telpol

Analyzing China's Fintech Industry from the Perspective of Actor–Network Theory

Yongwoon Shim [a], Dong-Hee Shin [b,*]

[a] SK Telecom, Seoul, Korea
[b] Sungkyunkwan University, 90327 International Hall, 25-2 Sungkyunkwan-ro, Seoul, Korea

ARTICLE INFO

Article history:
Received 16 July 2015
Received in revised form
19 October 2015
Accepted 10 November 2015
Available online 19 December 2015

Keywords:
Chinese telecom
Internet-based service
Fintech industry
Actor network theory

ABSTRACT

The rapid development of information and communications technology is transforming the entire industry landscape, heralding a new era of convergence services. As one of the developing countries in the financial sector, China is experiencing an unprecedented level of convergence between finance and technology. This study applies the lens of actor–network theory (ANT) to conduct a multi-level analysis of the historical development of China's financial technology (fintech) industry. It attempts to elucidate the process of building and disrupting a variety of networks comprising heterogeneous actors involved in the newly emerging convergence industry. This research represents a stepping stone in exploring the interaction between fintech and its yet unfolding social and political context. It also discusses policy implications for China's fintech industry, focusing on the changing role of the state in fostering the growth of national industry within and outside of China.

Recently, the rapid growth of Internet-based services has had a profound impact on the traditional financial sector. Now, fintech companies are expanding their business scope beyond online payment systems into advanced financial services, from money market funds (MMFs) to lending services, online funds, and Internet-based private banking services. Fintech is a portmanteau that combines the words "financial" and "technology."

China has long been regarded as one of the countries whose financial system was underdeveloped and suffering from a poor institutional system. In recent years, however, the traditional Chinese financial system has been gradually transforming into a cutting-edge system. With the proliferation of the information and communications technology (ICT) ecosystem, the Chinese financial industry has undergone rapid growth, with huge increases in adoption of cutting-edge technology designed to replace offline financial systems. In this new phase, China has become home to some of the largest fintech companies in the world. Moreover, China has a strong presence of fintech startups. Alibaba, which started as an e-commerce company, is now one of the biggest fintech companies in the world. Alibaba is expanding its presence globally, and transforming traditional payment systems (Kumar, 2014). As a result, traditional financial services companies are cautious about new fintech startups, which are disrupting their traditional business territory.

Despite the recent growth of the fintech industry, little academic literature has explored this area. In particular, few studies have been conducted to analyze the fintech market and policies in the Chinese context. This paper aims to examine

* Corresponding author. Tel.: +82 2 740 1864.
E-mail address: dshin@skku.edu (D.-H. Shin).
URL: http://dshin.skku.edu/ (D.-H. Shin).

http://dx.doi.org/10.1016/j.telpol.2015.11.005
0308-5961/

and assess the translation process, with an emphasis on payment systems in China. Therefore, the primary research question is, "how can technology and policy be mobilized to form an actor network for promoting the fintech industry in China?" For this case study, we employ actor–network theory (ANT) as a lens and interpretation tool. Three main research questions guide this study:

Q1. What factors are contributing to the rapid growth of China's fintech industry? How has China become the leading country in the translation process?
Q2. Who are the focal actors that have been successfully translated in China's fintech industry, and how have they done so?
Q3. What are the policy implications? How can Chinese policy regarding the fintech industry be defined?

The paper is organized as follows. The following section reviews the previous studies that take ANT into consideration. It also describes the research methods. The next section provides a general overview of the fintech industry and a historical background of China's financial market and payment policy. The analysis section examines and analyses the development of the fintech industry in China from an ANT perspective. A discussion section provides the meaning of technology as an actor in the convergence industry and policy implications through analysis of the fintech industry in China. The concluding section concludes with important implications for the future of the fintech industry.

1. Theoretical Framework

1.1. Actor–network perspective

ANT is rooted in science and technology research conducted during the 1980s. ANT is designed to understand the processes of technological innovation. It aims to integrate technology into social processes through an interpretative actor–network lens (Latour, 1987; McBride, 2003). It focuses on how networks form, hold together, and fall apart. However, it does not attempt to explore why a network exists (Latour, 1987). Instead, ANT aims to explain how heterogeneous actors come together to form networks. Therefore, "actors" in ANT are not just humans but non human such as individuals, groups, texts, and technical artifacts. ANT involved with the development of a new technology consists of all the non-human and human actor that influence action and decision-making in the development process. ANT attempts to "open the black box" of science and technology by tracing the complex web of relations between human and non-human actors. Behind this approach is an assumption that technologies contain a variety of political, social and economic elements.

There are many competing theories such as stakeholder theory, agency theory, social network theory (SNT), and so on. However, ANT provides a very powerful tool to better reveal the complexities and dynamics of a technology driven industry. Stakeholder theory is limited by its focus on the interests of human participants in the business. Unlike SNT that view network as "a structure", ANT regard network as "dynamic process." ANT describers a process in which heterogeneous elements are woven together and assembled into reality (Young, Borland, & Coghill, 2010). Therefore actors are not structured into any system, but act as a coordinated network. ANT does not account for pre-existing structures like social network theory (SNT).

Translation and inscription are two crucial processes in ANT (Callon, 1986). Inscription refers to the process of creating technical artifacts that ensure the protection of an actor's interests. Within ANT, translation is a concept that bridges gaps between the varied aspects that are combined in technology (Cressman, 2009). Callon's four moments are the most widely used theoretical framework for applying ANT in research. The translation of an actor or actors into a network is achieved through four moments of translation: problematization, interessement, enrollment, and mobilization. In problematization, the first moment of translation, focal actors define their interest in the problem they face in achieving their goal, and aim to establish themselves as an obligatory passage point (OPP) through which the other actors must pass. OPP is a situation that has to occur in order for all the actors to satisfy the interests (Callon, 1986). Interessement is the second moment of translation, wherein focal actors impose and stabilize other actors' identity. During enrollment, the third moment, focal actors attempt to define and interrelate the various roles taken up by other actors. Mobilization is the final moment of translation. Actors are persuaded that their interests are aligned with those of the focal actor, thereby avoiding betrayal; this allows the network to be maintained (Callon, 1986).

Methodologically, ANT prefers "science and technology in the making" to "ready-made science and technology (Latour, 1987). There are major approaches used in ANT: follow the actor and inscription. Whereas the former uses interviews and ethnographic research, the latter uses texts and communications from all forms of media (Shin, 2010). According to ANT, research evidence, technologies, financial resources, institutions, and regulation act together to produce the innovation.

Several studies have applied ANT to investigate the convergence of ICT (Huang & Hsieh, 2010; Lee, Harindranath, Oh, & Kim, 2015; Oh & Lee, 2005; McBride, 2003; Tatnall, 2014). However, few have analyzed the fintech industry and fintech policy in the Chinese context.

Meanwhile, one of the weaknesses of ANT would be its descriptive characteristic which is short of enough explanations (or interpretations). Therefore a number of researches have tried to combine ANT with other theories, in order to enhance explanatory power. For instance, some studies pay more attention to the importance of institutional factor, arguing that that