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Article

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Financial Innovation

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Financial Innovation

CASE STUDY Open Access

The transition from traditional banking to mobile internet finance: an organizational innovation perspective - a comparative study of Citibank and ICBC

Zhuming Chen*, Yushan Li, Yawen Wu and Junjun Luo

* Correspondence:
chenzhuming@vip.sina.com
Sun Yat-sen Business School, Guangzhou, China

Abstract

The development of Financial Technology (FinTech) in areas such as mobile Internet, cloud computing, big data, search engines, and blockchain technology have significantly changed the financial industry. FinTech is expected to overturn the traditional banking business model, forcing banks to upgrade and transform.

This study adopts a comparative case study method to contrast and analyze the Industrial and Commercial Bank of China (ICBC) and Citibank. It analyzes the strategies, organizations, HR systems, and product innovations adopted by these two banks in response to the impact of FinTech. This paper proposes an "electric vehicle" mode for ICBC and an "airplane mode" for Citibank. Further, it describes the difficulties encountered by the Chinese banking industry and proposes some feasible ways to upgrade. "Technology power" will become the core competitive concept for the financial institutions of the future.

Keywords: Mobile Internet finance, Traditional banks, Upgrade and transformation, Organizational innovation, Technology power

Background

The development of financial technology (FinTech) in areas such as mobile Internet, cloud computing, big data, search engines, and blockchains has significantly changed the financial industry, forcing traditional banks to transform and upgrade. Citigroup (Citi GPS 2016) researchers predicted that in the next 10 years, FinTech innovation will reduce the number of employees in traditional banks by approximately one-third. Stephen Bird, CEO of Global Consumer Banking at Citigroup, described the current situation in the banking industry as a "stage of extinction," where banks either swiftly adapt and create new competitive positioning or gradually perish. He said, moreover, that Citigroup is currently fighting for survival. In China, more than 10,000 Internet-based financial enterprises have directly cut into the traditional finance industry, breaking the barriers of traditional financial ecology. Based on their technological advantages, giants such as Baidu, Tencent, and Ali (BAT) have many licenses and are trying to build Internet-based financial empires. Moreover, the Oriental Wealth Co. acquired with TongXin Securities. Meanwhile, traditional financial institutions—such as the

Industrial and Commercial Bank of China (ICBC) and the China Construction Bank (CCB), among others—have announced ambitious Internet financial strategies. China CITIC Bank has built a strategic partnership with Baidu as well as a joint venture with BaiXin Bank. Further cooperative partnerships have been established between Beijing Bank and Tencent, Shanghai Pudong Development Bank and China Mobile, and China Merchants Bank and China Unicom.

It is clear, however, that having a large number of P2P companies poses risks to society as well as increased losses for investors. In May 2016, 2,471 problem P2P companies were identified, accounting for 54.1% of all such companies in China. Herd behavior by investors (Ceyhan, Shi and Leskovec 2011; Lee and Lee 2012; Krumme 2009; Herzenstein, Dholakia and Andrews 2011) has led to huge losses. Relaxed regulation has caused many social problems and costs, giving rise to questions and criticism related to Internet finance.

Internet finance companies have different organizational formation processes; they have different shareholders, different organizational structures, and different behaviors. Some receive direct investments from enterprises while others cooperate at the product level. Some invest with small amounts of equity (e.g., the projects Tencent has invested in through the so-called encroachment strategy), others form joint ventures, and still others form through mergers and acquisitions. Some are transferred from traditional finance organizations. Degrees of risk differ among these various organizational formation processes. Some technology companies lack basic risk management when they transition into financial organizations.

The basic logic of the changes in mobile Internet finance can be characterized as follows: Financial products are innovated through mobile Internet. Product innovation spawns a new batch of financial organizations, and new products and organizations induce innovation in the financial system. Such innovation accelerates the legitimacy and standardization of financial institutions, promotes the mobile internalization of traditional financial institutions, and further hastens the innovation of financial products. Thus, the financialization of mobile Internet enterprises and the internalization of traditional financial institutions involve processes that are constantly changing and developing. As such, it is important to study the formation processes of mobile Internet finance.

Currently, there is no consistent terminology for or definition of Internet finance. It has been variously called Internet finance, mobile finance, and digital finance. The most commonly used term is Internet finance. Xie and Zhuanwei (2012) note that the spectrum of Internet finance is defined by two boundaries. The first consists of traditional financial intermediaries and markets, such as commercial banks, securities firms, insurance companies, and stock exchanges. The other corresponds to Walrasian general equilibrium, where neither financial intermediaries nor markets exist. Xie et al. (2015) further suggest that all types of organizational structures that lie within those boundaries embody the impacts of the Internet on finance activities.

The finance industry has been networked since the appearance of the Internet, which has escalated the internal information construction of financial institutions. Institutions have highly developed internal networks between institutions, which include traders, enterprises, and regulators. Such regulators include the CBRC (China Banking Regulatory Commission), CSRC (China Securities Regulatory Commission), and CIRC (China Insurance Regulatory Commission). Before there rise of mobile payment, all financial

transactions had to occur over the counter, in fixed places, or in fixed facilities. Now, trade can be conducted anywhere anytime through online transactions. The Internet has networked previously dispersed financial industries. In this way, the mobile Internet allows finance to move. Therefore, the focus of our research is not Internet finance but *mobile Internet finance*.

Chen et al. (2016) characterize mobile Internet finance as a dynamic process. Integrating mobile Internet platforms and financial instruments generates financial product innovation. The integration of mobile Internet enterprises and financial institutions accelerates the innovation of financial organizations. Moreover, the integration of mobile Internet thinking with the spirit of financial contracts promotes a constantly changing process of financial system innovation. The purpose of such innovation is to establish a fair and value-sharing digital ecosystem. Thus, the development of mobile Internet platforms and financial system innovation present a virtuous circle involving constant change.

Accenture PLC (2014) believes the banks of the future should be "everyday banks." To succeed in this environment, banks must become indispensable everyday banks positioned to fulfill their customers' financial and nonfinancial needs. An everyday bank offers a complete customer solution, driving continuous daily interaction. Using digital levers, such a bank develops the entire business model, opening access to new business sources, customers, and profit pools.

This bank convenes a digital ecosystem, assembling existing provider partners and other key players, creating digital connections and establishing equitable value sharing. It reinvents itself as a value aggregator, advice provider, and access facilitator (Fig. 1).

Accenture believes that transformation and upgrade are almost impossible for traditional banks. If that is the case, then what about China's traditional banks? What is an

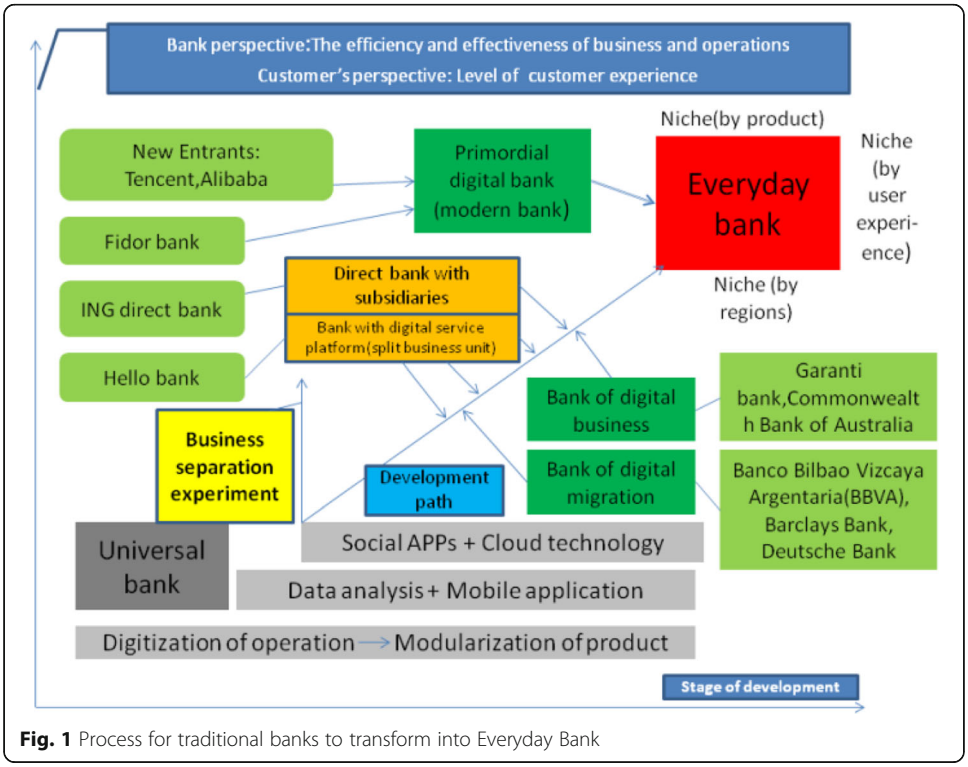

Fig. 1 Process for traditional banks to transform into Everyday Bank

effective path for China's traditional banks to transform and upgrade into everyday banks? What difficulties do they face?

One of the present paper authors, who worked in a bank for several years and exchanged viewpoints with other experts in the industry, also considers such transformation and upgrade nearly impossible.

To better understand the development of Internet finance banking in China, this study selected the Industrial and Commercial Bank of China (ICBC) as representative of domestic traditional commercial banks. For comparison, this study selected Citibank, which is among the most successful examples of traditional commercial banks transforming into Internet banks. Thus, this study focuses on the transformation and upgrade of traditional banks into everyday banks through FinTech using a comparative case analysis method. For the main factors responding to FinTech, we selected the strategies, organization, HR allocation, and product innovation adopted by both banks. Through this comparative analysis, we want to identify the difficulties involved in transforming Chinese banks and explore effective paths for upgrades.

ICBC knew about the application of FinTech but was not strategically positioned as a technical leader; Citibank, meanwhile, positioned itself as a leader in FinTech innovation. In the future, it is expected that 50% of its banking employees will become redundant as a result of such IT developments. Through its strategic transformation, Citibank not only upgraded itself but also led such transformation in the whole banking industry. Citibank aimed to transform itself from a victim of FinTech into a revolutionary. In this way, Citibank has far surpassed ICBC in terms of strategic development.

This study proposes an "electric vehicle" strategy model for ICBC's transformation. This is based on the concept of devising a mobile Internet finance "battery" fitted to the original "bicycle." The strategy corresponding to this mode is reflected in ICBC's application of FinTech to traditional businesses, including cloud computing, big data, and mobile payment. The application determines the bank's role as a follower in terms of systems, organization, and product innovation. Meanwhile, Citibank's approach is described here as an "airplane mode." In this model, strategy is the front of the aircraft, an innovative organizational structure and financial support are its wings, and FinTech is the engine. ICBC is just starting to focus on FinTech and might one day be able to become a global banking leader. Citibank, meanwhile, is already a FinTech leader that innovates core technology and raises the bar for technology. As such, ICBC still has a long way to go before it can transform into an everyday bank.

Here, we adopt the concept of "technology power." We believe that, as a result of FinTech (e.g., big data and cloud computing), technology will become the most important force in the future while traditional administrative power and social resources will become noncore competitive powers. As such, companies that possess special technologies will be able to conduct finance, even if they do not have licenses. Regulators must give them licenses when they become bigger, as with Alipay. Traditional financial institutions such as Citigroup and Goldman Sachs are transforming into technology companies. Likewise, China's financial institutions must become FinTech creators, leaders, and owners, not just users.

While many studies have investigated Internet finance, few have considered it from the perspective of organizational innovation. Momparler et al. (2013) analyzed American Internet finance companies, with consideration of the service efficiency of traditional

commercial banks and other related issues. They argue that Internet finance has the advantages of high efficiency, low costs, and high deposit rates. Faced with the impact of Internet finance, commercial banks should actively improve their business models, establish professional teams, improve their efficiency, and reduce nonperforming loans. Wei Y., Huang X., and Zhang W. (2017) argue that the increasingly extensive application of big data technology will have a profound impact on financial ecology and structure. They argue that commercial banks should embrace big data, gain insight from the data, occupy a core position in the value chain, and lead the digital transformation of traditional models. This not only requires digital transformations in banking strategy, business models, and philosophy but also requires using face-to-face digital interaction to facilitate customer intimacy. Using the perspective of cross-border mergers and acquisitions, Hu Ting et al. (2014) suggest several reform directions for banks, such as becoming data analysts, integrated service providers, synthetic traders, and wealth managers. They argue that banks can achieve strategic transformation and development through cross-border mergers and acquisitions with other financial institutions, as well as logistics companies and other emerging enterprises. Finally, Chen et al. (2016) provide the optimal timing and equilibrium for mobile Internet finance by way of mergers and acquisitions.

The rest of this paper proceeds as follows. "The ICBC Case" section introduces the ICBE case in terms of e-ICBC history, e-ICBC strategy analysis, organizational innovation, HR analysis, and business analysis. "The Citibank Case" section presents the Citibank case. "Major Issues in Traditional Banks' Transition to Mobile Internet Banking" section considers the major issues in traditional banks transitioning to mobile Internet banking, while "Effective Path for Transition" section proposes effective transition paths for traditional banks.

The ICBC case

e-ICBC history

In 2013, the ICBC began innovating by applying big data and Internet thinking, establishing "Internet finance" as one of its innovation tasks. In July 2014, the bank proposed the general task of creating Internet finance. The initial construction in 2014 integrated the five major functions of payment, financing, financial transactions, business, and information to establish a more comprehensive Internet financial service and operating system. ICBC expected to take a leading position in Internet finance through a few years of unconventional development, establishing a new "e-ICBC." This was launched as its Internet finance brand in March and September 2015, with Ver. 1.0 and Ver. 2.0, respectively, as a development strategy for upgrading to Internet finance. ICBC became the first commercial bank to launch an Internet finance brand, issuing a "Notification Concerning the Establishment of Internet Finance Marketing Center." Furthermore, it established an Internet Finance Marketing Center on June 1, 2015. The center, responsible for the governance and coordination of the bank's entire Internet finance business development effort, is the first functional agency at ICBC to include "marketing" in its name.

Strategy analysis

ICBC's e-ICBC strategy includes four dimensions: constructing three platforms, establishing three major product lines, creating an integrated online and offline financial system, and establishing and improving big data applications, mainly used for financing and

payment services. Among these dimensions, the three major platforms include the "financial e-purchase" electronic business platform, the "financial e-linking" instant messaging platform, and the "financial e-direct" direct banking platform. The three product lines refer to Internet-based product lines for payment, financing, and investment, which include a series of Internet financial products such as "ICBC e-pay," "Easy loan," "Online loan helper," "ICBC e-investment," and "ICBC e-payment." ICBC's Internet finance system is still under construction, with these four dimensions as its strategic objectives.

The development strategy for the bank's Internet-based finance is to structure three platforms and one center (Internet Financing Marketing Center), with finance as the core, innovation as the spirit, and the Internet as the tool to develop these platforms. The overall structure of the bank's Internet financial services covers and connects financial services, electronic business, and social life. ICBC aims to improve the quality and efficiency of the economy with its new business and ecosystem, driving its operational transformation.

Organizational innovation and HR analysis

First, ICBC established a group responsible for Internet finance. The chairman and president of the company act as the group's leader and vice leader, respectively. Seventeen departments belong to the group, including Innovation Management, Financial Markets, Asset Management, Personal Finance Business, Corporate Business, Bank Card Business, Trust and Investment Management, and Settlement and Cash Management. Under the group's leadership, the bank established its Internet Finance Marketing Center (with e-commerce and non-e-commerce teams as subordinates) as well as a data analyst team (Fig. 2).

Business analysis

Three major platforms

Since the launch of the e-ICBC strategy, there has been significant growth as well as a scale effect. In addition, the three major platforms have supported ICBC's Internet finance business, serving as the main application portals for clients. The platforms have

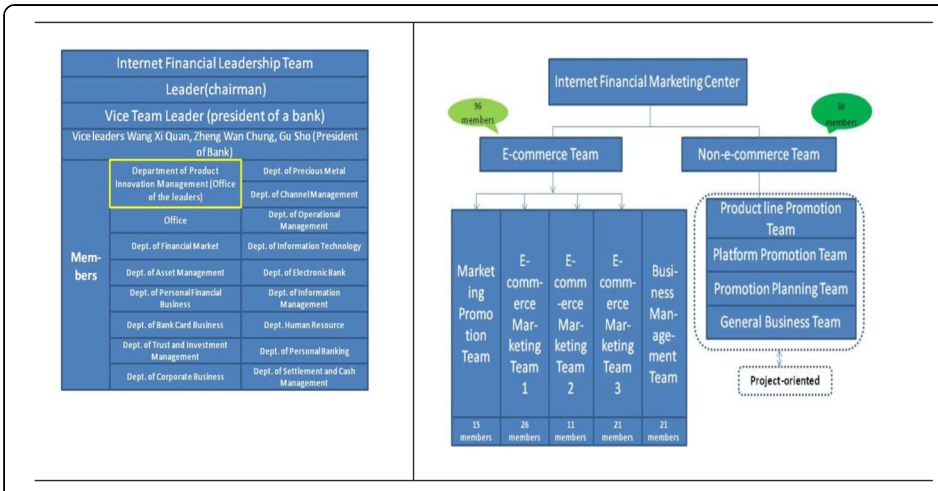

Fig. 2 Organizational structure of Internet finance at ICBC

enabled a new Internet finance ecology that provides services to hundreds of millions of users through an open-sharing mechanism.

Since the official launch of the financial e-purchase electronic business platform on January 12, 2014, the product types and transaction amounts at online shopping malls, as well as the number of vendors and users, have grown rapidly. The platform channels cover PCs, mobile phones, and iPads, and include business-to-customer, business-to-business, and business-to-government markets. The number of users surpassed 40 million in two years, with the total trading volume surpassing RMB 1 trillion. In the first half of 2016, the total trading volume reached RMB 681.4 billion, an increase of 233% from the previous year. Moreover, nonfinancial transactions surged by 733.5% from the previous year, indicating further optimization of the business structure. ICBC's newly created e-commerce platform has led the development of e-commerce in the banking industry, rapidly producing a scale effect and influence. The platform has become the country's second-largest e-commerce enterprise.

Financial e-linking—an instant messaging platform also called "ICBC WeChat"—mainly serves as a platform for mobile finance social services, providing financial information and customer service. Compared to the official accounts on the WeChat platform of the independent third-party institute, financial e-linking has better information security. Furthermore, public information on financial e-linking can be forwarded to social networks such as WeChat and Weibo, whereas internal information related to the bank and its customers is securely guarded for confidentiality. Establishing financial e-linking reduced the cost of SMS notifications (saving hundreds of millions of RMB annually) and helped transform the ICBC Customer Service Center from a cost-oriented center to an operation- and marketing-focused center. Further, the platform launched a series of new functions, including AA Collections, Pay Someone, Payment in Person, Creating Groups, and Voting for Official Accounts, as well as a new user interface design. In addition, the bank launched a QR code payment service in the second half of 2016. The statistical data show that the number of users reached 5.3 million at the end of 2015 and increased by 10 million in the first quarter of 2016, reaching 15.3 million users at the end of March, with more than 30 million users to date.

Financial e-Direct, a direct banking service app, is a mobile bank. Clients of ICBC and other banks (users without an ICBC account) can register with the app, purchase products, and acquire services. This service combines online and offline financial services, and thus has broken the barrier between banks. It not only helps activate ICBC's current clients but also attracts clients from other banks to purchase ICBC's financial products. The platform currently has a customer base of 215 million, an increase of 12.4% from the end of the previous year. After the launch of a new version of the mobile bank in November 2015, ICBC launched a new open version of e-banking for "ICBC financial e-direct" 2016 completing the overall upgrade and transformation of the brand.

Three product lines

Relying on its three platforms and a new mechanism for Internet finance marketing services, ICBC achieved rapid development in its three products lines—namely, payment services, financial services, and investment and financial management.

To improve the existing payment system, the payment product line uses market segmentation for payment. The product line mainly includes ICBC e-pay (a convenient

online payment service designed for individual users), online POS (to realize interbank payment and acceptance, like ICBC's Alipay), and financial e-payment (designed for enterprises, public institutions, individual business, and individuals with a demand for payments).

The investment product line is designed to meet customers' fragmented financial needs, with the ICBC e-investment transactions client as its core product. The financing product line exploits the microfinance field, adjusting to developments in the market. It mainly includes Easy Loan and Online Loan Helper. By the end of 2015, the Internet finance balance reached RMB 523.5 billion while Easy Loan reached 4.5 million users with a balance of RMB 210 billion.

The Citibank case

Development history

Citibank's core competence is innovation, through which it aims to lead the industry. After the US debt crisis of 2008, Citigroup was forced to merge and restructure. It immediately proposed a "back-to-innovation" strategy after the crisis. The bank then established a Global Innovation Commission, comprising senior leaders in various business lines, countries, regions, and key sectors. The group, jointly managed by the CEO, CIO, and CTO, focused on prioritizing and managing innovation projects.

Digitalization strategy

Citibank has seven innovation directions: data monetization, big data, mobile Internet, security and authentication, information technology, next-generation banking, and financial services. The bank developed a new innovation strategy, embedding it in its general strategy and setting a specific innovation budget. Citibank adopted a "decentralized" approach to deal with the impact of Internet finance and FinTech.

Each sector in Citigroup can set its own strategy and budget to respond to the challenges of FinTech. There are numerous suggestions for how to cope with the challenges of FinTech, such as codevelopment with FinTech companies or independent research and development. Meanwhile, Citigroup also invested in many financial startup companies and established a special industrial fund as well as Citigroup venture capital for VC investments. These investment agreements are mostly managed by each branch in line with the decentralized development strategy of the firm's organization.

Digitalization strategy: Three core supports

First, the digitalization strategy has a customer-centered approach. In terms of personal business, Citigroup developed a Citibank Express system, or a "bank-in-a-box" system. Customers can conduct almost all business typically done in a traditional bank office through this system. For corporate business, dealers' requirements can be integrated into the "Citi Velocity" mobile trading platforms, such as data streams, research, collaboration, and real-time transactions. This features a multiscreen display and quick loding timings for web page content.

For Citibank's card business, the growth rate of online payments is twice that of traditional bank card transaction modes. In terms of providing a good user experience, digitalization enables convenience and security in trades and interactions.

Second, the strategy includes global applicability, which is fully based on Citi's global experience and worldwide business facilities, providing transnational corporate clients with a one-stop solution. Ensuring the global applicability of various products and related systems is one of the bank's major challenges.

Finally, the strategy includes digitalization partners. Citigroup has been actively cooperating and communicating with customers and developing new digital capabilities to meet specific customer needs to extend the depth and breadth of its business. For example, through collaborations with América Móvil, the bank has developed a mobile payment platform, "Transfer in Mexico," which is similar to Alipay in China. Citigroup has expanded its user group to those without Citibank accounts.

Analysis of the organization and human resources

Citigroup manages and categorizes these innovation projects by organization according to their properties (Fig. 3).

A startup incubator performs trial-and-error testing through disruptive innovation. This is managed directly by the Innovation Center led by the CIO and CEO of the Venture Capital department. It focuses on the innovative themes of the major business models—those that are most likely to reshape market rules—and establishes an interdepartmental startup team for incubation. The bank applies venture management to incubation projects, allocating certain startup funds. The project team can continue to explore through trial and error until its funding is exhausted. The entire exploration process is supported and assisted by external experts to accelerate the incubation process. Meanwhile, to improve planning for future disruptive innovation, Citigroup relies on two institutes for innovation planning and accelerating the application of internal results.

The **Innovation Lab** fosters gradual innovation, greatly boosting innovation efficiency. The information technology center, led by CTO, directly manages the lab, which includes

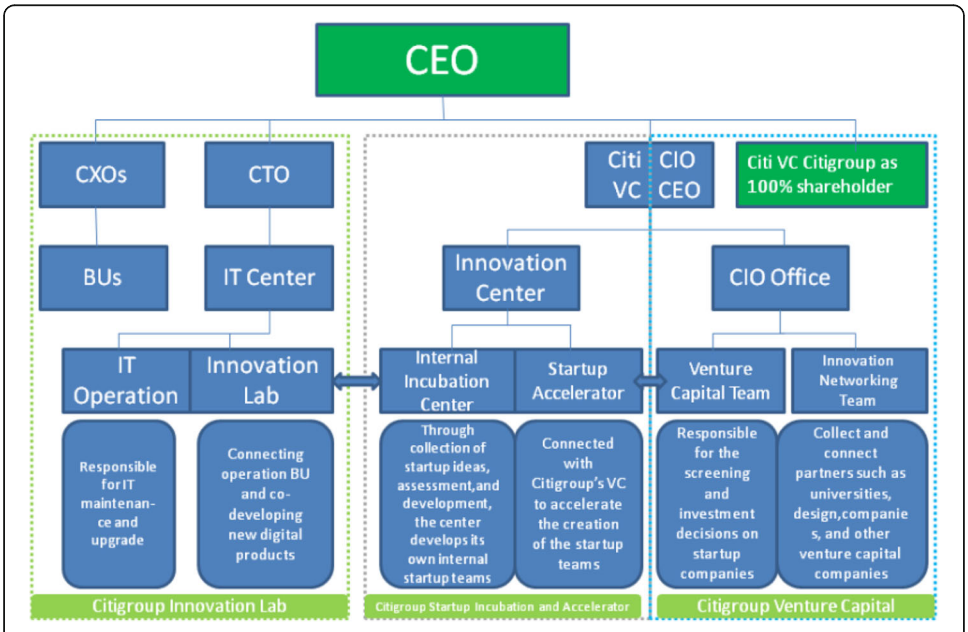

Fig. 3 Citigroup's organizational structure related to innovation (McKinsey 2016b)

a mixed group consisting of IT and business teams. It is responsible for the digital innovation of products and the digital transformation of business procedures. The project team swiftly develops and continually performs testing and iterations, significantly improving its innovation efficiency. A new digital product or process improvement can be operational in three to six months.

Citigroup Venture Capital drives new innovation planning. To filter and invest in startup enterprises, the bank closely focuses on four areas that are critical for its innovation development: big data and analysis, e-commerce and payment, FinTech, and security and corporate IT (Fig. 4).

Meanwhile, Citigroup has specifically created an innovation networking team for venture capital, maintaining friendly and close relationships with universities, design companies, and other partners in venture capital. The bank quickly learns about new trends in academia and industry, discovers new opportunities for innovation and growth, and attracts a wide range of talent. The Department of Strategic Investment team at Citigroup Venture Capital comprises first-class startups or venture capital companies, such as Ripple Labs and Foundation Capital.

The **Startup Accelerator** promotes the application of innovation results from the firms Citigroup invests in. The Innovation Center manages the accelerator and incubator under the leadership of the CIO and CEO of Venture Capital. The Innovation Accelerator facilitates swift connections between the firms it invests in and the bank's related internal businesses. Through professional consultation and other assistance, Citigroup accelerates the results of invested firms to apply them before competitors can do so.

Citigroup's innovative ideas derive from its staff. Employees who propose new ideas can join the innovation project team and work full time for the project. During project implementation, their salaries are paid by their original department, and they are evaluated by the project manager according to their performance on the project. Upon completion of the project, if the disruptive innovation project has created a new organization, the project team can continue to work in the new organization as a startup team or choose to return to their original positions. If a disruptive innovation project fails, the project team members can return to their original positions, and their

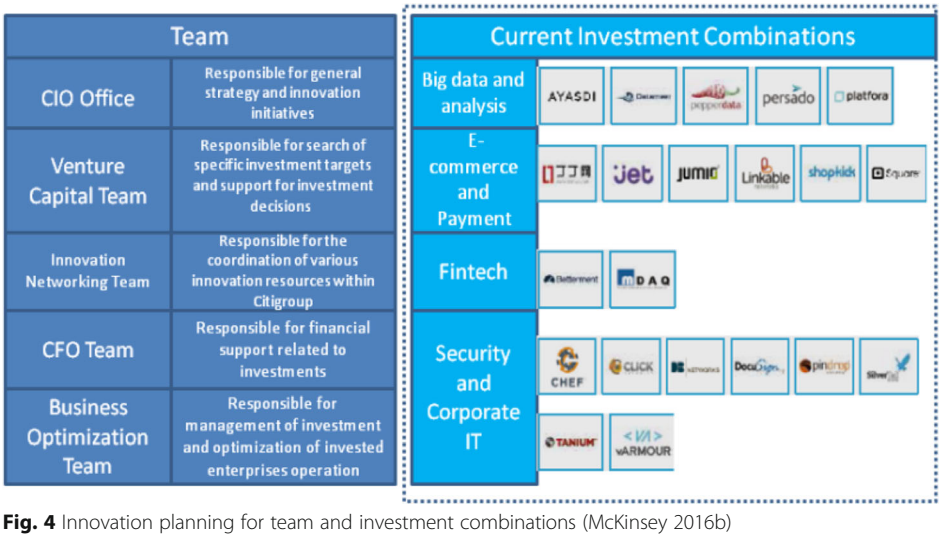

Fig. 4 Innovation planning for team and investment combinations (McKinsey 2016b)

salaries will not be affected. This lenient and flexible mechanism greatly encourages employees to actively attempt disruptive innovation.

Organizational innovation results

Sales in the private consumption of Citibank's financial products reached 36% overall in 2015, much higher than the average of 15% at other banks. Furthermore, 46% of the bank's customers utilized a PC or mobile platform to handle business in 2015, which is slightly higher than the 45% average at other banks. Citibank's mobile user base has grown to nearly 26% in the 2015. To date, this technological innovation strategy has been leading the industry.

Analysis of human resources

Citibank established Citi FinTech, which is composed of talent from various fields and experienced industry experts from various departments in traditional banks. Specifically, the bank recruited people from various sectors within Citigroup as well as technology companies such as Amazon and PayPal.

McKinsey argues that Citibank is the only bank with a serious attitude about Internet challenges. Among all banks, Citibank invests the most in FinTech.

Evolution into an everyday bank through data mining technology

Traditional data processing technology mainly refers to the analysis and synthesis of structured data, which is logical and expressed through a two-dimensional table structure. However, Citibank's retail business produces a large amount of data, including structured, semistructured, and unstructured data. Unstructured data are information data such as text documents, images, various statements, pictures, audio and video files, and hypermedia in any format. Semistructured data are situated between structured and unstructured data. It is difficult to process semistructured and unstructured data with traditional data analysis techniques. However, data mining technology solves this problem. With the constant deepening of Internet finance, Citibank established a big data analysis platform for its retail business by integrating data from various internal sectors and social data from external social media and e-commerce enterprises. This approach has greatly increased the capability to analyze and process data, improved customer management and precision marketing, and promoted the bank's values. Moreover, it has significantly influenced Citibank's move toward transforming and upgrading (Citibank; McKinsey 2016a).

The retail banking business mainly focuses on individual consumers, involving a large number of customers and different types of business. It features frequent customer transaction behaviors and mass information data related to all aspects of consumer behavior, such as gender, age, profession, education, assets, transaction times and types, and consumer preferences. With the constant development of FinTech, these data are stored on the bank's big data analysis platform, forming a detailed electronic business card for each customer. Meanwhile, Citigroup fully exercises its external resources based on innovative thinking, actively collaborating with social media, e-commerce enterprises, and other big data platforms. Based on the integration of its internal data, the bank actively constructs a data-sharing mechanism with Internet media to acquire more information about consumers. On the one hand, Citigroup makes full use of Facebook, Twitter, and other social networking platforms to acquire relevant information and enhance interaction with its

customers. This improves consumer experience and builds an intelligent bank brand image to maintain good customer relationships and promote the bank's values. On the other hand, the bank actively works with Internet finance enterprises to compensate for its weaknesses in Internet finance. Citibank collaborates with Internet enterprises such as e-commerce platforms to realize the mutual benefits of data information sharing and facilitate the integration of financial and e-commerce services.

In conclusion, Citibank has structured a more complete image of its clients by effectively integrating its internal and external data, thus refining customer management and sales precision. The bank is evolving toward becoming an everyday bank.

Major issues in traditional banks' transition to mobile internet banking

Mobile Internet, cloud computing, big data, blockchain technology, and other FinTech have greatly changed traditional commercial banks. First, they have broken the relationships and channels between traditional banks and customers. In the past, the relationship between banks and customers was established and maintained through business services. However, future relationships will depend more on daily nonbusiness social networking. Second, with advancements in technology, payment systems and methods have experienced revolutionary changes. Business conducted through counters or ATMs in the past can now be done at mobile terminals anywhere anytime. Banking workspaces and environments have expanded without boundaries, and traditional physical branches have disappeared or transformed. Third, these changes have fundamentally altered and restructured banks' business models. Client managers currently wait and look for projects; they negotiate, deal, and communicate with customers offline. Thus, communication skills, social skills, and social resources are the core competencies of client managers. However, in the era of everyday banks, client managers mainly mine data and communicate online. Hence, big data mining and data analysis capabilities are now the core competencies. Fourth, the resulting bank value assessment system differs from its own value systems and ideas. Various assets face revaluations; many assets that cannot currently be priced by banks are likely to receive new value forms. Fifth, the social and commercial credit system faces changes in the mobile Internet era. Sixth, an era of financial disintermediation is emerging, and not just for commercial banks. As a result, the entire financial ecology will change. Seventh, financial innovation has been normalized and socialized. Eighth, the financial asset price discovery mechanism is now different. Ninth, the financial ecology has been diversified. More financial institutions and organizations will appear. More complex and structured financial instruments will become more widespread. Tenth, to address complex financial ecology and forms, banking regulation will have more flexibility. Classified, dynamic, and process regulations have become new regulatory models.

The ICBC has announced its transition to Internet banking, aiming to restructure its strategic, organizational, and human resource levels. Analyzing the current progress, the results have been significant. Given China's huge market, the massive amounts of wealth accumulated from Deng Xiaoping's economic reforms, the country's advanced Internet technology, ICBC's insufficient universal financial services, and ICBC's widespread physical branches, ICBC has shown impressive performance in transforming itself and upgrading to mobile Internet banking. However, ICBC has also faced many problems in this process.

Strategic perspective

ICBC's Internet banking strategy is expansive but hollow. It is a simple application of the internalizations of existing financial products. ICBC does not pursue innovation in core FinTech but rather positions itself as a follower. Citibank, meanwhile, is planning core innovation directed at the core technologies of mobile Internet finance and FinTech.

ICBC's financial e-purchase electronic business platform could be a step in the wrong direction. Does a bank undertake electronic business? This deviates from the main banking business, and bank credit carries many risks. Its internalized offline products include a series of online financial products such as ICBC e-pay, Easy Loan, Online Loan Helper, ICBC e-investment, and ICBC e-payment. Currently, its innovation is only at the product level. It merely adopts the Internet without touching upon its intrinsic qualities, which are "disintermediation and decentralization" as well as "flattening and lightening assets" based on big data mining and refactoring. The core values are "openness, equality, interaction, and cooperation." Internet finance pursues the ultimate user experience, emphasizing data-driven operations.

If we think of ICBC's original traditional financial system as a slow-moving "bicycle," then an Internet financial strategy lacking a specific budget is, at most, adding a battery to the bicycle to turn it into an electric vehicle. This transformed "electric vehicle" can also be seen as a kind of transformation and upgrade. However, the extent of the upgrade is limited.

In contrast, Citibank's Internet finance strategy is directed at core FinTech and has clear budgets. If the traditional Citibank is also seen as a bicycle, then the new strategy could make Citibank into an airplane. Its six innovative directions can be seen as the front of the plane, ensuring the transition from a traditional commercial bank to an everyday bank. The innovation labs, startup incubators, and venture capital enable the bank to continue tracking, developing, and possessing its own core FinTech, which constitutes Citibank's engine. The organizational innovation mode and significant funds for innovation are consistent with blockchain disintermediation, which represents the airplane's wings. Hence, we can refer to Citibank's upgrade method as an "airplane mode."

Innovation culture perspective

ICBC is a traditional Chinese bank that lacks an open mind. For technology and talent, the bank only focuses internally. This contrasts with Citibank, which emphasizes cooperation with external Internet companies, acquisitions, partnerships, joint ventures, and recruitment to optimize the allocation of external resources.

ICBC's current organizational structure only allows for innovation within its head office, with branches serving as the passive recipients of innovation. The branches have no motivation, talent, mechanisms, or resources to innovate. There is no culture of trial and error. A few years ago, ICBC faced some regulatory risk in an environment of "profiting through inaction." ICBC did not have the basic motivation to innovate. However, the current economic situation is so bad that the bank now has many nonperforming assets, causing employees to deal with everyday business affairs wearily and with less willingness to innovate.

The company's awareness of mobile Internet finance is also problematic. At first, it looked down on mobile Internet finance, especially P2P, regarding it dismissively. After

mobile payments encroached on its traditional territories, its foundations were not shaken. While Internet finance has affected traditional banking, few people have carefully assessed the impacts, their degree, and how to deal with them.

Rigid administrative organizational structure lacking a strong organizational guarantee for innovation

As a representative of traditional banks, ICBC has long been a serious company, with a solid administrative organization. With shareholding transformation and stock exchange listing, ICBC's organizational structure has undergone some changes. However, the bank's president is appointed by the CPC Organization Department rather than through market mechanisms, and all managers have maintained their administrative positions. Furthermore, unlike the organizational innovation at Citibank, ICBC also established a nonprofessional group for Internet finance, though it lacks a specialized department for the strong tracking and promotion of technological innovation. The main responsibility of the Internet Financial Marketing Center is Internet marketing, which should be promoted by the entire bank.

To lead FinTech, Citibank established organizations such as innovation labs, startup incubators, and venture capital, which enabled it to act quickly and efficiently, and develop its own core FinTech. This shows that strategy determines organizational innovation.

ICBC, meanwhile, is facing pressure and is now also promoting human resource reforms. However, due to the new Labor Contract Law, as well as employment pressure in China, ICBC's reforms are prone to adverse selections. Furthermore, the direction of human resources reform is not necessarily oriented toward Internet finance. Citibank, meanwhile, proposed a 50% cut in its staff, and its new recruitment plan mainly targets IT professionals.

Insufficient data processing capability and deficiency in key technologies

By relying on existing businesses and a high deposit-load difference, ICBC is still able to maintain its profits. Everyday banks will challenge the traditional business model, but a new business model has not been effectively established. The traditional business needs to be guided from offline to online, but the time and money required at the start can lead to internal dissatisfaction and delays.

Banks mainly accumulate standardized and structured data in their daily business. However, external data are commonly focused on mobile Internet, electronic business platforms, social networking sites, and other media. Analyzing and integrating the huge volume of unstructured data will pose new requirements on banks as they transform and upgrade their traditional objective databases. ICBC's three big platforms for acquiring user data lack precision, which makes data analysis and processing ineffective. The deficiencies in effective technical support for professional, big data analysis and processing precision also restrict the development of ICBC's data processing capability. Its precision marketing is still in the planning stage.

From the outset, ICBC positioned itself as a user of technology rather than a leader and creator. The lack of core technology, especially in core FinTech, forced ICBC to watch while technology companies encroached upon its traditional territories. This traditional idea of using existing technology and equipment could be the catalyst that pushes ICBC into obscurity.

A new business model has not been established

ICBC's history as a truly commercial bank is relatively short, and it has not been successful at universal banking. Its originally high growth relied on China's decades of rapid economic growth. However, ICBC did not form an effective and sustainable business model. Regardless of whether China grants it monopolistic conditions, ICBC is the largest bank in the world, but it is certainly not the most profitable. Mobile Internet finance will change the traditional business model, though there is no new one to take its place. An everyday bank is still at the conceptual stage. Without an example for ICBC to follow in China's current economic downturn, the process of seeking transformation will inevitably cause bewilderment.

As a result of technical factors and other restrictions, integrating information flow in ICBC's online platform is not smooth. The online channel has continued the inertial thinking of waiting for customers to visit in person. It is difficult to take the initiative to attract and keep customers. There are many urgent problems to solve in guiding offline business online. At the outset, online business will certainly depend on offline business, and the increasing costs could create conflicts with frontline employees. Furthermore, building customer loyalty also takes time.

Effective path for transition

With its huge scale, transformation is not easy for ICBC. All traditional banks generally find it difficult to transition into everyday banks. The following suggestions could help ICBC and other banks with this transition:

1. Redefine mobile Internet finance. Mobile Internet has broken the constraints of time and space, and the traditional financial ecology will change. The serious information asymmetry of the past could be reduced with the development of FinTech. Blockchain technology could reconstruct the form of commercial banks. In the future, there might be no banks. Thus, mobile Internet finance is the future of banking. Mobile Internet is not only a platform but also a means of development.
2. Reexamine the bank's overall strategy. The bank should not aim to establish its own Internet finance but completely convert ICBC into an everyday bank. This is a comprehensive top-to-bottom transformation and revolution of the entire business, encompassing strategy, organization, technology, financial affairs, human resources, and products.
3. Keep an open mind. Optimize the allocation of external resources, especially external technical and human resources. The bank should aim to possess its own core technologies in this wave of FinTech development to break through the technological barrier and lead industry transition. Technology power might become the main power of banks in the future.
4. Establish an organizational and employee structure corresponding to innovation and everyday banking.
5. Reconstruct the bank's business model to create objectives from a strategic viewpoint. Deeply exploiting the advantages of mobile Internet will build new competencies—in particular, a secure and convenient payment system with high affinity.
6. Reexamine the functions of finance and banks. Actively lead the creation of a comprehensive financial ecosystem and improve the financial industry chain.

7. Construct a new bank value system based on mobile Internet.
8. Renew customer knowledge and fully integrate resources. Use big data, cloud computing, and precision marketing to establish separate new models to create value for customers. Improve data mining capabilities.
9. Optimize technologies, improve risk control levels, and adapt to the open Internet environment and new regulatory situation.

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Authors' contributions
ZC contributed significantly to the conception and ideas of the study. YL contributed to performing the analysis with constructive discussions as well as writing the manuscript. YW and JL helped collecting data and writing the case analysis. All authors read and approved the final manuscript.

Competing interests
This study adopts a comparative case study method to contrast and analyze the Industrial and Commercial Bank of China (ICBC) and Citibank in terms of their strategies, organization, HR system, and product innovation in response to the tremendous impact of Financial Technologies (Fintech). We believe that our study makes a significant practical contribution because Fintech will overturn the traditional banking business model, forcing banks to upgrade and transform. As one of the largest banks in the world, ICBC has special challenges in its home country.
Further, we believe that this paper will be of interest to the readership of your journal because this question is very interesting and many banks have such questions. There are no directions for such transition. The case study may help these banks.

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