CHAPTER 1

Internet Revolution and Evolution of FinTech

Paradigm Shift from FinTech 1.0

In 1999, some friends and I published a book called *Challenges of E-Finance* (Toyo Keizai Inc.). In the introduction, I wrote the following:

> *As Schumpeter's words clearly indicate, the new markets, new organizational forms of industries and other products that the Internet gives birth to will probably result in a process of creative destruction that occurs on a global scale, and at a speed that humanity has never seen before. This process will occur first in the finance industry, because that industry is well suited for the Internet.*
>
> *The various companies in our financial group hope to create a stir that shifts Japan's distorted financial system to one that makes it possible to provide greater economic efficiency and convenience to investors and consumers of various financial services, by making use of the Internet's massive destructive power and reforming that distorted financial system. As history has shown, the process of creative destruction does not necessarily have a negative impact on the national economy, but probably has a positive impact when looked at from the long term, and comprehensively. We firmly believe this, and will take on the challenge of transforming the existing financial industry.*

Over the years, I have repeatedly and assertively espoused an Internet revolution of this nature, and have intently pressed forward with efforts to achieve its realization. I will discuss the results of these efforts later, but there is probably wide agreement that this process of creative destruction has progressed with the speed and force that I envisioned when I first wrote the quoted passage.

Advent of FinTech 1.0

Since its founding in 1999, the SBI Group has built the world's first ecosystem for the Internet financial services industry, which includes services such as banking, securities, and insurance. I call this ecosystem *FinTech 1.0*. In Japan, the term *FinTech* started to be used frequently in 2015.

However, US focus had turned to FinTech about two or three years earlier, and it has gradually taken the spotlight. What many people mean by the term *FinTech* is not simply introducing online versions of traditional financial services. Instead, the term applies to the provision of new solutions for the full range of financial services. US-based PayPal Holdings Inc. (among others) took the lead in this movement. Founded in 1998, PayPal provides a payment service that makes use of email accounts and other Internet tools, and, as of October 2017, the number of PayPal subscribers had reached 218 million. If users register their credit card information with PayPal in advance, they can pay for their online shopping at a low cost, and without providing credit card data to online stores, by simply entering their PayPal ID and password and processing their purchases through this platform.

PayPal has brought a welcome breath of fresh air to traditional payment systems. Following PayPal, Apple announced Apple Pay in 2014: a payment system that makes use of the iPhone. Alipay, the payment service that China-based Alibaba Group launched in 2004, is the largest online payment service in the world and boasts at least 500 million users.

Spurred on by PayPal's success, non-financial startup companies – not only payment systems, but also loans, asset management, fund-raising, and remittances across various financial fields globally – have emerged. These individual technologies developed by both startup and established companies are now being applied in the field of finance, and various component technologies owned by different startup companies are being combined and used, primarily by financial institutions that provide full lines of financial products.

FinTech 1.5 : The Result of New Technology

These technologies have fostered development and deployment of efficient and effective financial products in various financial fields. Component technologies include artificial intelligence (AI), big data applications, the evolution of the Internet of Things (IoT, which connects the physical world to the Internet), and robotics. The Japanese financial services industry began using these technologies – individually and in combination – about 2010. The introduction of these technologies rapidly evolved precisely when a

Kondratieff wave (economic cycle that lasts 50–60 years caused by technological innovation) emerged, and major financial institutions began broad-scale deployment in 2012–2013. I refer to this trend, which has attracted attention since 2012–2013, as *FinTech 1.5* because it is basically a more evolved form of FinTech 1.0 (Figure 1.1).

The world that I call *FinTech 2.0* resides in a different dimension than that of the worlds of FinTech 1.0 or FinTech 1.5. The existence of the Internet is indispensable to both FinTech 1.0 and FinTech 1.5, and in the world of FinTech 1.0, the World Wide Web, made it possible for individuals to freely exchange various types of data on a larger scale than ever before in human history.

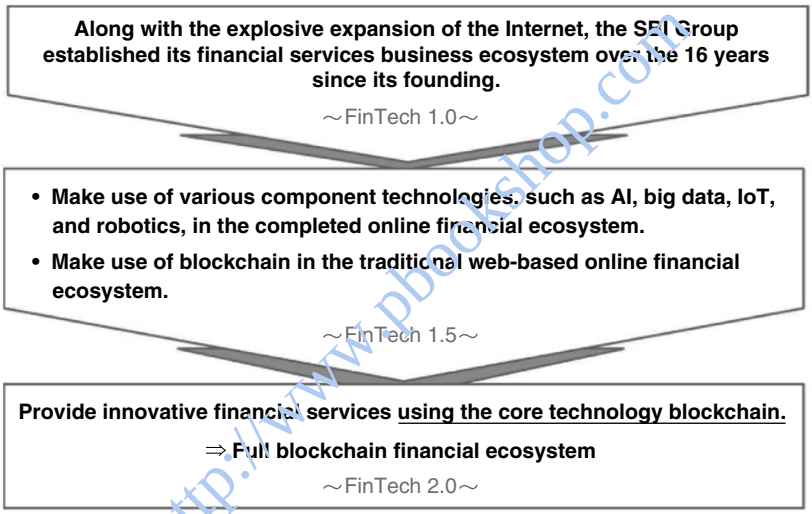

FIGURE 1.1 Evolution of FinTech
Source: SBI Holdings.

In recent years, a vast array of web-based applications (apps) have been developed, and it can be argued that the combination of their commercial availability and greater use of mobile phones has enabled the worlds of FinTech 1.0 and FinTech 1.5 to develop and flourish. However, with respect to financial services, it can be argued–particularly in Japan–that we now live in the world of FinTech 1.0, a composite of online financial services that developed between 1995 and 2000, and the more-evolved system developed primarily by startup companies. For Japanese financial institutions, I would observe that their basic business has not evolved since the previous IT era.

Blockchain-based FinTech 2.0

The core technology of FinTech 2.0 is blockchain technology, and unlike FinTech 1.0 and 1.5, FinTech 2.0 does not necessarily rely entirely on the web. The advent of the Internet-based web has made it possible to exchange information throughout the world, but blockchain technology makes a global value exchange over the Internet possible. Both can exist, but they are of different natures and must be treated accordingly (Figure 1.2).

I differentiate among FinTech 1.0, 1.5, and 2.0 because if they are lumped together under the heading FinTech, there is the danger that the innovation potential and its prospects for transforming society may be underestimated. If so, it could hinder the development of blockchain technology in Japan. Since Satoshi Nakamoto published his paper on the cryptocurrency Bitcoin in 2009,[1] blockchain technology has drawn the spotlight as the basic technology underlying Bitcoin.

Although this is only natural considering the growth of blockchain, the focus of the concept has been by and large limited to currency-related functions, as a medium of exchange and store of value. Since about 2012–2013, however, there have been major improvements to not only cryptocurrency frameworks but also business mechanisms (not simply those related to finance), and there has been greater awareness and expectation for the broad application of blockchain, including in the field of public administration.

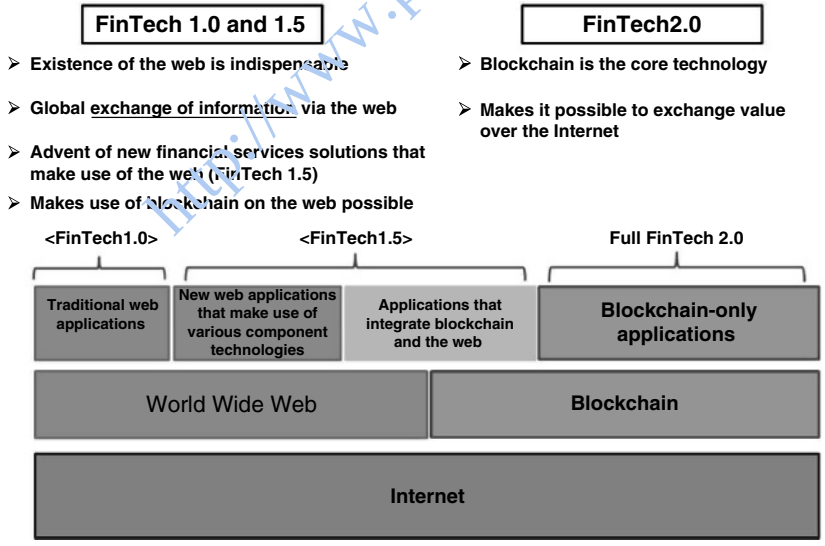

FIGURE 1.2 The World of FinTech 2.0
Source: SBI Holdings.

[1] https://Bitcoin.org/Bitcoin.pdf

During this time, one blockchain application after another began to be developed. These apps not only make use of blockchain, but are also used in combination with existing web apps. This means that blockchain technology is not only an entirely new toolkit, but also one that complements existing technologies and may be able to replace them.

Therefore, I would like to touch on the elemental and functional components of blockchain. Different people define blockchain in different ways. There are divergent definitions because blockchains have various important functions. For example, many describe blockchain as a distributed transaction ledger. This is probably a good general definition. Structurally, a blockchain is the foundation of peer-to-peer networks constructed on the Internet and can be called a fully distributed cloud system.

It can also probably be referred to as a platform that makes it possible to securely process various types of transactions involving digital assets. Furthermore, blockchains can function as databases. Network participants (nodes) store and manage transaction history records in a distributed manner using a type of storage site referred to as a *block*.

Finally, blockchain technology can be considered the basic architecture supporting cryptocurrencies. Because blockchain technology was first used as the superstructure for the cryptocurrency bitcoin, many people now have this image of blockchain technology. Bitcoin is a secured cryptocurrency because of an innovative mechanism, referred to as *proof of work*, which is based on a distributed consensus algorithm for gaining approval through competition between nodes.

It is evident that blockchain can be defined from various perspectives. Since its introduction, the technology has further evolved, and includes the creation of many apps.

One such application, and an extremely important one, is a concept called the *smart contract*, a mechanism that transforms private contracts between parties into a program on a blockchain, and then automatically executes associated contract terms. The arrival of these types of contracts can arguably be deemed a revolutionary upgrade cycle, comparable, in terms of impact, to the development of HTML (hypertext markup language), which made it possible to freely communicate information and create links to the web. The advent of smart contracts eliminates the need for many manual operations that accompany traditional transactions, which currently entail massive costs and amounts of time.

As more and more blockchain apps are developed, related problems, such as expandability, will also quickly be resolved.

Practical Strategy for the Financial Industry

Let's look at a future practical strategy for the financial industry, taking into consideration the availability in the near future of various technologies that

can be used in the short term. Here, I will explain the details, using the SBI Group (referred to hereinafter simply as *SBI*) as an example.

In phase one of this development SBI will introduce technologies and services newly developed for the financial ecosystem that it created (FinTech 1.0) and, as a result, will promote the changeover to FinTech 1.5. Because many of these technologies are developed by Japanese and overseas startup companies, SBI established the FinTech Fund to gain access to them. Through this fund, SBI is investing in leading startup companies in various technical fields that possess component technology.

In phase two, the group will introduce the various technologies of FinTech 1.5 into the financial services business ecosystem, striving to increase customer convenience and establish a competitive advantage.

In phase three, SBI will conduct verification tests that make use of FinTech 2.0 technology (i.e., blockchain) in various financial services fields. Of course, it will be necessary to fully understand in which fields those technologies can be used and whether they will lead to incremental efficiencies in transactions processing. At the present time, effective use can probably be made of blockchain in the following financial services fields:

- Bond transactions
- Derivative transactions
- Swap transactions
- Commodity transactions
- Over-the-counter market
- Repo market
- Cryptocurrency transactions

In addition to using blockchain in these fields, the primary goal for numerous financial institutions to distribute the technology is to reduce costs. For example, banks linking operations to a blockchain-based distributed network of cryptocurrencies should dramatically reduce costs for routine financial services operations, such as deposits, withdrawals, remittances, and borrowing of funds through a standalone wallet. Even in the field of insurance, benefit payments will probably be automated with smart contracts. Extensive use of these may be made within the next one to two years.

In the final phase, the use of blockchain and virtual currencies will lead to the creation of global links through cooperation with major partners – in Japan of course, but also throughout the world.

SBI has taken several steps because of its awareness of blockchain's global links and global standards. These actions have included investing

in the US-based Ripple Labs Inc., establishing the joint venture SBI Ripple Asia with Ripple Labs Inc., as well as becoming a member of the consortium led by US-based R3 Limited, a company of which it became the main outside shareholder. Unfortunately, since they lack experience, it is difficult for Japanese companies to take the lead in constructing international networks. They can, however, participate in and make use of these networks. Particularly in Asia, SBI will make effective use of SBI Ripple Asia in order to work with local partners in each of the continent's countries, develop an appropriate network, and establish it as that region's component of the international system. This will make it possible to provide a venue for the active participation of startup companies in which the fund invests.

Financial Ecosystem and Strategic Advantage

It is possible to undertake this process in sequence or in parallel, because SBI has a subsidiary – SBI Investment – the responsibility of which is to invest in and assist in the development of startup companies. It is precisely SBI's financial services business ecosystem and organizational linkages with SBI Investment that creates such a strong strategic advantage.

Furthermore, SBI Investment is unique in it that it is not a simple venture capital firm; rather it concentrates in investing in the fields of the Internet and biotechnology and employs numerous experts with abundant experience in such work. These experts identify companies in which SBI can invest at an appropriate price. Once SBI is a shareholder, it provides support on various fronts, with the ultimate objective of placing the company in a position to go public. SBI's greatest support comes in the form of paying for technologies, services, and products offered by these startup companies, enabling organizations across the Group's business ecosystem to use in their own businesses. This process is accretive to the investee companies' earnings in a direct way. Because SBI's business ecosystem comprehensively provides a full range of financial services, such as banking, securities, and insurance, SBI is able to support its investee companies in a sustainable way.

Furthermore, because many of the companies that inhabit the worlds of FinTech 1.5 and 2.0 are startups, their business foundations are extremely fragile. Although regrettable, it is common, therefore, for these companies to fail not because of their value proposition, but rather because they lack the financial resources to achieve monetization.

For many years, SBI has wondered if there is a solution to this problem; that is, if there are measures that benefit sellers, customers, and society that are good for not only SBI and startup companies, but also the customers of important SBI companies.

In regard to this, the following strategies appear appropriate:

1. Construct a financial services business ecosystem.
2. Invest in and partner with startup companies to develop a network of compatible technologies in conjunction with the component companies of the business ecosystem. This includes considering the use case and conducting empirical analyses to develop startup companies' technologies.
3. Bring the appropriate applications to market in order to increase the earnings of the companies we invest in, as well as those of each component company of our business ecosystem.

There are many ways to implement this strategy. For example, SBI can seek to combine component technologies developed by numerous startup companies. There are cases when more than one technology is needed to create a viable financial product, which means you need to combine technologies to develop powerful products.

With participating startup companies, SBI will create these combinations by bringing together the wisdom of the project team members. An extremely important challenge is to find ways to reduce the cost of technology introduction. We believe that expanding sales of financial products developed by numerous strategic partners using the same technology and apps will make it possible to dramatically reduce introduction costs. In order to accomplish that, SBI is trying to establish strategic partnerships with numerous regional financial institutions. SBI also shares the cost of introducing new technologies and developing products with its partners, which results in making it easier to introduce new technologies.

This methodology has come to be referred to as *open innovation* in recent years, and although it is a stylish term, it is not easy to implement. Someone must be the architect. I call people and organizations who do this *mechanism architects*. For us, the architected strategy is summarized by the previous list of three strategies.

In simple terms, my business strategy is to create mechanisms to win. Among these are one to generate a competitive advantage using organizational strategy; an organizational mechanism to both operate the ecosystem and conduct venture capital investment within the same group; a mechanism to realize open innovation; and a mechanism for establishing strategic alliances and partnerships.

Consider the following passage from Sun Tzu's *The Art of War*: "Now the general who wins a battle makes many calculations in his temple ere the battle is fought. The general who loses a battle makes but few calculations beforehand."

This "temple" is the sanctuary where ancestors are enshrined, and in ancient China, it was common to develop battle plans in such spaces. It is impossible to win an actual battle if victory cannot be envisioned when working out a strategy. It is often true that many calculations lead to victory while few calculations lead to defeat.

In Chapter 2, I provide a concise review of the FinTech 1.0 era that SBI has created over the past 16 years. In doing so, I consider the positive impact on competitive advantage and speed of growth of our financial service business ecosystem has had on expanding our customer base and business.

Of course, synergies generated from the discussed ecosystem have already generated significant benefit, making dramatic contributions to SBI's rapid growth up to now. For example, the synergies generated within the securities business and its supporting companies, such as Morningstar Japan (which provides ratings for securities and investment trusts) and SBI Liquidity Market (which provides an over-the-counter market for foreign exchange), have led to the dramatic growth of SBI SECURITIES.

We hope and expect that the ecosystem that SBI has built up will make prominent contributions to the world's migration toward FinTech 1.5 and 2.0. In order to generate further innovations, SBI will consolidate blockchain in its web-based ecosystem, while also considering the establishment of a new ecosystem that uses blockchain as its core technology. At some time in the future, it will be possible to completely switch over.

In the latter part of Chapter 2, I discuss in detail what efforts the overall Group and each Group company are making now.