

# Chapter 6

## Understanding the Process Toward a Cashless Society



### Cash Payments: A Socio-technical System

One way of understanding transformation of industries and technologies is to apply a so-called socio-technical analysis, which is based on the prerequisite that it is only by understanding the interplay between several critical factors that makes it possible to grasp how and why transformation happens. We cannot study technological innovation in isolation if we want to understand change. Nor can we study organizational or individual behavior or factors such as politics, culture, laws, environmental aspects, or internationalization in isolation. Complex patterns of transformation are ideally studied by acknowledging this complexity while at the same time trying to reduce this complexity into understandable patterns and structures.

I will therefore use a well-known approach to structure my analysis of the transformation of cash-based payment services in Sweden, i.e., the definition of a socio-technical systems where it is linkages between critical elements and resources—such as technologies, capital, knowledge, culture, and others—that will decide the function and change of the system (Geels, 2004, p. 900). My analysis focuses on cash-based payments in Sweden today and will use Geels' model (2004) to structure my analysis and discussion.

This approach views the payment system as a sectoral innovation system where emphasis is put on:

. . .the structure of the system in terms of products, agents, knowledge and technologies and on its dynamics and transformation. In broader terms, one could say that a sectoral system is a collective emergent outcome of the interaction and co-evolution of its various elements (Malerba, 2002, p. 251)

The payment system development is understood to be driven by a collection of organizations, people, competences, and interests that collaborate and compete in different constellations, which also may change over time. My approach is in line with the call by Moulaert and Sekia (2003) and Martin and Sunley (2003) for models

of innovation that addresses dynamics and evolutionary dimensions of innovation processes.

I do not see the transformation as possibly created by one specific type of actor—such as commercial banks, cash-in-transit service companies, merchants, or consumers—it is rather the combination of these and other actors' action that constitute change or perhaps lack of change.

The choice of this theoretical approach (Geels, 2004; Malerba, 2002) is motivated by the basic characteristics of the payment industry. Cash payments are characterized by strong regulation and governmental policy regimes, technology regimes<sup>1</sup> (Dosi, 1982) related to payment services, a defined user and market regime both in terms payees and payers, a strong sociocultural regime related to the view of cash in a market economy,<sup>2</sup> as well as a science regime related to research and development in the payment industry. By deploying this perspective I will also be able to complement Rogoff's (2016) top-down and macroeconomic analysis of the use of cash in a market economy.

I have in other studies (Arvidsson, 2014a, 2014b, 2016, 2018a, 2018b; Arvidsson, Hedman, & Segendorf, 2018) shown how a number of different socio-technical factors influence the use of cash in the Swedish society. Here are some of the most important ones.

A starting point for an analysis of a service like cash is of course to understand what the government and the law says about this service. Interestingly, the Government of Sweden states that access to basic payment services, i.e., cash, should be provided to everyone in the society—consumers as well as organizations—but it is only the responsibility of the state to provide such services if the market fails to do so.<sup>3</sup> The main role of the government—and the Riksbank—is then to oversee that such services are provided by the market. This has made the market for cash decentralized and market-driven which is yet another factor explaining the reduction of cash in Sweden.

The decentralized and market-driven features are evident in the process of producing and transporting cash in the Swedish economy. The Riksbank does not govern how much cash that is in circulation in Sweden; this is decided by demand from the users of cash, i.e., banks, merchants, and primarily the consumers. The Riksbank provides the volume of cash that the public needs. The main responsibility of the Riksbank is to provide Sweden with banknotes and coins by issuing banknotes and coins, destroying worn-out banknotes and coins, and redeeming invalid

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<sup>1</sup>A technology regime is a dominating technological system in a given time period in a given industry. We see this in many industries, and when discussing payments, I would argue that cash in its current form, i.e., central bank money issued in paper and coins, is a so-called dominant design of cash in a technological regime.

<sup>2</sup>By this I mean the former notion that issuing cash could be used to finance the state via seignorage and that it could be used as a governmental instrument to influence and manage financial markets via interest rates.

<sup>3</sup><http://www.regeringen.se/artiklar/2016/08/ansvarsfordelning-for-kontanthering/>

banknotes.<sup>4</sup> Printing cash (SEK) has been outsourced to private companies,<sup>5</sup> and storing as well as transporting cash is done by Bankernas Depå AB (BDB), which is owned by the largest banks, and by private companies like Loomis and Nokas. Then ATMs, banks, and merchants provide access to cash for private persons. This decentralized, operative, and market-driven structure is also complemented by the legal framework governing the use of cash.

One fundamental factor is the legal constitution in Sweden that actually allows a merchant to say: “I do not accept cash.” As far as I know, this legal setup is unique to Sweden and one important reason why the use of cash is decreasing rapidly. The central bank law states that cash is legal tender,<sup>6</sup> but this can be set aside if a merchant and her customer enter an agreement that cash is not a viable payment option in a particular store. Commercial law<sup>7</sup> states that two parties—a merchant and a consumer or a bank and a consumer—can enter an agreement where the central bank law is set aside. This agreement can be written or oral. Thus, if a merchant has a sign saying that cash is not accepted and a customer enters this store and wants to buy something, the customer is seen to have entered a contractual agreement not to use cash. In practical terms, cash is not legal tender for privately owned businesses running a merchant store.<sup>8</sup>

You can expect signs saying a store will not accept cash in Sweden which is very different from what you may see in Tokyo where stores in fact may accept nothing but cash (Fig. 6.1).

New technological solutions or payment services that have a similar functionality to cash can therefore substitute cash in payment situations where cash used to be the main service that was used. This includes a service like Swish (Arvidsson, 2015) that can replace cash in person-to-person payments and a service like iZettle that enabled mobile point-of-sale (POS) terminals where card payments could replace cash payments in situations like temporary stands selling fruits and vegetables, street vendors, small merchants, and small kiosks at sports arenas. The combination of a legal possibility and technological innovations made it rather easy for merchants to consider to stop accepting cash.

Another factor influencing the use of cash is the values and emotions connected to cash that I touched upon before. Unions in banking, merchant industries, and public transportation see cash as a root to problems since several cash-related robberies including the hyped helicopter robbery took place in the mid-2000s, which of course

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<sup>4</sup><http://www.regeringen.se/artiklar/2016/08/ansvarsfordelning-for-kontanthering/>

<sup>5</sup>Production of Swedish cash was for a long time outsourced to Crane Currency, but recently this was terminated <https://www.riksbank.se/globalassets/media/nyheter%2D%2Dpressmeddelanden/pressmeddelanden/2018/the-riksbank-gives-notice-to-terminate-contract-with-crane-ab.pdf>

<sup>6</sup>Lagen (1988:1385) om Sveriges riksbank i dess lydelse den 1 juli 2012.

<sup>7</sup>Avtalsrätten.

<sup>8</sup>This situation has not really been tested in court; however, but it depicts how merchants and their customer behave today. There is a court ruling saying that publically funded services and organizations—such as a health care provider—must accept cash if the customer wants to pay in cash. See Ruling by Kammarrätten in Sundsvall June 5, 2013, in case number 852-12.



**Fig. 6.1** Signs you may see in Swedish stores (on top) and a sign you may see in Japanese stores (to the bottom). Source: Author's own illustration

hurt their members—the employees in these industries. The cash-in-transit service companies in combination with elderly instead see cash as necessary and helpful services enabling all consumers to make payments and all merchants to receive payments in a convenient way. Other groups like tech nerds and youngster are simply not interested in cash since electronic payment services and especially mobile payments or even virtual currencies are more convenient and definitely more intriguing. All of them are of course right—from their perspective!

We all know how difficult it is to change an old habit, and this is definitely true when it comes to how we make payments. Even if we see a transition from cash payments to electronic payments in Sweden, we also see that some groups have ingrained habits of using cash that perhaps never will change. This is especially true for elderly that have used cash in all their lives and are likely to continue doing it as

long as they will make payments. There are in other words also factors that work in the direction of keeping cash.

The Access to Cash Campaign<sup>9</sup> is another force that works to stop the decreased use of cash. Their argument is that some groups in society depend on cash, and it is the obligation of the state—and actors like banks—to supply services that enable depositing and withdrawing cash. The annual reports from *Länsstyrelserna* give these arguments strong support. There is an increasing share of people—elderly, people with physical and/cognitive disabilities and immigrants—that have problems if cash cannot be used. In a state like Sweden with its tradition of taking care of and supporting weaker citizens, these problems cannot—and should not—be left unattended.<sup>10</sup>

It is also important to see the commercial interests underlying the transition from cash to electronic payment services. There are some industries—cash-in-transit service companies like Loomis and Nokas, cash producers like Crane Currency, guard service providers like Securitas and G4S, as well as providers of systems for cash handling like Siemens and BANQIT—that have a business interest related to the existence of cash. Other industries—automated clearing houses like Bankgirot; banks like Swedbank and Klarna;<sup>11</sup> Fintech companies like Betalo, Tink, and Payair; card providers like Visa and Mastercard; telecom companies as Apple, Samsung, Telia, and Tre; social media companies like Google and Facebook; e-commerce companies like Alibaba and Amazon, as well as providers of hardware and software solutions for electronic payments—have business interests in replacing cash payments with electronic payments. Merchants—payment receivers—have an interest in low fees and high value for these services as well as not relying too heavily on one specific payment service. Consumers—payers—have basic needs to be able to receive and make payments in as inexpensive, quick, effortless, and fun ways as possible. In addition, governments and central banks have a need for secure, reliable, and efficient payment systems to enable markets to operate as effectively as possible. This variety of interests makes the evolution of the payment system an interesting but complex process.

We can also make a somewhat deeper analysis of the business interest of banks in connection to cash. When banks started to sell bank accounts in the 1960s to consumers and were able to convince employers of the benefits from paying wages and salaries into bank accounts instead of via cash, this was as a win-win situation for all that were involved. But the unions had a strong demand—the banks should not be able to issue fees to consumers for accessing their wages and salaries. Access to this money should not have a price tag on it. This led to a situation where

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<sup>9</sup>[www.kontantupproret.se](http://www.kontantupproret.se)

<sup>10</sup>Then, we could of course have a discussion of how to solve these problems. Cash is not the only solution and perhaps not always the best solution for these groups. Prepaid contactless cards without the need for PIN codes for low-value payments could, for instance, be an alternative solution.

<sup>11</sup><http://www.fi.se/contentassets/7c8169d883f643f290632afe70989af7/bank-tillsynsrapport-2017ny.pdf>

Swedish banks could not make a profit on cash-based services as such. They needed to find other ways to gain revenues that could pay for these services, and they did.

Annual fees for access to cards and interchange fees to merchants meant that the card payment business could pay the cash handling (and still leave a nice profit!). This tradition means that banks today have no commercial interest to keep supplying cash handling services—it is just costly and there are no cross-selling opportunities related to cash—and we have seen the effects from this. The share of bank retail offices that provide cash handling services is now below 50% (Länsstyrelserna, 2016).

Another factor that is important to take into consideration concerns the nature of payment services. A payment service—like other infrastructure services as telecommunication and electricity—benefits from having many suppliers and many users connected to the same technological platform. A payment service must realize network effects and interoperability (Economides, 1996; Hagiu & Wright, 2015) to become valuable for both payers and payees (i.e., payment receivers). This depends on the number of users—in each side—in the system.

To build a new payment, service becomes a classical chicken-and-the-egg problem where you need both at the same. If there are not many payment receivers, stores, the payers, consumers, will not be attracted to the service and vice versa. The open four-party card payment systems from VISA and Mastercard are good examples of such systems. You can use your card from a—let's say—Swedish bank when you want to make a payment in Chiang Mai, Thailand, or when you want to buy from an international e-commerce site.

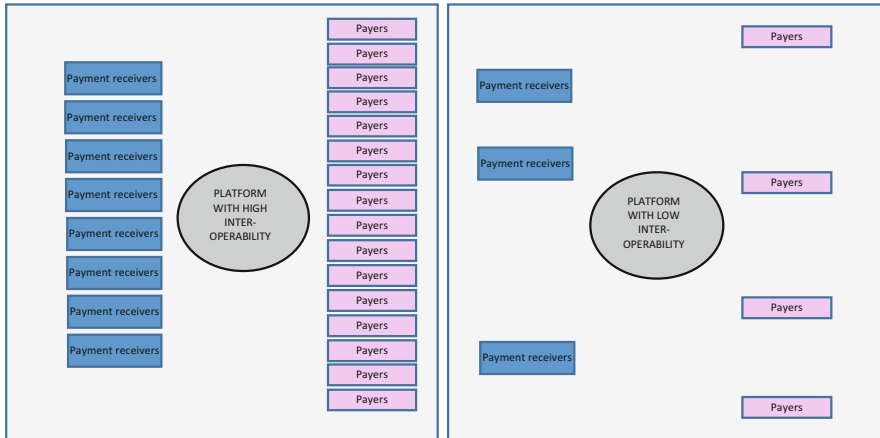
I would even argue that the interoperability of card payment systems is their main competitive edge in this transition of payment systems. It is of course not a bad thing to have. VISA and Mastercard show strong profits year by year.<sup>12</sup> But this is not what I had planned to write in this paragraph. I got sidetracked by the enormous profitability in the payment industry, which of course is one reason why there are so many Fintech companies that want to enter this industry! There are a lot of potential dollars and euros in the payment industry that Fintech companies want to get their hands on.

But back to the plan to write that a new payment service that wants to be established must be able to overcome this chicken-and-the-egg problem. They need to attract large number of payers and payment receivers at the same time.<sup>13</sup> Cash in Sweden is now facing the opposite challenge—to keep as many payment receivers and payers as possible in the system. Fewer merchants accept cash, fewer banks offer cash handling services, and fewer consumers prefer cash, which in the end means reduced interoperability of cash and reduced value of the entire network for cash-based system! The cash-based system in Sweden is in situation with a

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<sup>12</sup><https://www.reuters.com/article/us-visa-results/visas-profit-revenue-tops-estimates-on-payment-volume-growth-idUSKBN15H2S0>

<sup>13</sup>As shown by Apanasevic (2018), there are several that have tried and failed.



**Fig. 6.2** From high to low interoperability for cash payment services. Source: Author’s own illustration

decreasing interoperability and reduced network effects which has initiated a vicious circle that even may be self-reinforcing (Fig. 6.2).

I understand the process leading to a reduction of the network value—interoperability of cash—can be compared to what Gladwell (2006)<sup>14</sup> defines as a “tipping point.” This is a point at which a slow gradual decline leads to a situation where more and more payers as well as payees stop using or accepting cash since the network value is too low in relation to the costs of continuing to use or accept cash. The process becomes contagious, and actors start to imitate each other—sometimes without even thinking about it.

**Tipping point:**

that magic moment when ideas, trends and social behavior cross a threshold, tip and spread like wildfire (Malcolm Gladwell<sup>15</sup>)

Looking retrospectively the process toward a possible tipping point for cash in Sweden started after the cash peak in 2007 and has gradually gained force since then. Arguably, the exchange of bills and coins in Sweden in 2015–2017 became the time when this tipping point hit Sweden with its full force. Not that the introduction of new cash drove this process—it just happened to occur at the same time. And the downturn is not over yet. We see that 97% of merchants in Sweden still accept cash, but we also see that about 1/4 of them will stop accepting cash by 2020 and another 1/4 by 2025 (Arvidsson et al., 2018). The process has seemingly tipped and is now hitting Sweden with its full force.

<sup>14</sup>See the discussion of tipping points by Malcolm Gladwell in the book *The Tipping Point: How Little Things Can Make a Big Difference* (2006).

<sup>15</sup>Gladwell, M. (2006). *The Tipping Point: How Little Things Can Make a Big Difference*.

To sum up, it is a complex transformation where laws, politics, business interests, technologies, values, habits, and power games play important roles. We must acknowledge this complexity if we are to understand the process of change even if the complexity at the same time makes it difficult to pinpoint which factors that are the most important ones and in which direction the process will evolve.

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