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The Effect of Innovation on Business Networks

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Abstract

An innovation has a number of effects on business networks, actors, their roles and activities. Mobile payment can serve as a good illustration of that. The main aim of the paper is to identify what kind of effect innovative mobile payment services have on business networks in retailing. Several of IMP tradition approaches have been applied for the analysis of findings: (i) actors, resources, and activities (ARA) framework was used to model business relationships, and (ii) a conceptual model for studying innovation in networks. Impact of mobile payment in the retail industry has been analyzed from the perspective of interdependency, dynamism, and variety.

Theoretical contribution of the paper to IMP thinking is in: (i) application of IMP thinking and approach for analysis of implications that innovation has on business networks; (ii) trying to understand the effect that a new technology has on business networks using mobile payment services applied in retailing as an example; (iii) analysis of relationships between actors in the network, emphasizing the importance of the role of consumers for the success of the innovation.

Keywords:

ARA analysis, ARA model, Innovation, Business networks, Mobile payment, Mobile payment service, Retailing, Public transport, Mobile ticketing

1 Introduction

Acceptance of new innovative solutions affects all actors in business networks. One of the recent developments that is getting more and more attention and has more examples of practical implementations is mobile payment. Mobile payment can be defined as “*a type of payment transaction processing in which the payer uses mobile communication techniques in conjunction with mobile devices for initiation, authorization, or completion of payment*” (Goeke and Pousttchi, 2010).

Innovation and new solutions become reasons for establishing of new partnerships and business networks (Arias, 1995; Håkansson, 2006), because in order for innovation to succeed, companies need to integrate their resources in the network (Corsaro et al., 2012). Mobile payment is a good illustration of that. Provisioning of mobile payment requires complex business networks merging representatives of different industries, such as electronics, information technologies and software development, financial services, mobile communication industry, retail industry, transport, and others. Participants of these networks have to deal with a number of challenges, for example, a need to change or adapt existing business models, a need to cooperate with new partners, a need to accept a new technology or a new innovative solution, and so on.

Moreover, the complexity of the mobile payment market can be highlighted by the fact that there are several types of services within the mobile payment business network:

- Business-to-business (B2B) service defined by cooperation between network parties;
- Business-to-consumer (B2C) services that are provided to end-users by a network of cooperating actors. B2C aspect is important for a wider spread of mobile payments, because the service should be adopted by both interdependent sides of the market: retailers and customers.

The penetration of smartphones in Sweden is very high, about 68% of all mobile phones in use in 2012 (Telenor, 2012). Hence, a big segment of consumers can access and use mobile payment services. Consequently, a big number of mobile payment service providers are operating in the Swedish mobile payment market, for example, Accumulate, Payair, Seamless, and 4T Sweden. Existing mobile payment solutions address different use cases of mobile payments: person-to-person transfers (P2P), retail (PoS), e-commerce, public transport ticketing, and parking. A range of mobile payment solutions has been accepted and deployed by different retail chains and restaurants in Sweden during last couple of years.

The main focus of this paper is on a phenomenon of mobile payment, which is referred as an “innovation” or a “new innovative solution”. A more specific area of investigations is application of mobile payment in the retail industry. Consequently, the main question to address is the following:

What kind of effect do innovative mobile payment services have on business networks in retailing?

This was approached using a multiple case study method. It helped to examine the effect of innovative service on a business network actors in two cases of mobile payment services applied in retailing. A conceptual model for studying innovation in networks proposed by IMP scholars has been used as a theoretical framework. The main model’s criteria are interdependency, dynamism, and variety (Håkansson and Olsen, 2012). Business relationships and links between business network parties have been analyzed using actors, resources and activities (ARA) framework.

The main contribution of this study is in a better understanding of the effect that a new technology has on business networks, taking mobile payment applied in retail as an example. This would broaden existing knowledge on service innovation. Another contributions are in attempts to focus analysis on the change in a business network, rather than on dyadic relationships, and to address B2B2C relations.

The paper is organized as follows: the next section presents the overview of related literature on IMP perspective on innovation in business networks, and the discussion of the analysis framework. The methodology and research approach are discussed in Section 3. The overview of the selected mobile payment cases applied in retailing is presented in Section 4. This is followed by the analysis of findings. Finally, the discussion and conclusions are presented in Section 6 and 7.

2 Theoretical Background

2.1 IMP Perspective on Innovation Processes in Business Networks

The main focus of IMP Group research perspective is on a network of actors and an analysis of interdependencies existing among them. A network can be defined as “a structure where a number of nodes are related to each other by specific threads” (Håkansson and Ford, 2002). One of the core ideas emphasized by this perspective is that a single organisation has no needed resources to provide a service or to produce a product alone, and by participation in a business network it gets access to external resources of other network’s parties (Håkansson and Snehota, 2006). This way, a company is embedded in its environment and has no defined borders (Håkansson and Snehota, 2006).

Hence, companies join business networks in order to get access to the resources of other companies that are required for their business performance and activity. Interactions between companies change, transform, and modify “aspects of the resources and activities” (Ford et al., 2008) not only of these companies. This affects resources and activities of other actors involved into the network. So, company’s resources are “partly controlled by demands and requirements of counterparts, while “external resources” owned by counterparts, are partly controlled” (Baraldi et al., 2007) by the company.

In business networks, at the same time all companies can interact with a number of other companies, and by this activities resources are transformed and modified across borders of many companies (Ford et al., 2008). Network relationships can be analyzed on different levels: (i) single actor; (ii) dyad; (iii) portfolio of relationships, when a firm takes part in several relationships; (iv) connected relationships, when a focal firm is not directly involved into these relationships; and (v) network, when all relationships in the network are analyzed (Ritter et al., 2004).

Other benefits of participation in a network (in addition to the access to the resources of others) are the access to information, markets, and technologies; building a knowledge base; learning opportunities; reduction and sharing of R&D costs and uncertainty; and so on (Arias, 1995; Corsaro et al., 2012; Håkansson, 2006). Between negative network outcomes it is possible to mention a complexity of networks; an increased interdependency between network actors caused by technology and a need to adjust a business model leading to a less degree of autonomy, and information asymmetry (Arias, 1995; Baraldi et al., 2007; Håkansson, 2006; Håkansson and Ford 2002).

In IMP tradition, the innovation is seen as a result of new ideas and creative processes from one side, and as a result of “material and social interactions” from another side (Håkansson and Olsen, 2012). Innovation of services in networks is an underdeveloped research area, since the network perspective has been mainly focused on the development of physical products (Syson and Perks, 1999; Syson and Perks, 2004).

Håkansson and Olsen (2012) specify two main processes in the innovation development process:

- “Mobilising actor-network” that “typically consists of the political activities of (re)presenting, convincing, forcing and negotiating”; and
- “Knowledge exploration” consisting of knowledge generation when “exploring and stabilising relations between elements, such as ideas, materials, technologies and procedures, as well as formulating propositions and testing them in practice”.

In the case of the development of new services, the main focus is on service delivery process, actions of the individuals (both employees and customers), and management of these activities (Syson and Perks, 2004). Newly developed solutions have to be integrated with existing resources, activities, and actors. However, a participation of multiple parties in a provisioning of a new service increases the complexity of interactions between them (Syson and Perks, 2004). In addition, due to a need to integrate internal resources and resources of other actors in the network, a higher level of interdependency amongst companies can be observed (Corsaro et al., 2012). Nonetheless, by working together, the network actors are able to co-produce value in new forms, to achieve competitive

advantage creating value for consumers, and to build “a better fit between relationships and knowledge” (Normann and Ramirez, 1998).

Previous works of IMP researchers have been focused on different aspects of innovation in the business networks starting from more general questions like obstacles and driving forces for innovations in networks in terms of flexibility, speed, and networks as learning systems (Arias, 1995). Another example would be a research implemented by Windahl and Lakemond (2006) with focus on the development of integrated solutions and services and possible implications on different managerial levels (actor, dyadic relationships, portfolio of relationships, and connected set of relationships).

Another set of previous studies illustrates the impact of more specific business network elements on innovation. For example, “the impact of different network configurations on the characteristics of associated value aspects” and differences between these network configurations have been addressed in a research by Corsaro et al. (2012). Types of resources that “companies seek for service innovation” and “the nature of relationships and access strategies employed to access each type of resources” have been analyzed by Rusanen et al. (2014). The main strategies identified are: absorption (usually this is an unilateral manner of one of network the actors), acquisition (through market transaction), sharing (exchange between network actors), and resource co-creation by network actors.

Håkansson and Eriksson (1993) specify a number of innovation management issues:

- Getting and giving priority to potential partners. This is a mutual process and can be based, for example, on good reputation, technical competence, connection to other actors within the field, confrontation of different knowledge bases, which can have complementary effect, and so on.
- Synchronization of activities and resources. Smooth coordination of this process is a success factor due to possible conflicts, differences in ideas, and “power struggles”.
- Timing is critical when implementing innovative projects, because sometimes projects tend to take more time than it was planned.
- Mobilising customers is very important, because their acceptance is critical for innovation to penetrate in the market.

Further, Håkansson and Olsen (2012) have discussed the main characteristics of “processes of interaction in innovation and/or value-creation oriented networked business settings”. In order to succeed, an innovation has to develop a number of interfaces “towards a variety of existing resources, activities and actors”. In addition, the authors discuss and specify the following impact of information technologies (e.g. new software solutions or “The Smart Systems”) on innovation in business networks: (i) information technologies provide new opportunities for innovations; (ii) increase and visualize “relatedness, dynamics, and variety of the business landscapes”; (iii) as a consequence, networks become accessible to a bigger number of actors and this generates “waves of new innovations”.

Two aspects that have got a limited researchers’ attention are: (i) the development of new services and (ii) the innovation within networks. They have been analyzed by Syson and Perks (1999) with the help of ARA framework.

2.2 Analysis Framework

Several conceptual models for studying innovation in networks have been proposed by IMP scholars. So, Hoholm and Olsen (2012) have proposed a conceptual model for studying networked innovation processes. The model includes four main elements: (i) staging of innovation process when new innovative ideas emerge and facilitate interaction between actors; (ii) mobilising actor network and resources that are needed for innovation development; (iii) knowledge exploration includes technical feasibility and market’s demand for the innovative solution; and, finally, (vi) interaction and controversies between sub-processes “of mobilising others and of knowledge exploration”.

However, a more general conceptual framework proposing an analysis of innovations and their economic environments has been selected (see *Table 1*) (Håkansson and Olsen, 2012). The framework is related to such essential IMP perspective concepts as relatedness (interdependency) between business network actors; motion (dynamism) of technological development, methods, resources, and

products; and variety of actors and resources providing business opportunities (Håkansson et al., 2009):

- **Interdependency.** A successful innovation emerges in the result of *interdependencies* between involved companies. Due to innovation, a number of actors in the network increases. In addition, innovation affects relations existing within business networks. Available resources, activities, and actors define interfaces of innovation, and this way a unique set of interdependences is created and developed (Håkansson and Olsen, 2012). This *specificity* of interactions results in “more specialized and precise” (Håkansson and Olsen, 2012) functional offers. The main task of the innovation process orchestration and management is accessing and *activation important “others”* – potential network actors (Håkansson and Olsen, 2012).
- **Dynamism.** When dynamism evoked by innovation becomes a part of business landscape, it results in motion, movements, or changes in relational interfaces between interdependent actors (Håkansson and Olsen, 2012). There are several pressures that innovation puts on actors: investment into interfaces of innovation and changes in roles and positions of actors (Håkansson and Olsen, 2012). The transformation of roles and positions has a form of “*frictions*”, both recursive and reciprocal, that are adjustments or re-ordering of relationships and related resources, and re-shaping interactions between actors. Frictions stabilize interactions and force “innovation projects to advance the quality and *adaptability* of the interfaces they offer to other entities” (Håkansson and Olsen, 2012). The process of innovation management requires *handling reaction* of other actors to frictions.
- **Variety.** There can be an endless number of available *combinations* of activities, resources, and actors, hence, there are unlimited opportunities for innovation. However, this means different economical value for each possible combination. Hence, despite many possible options, innovation has to be *selective* in order to have an economic effect and, usually, is based on unique *combination* of resources. Practically, only several possible solutions will result in additional economic *value* (Håkansson and Olsen, 2012). The innovation process management should be focused on value creation.

Table 1. Framework for analysis of innovation (source: Håkansson and Olsen, 2012).

Fundamental factors observed	Economic source	Innovation dimensions	Managerial issue
Interdependency	Relatedness of economic entities	Specificity	Activating others
Dynamism	Friction across interfaces	Adaptability	Handling reactions
Variety	Value combinations	Combinability	Framing value creation

This framework highlights the most important criteria and innovation process management issues in business networks. The three defined dimensions (interdependency, dynamism, and variety) have been used for analysis of the effect that mobile payments have on the retail industry. Methodology used for this paper is presented in the next section.

3 Methodology

3.1 Research Approach

The research is based upon a qualitative method utilizing the multiple case study approach. This kind of approaches is commonly used by IMP researchers (Håkansson and Olsen, 2012; Syson and Perks, 2004; Rusanen et al., 2014; Windahl and Lakemond, 2006). The qualitative case studies employ archives, interviews, questionnaires, and observations as data collection methods (Eisenhardt, 1989). One of benefits of a case study is an opportunity to perform analysis on different levels for example within case and cross-case analysis (Eisenhardt, 1989; Yin, 1984).

The main focus of this research is on mobile payment services applied in the retail industry, several of them have been selected for this research. These are examples of successful and less successful service implementation. The selection of the case organisations (retailers) was based on their acceptance of these payment solutions.

3.2 Data Collection

Primary and *secondary* information sources have been used. The main types of *secondary information* were press releases, web sites, and similar, collected during a desk-top research stage. This information helped to understand the overall situation in the market, to identify the main actors in the mobile payment market, and to prepare for interviews with representatives of these companies.

Primary information has been collected in different ways. A number of events dedicated to retail have been attended (for example, Retail day 2013 (Retaildagen) and Retail Forum 2013). Some preliminary conversations about motives to deploy mobile payment solutions with representatives of several retail chains have been carried out.

In 2014, a number of in-depth personal semi-structured interviews with executives and top-level managers representing companies participating in the selected cases (Axfood, the third largest retail network; and mobile payment providers Seamless and SwedBank) have been carried out. Each interview lasted between one hour and hour and a half. All interviews were recorded and transcribed. In addition, a questionnaire has been sent to a number of retailers including McDonald's.

3.3 Data Analysis Approach

Business networks and value supply chains have been modelled and analyzed using ARA model, proposed by IMP group researchers (Håkansson and Snehota, 1995; Ford et al, 2007; Håkansson et al., 2009). ARA framework helps to explore “the process and outcomes of interaction” (Ford at al., 2008). In other words it helps to capture dynamic links between actors and to conceptualize interaction between actors (Syson and Perks, 2004). An example of such a model is presented in *Figure 1*.

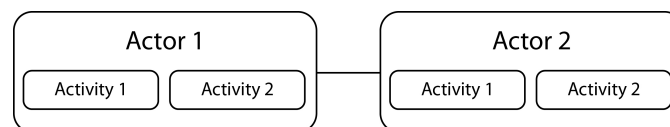


Figure 1. An example of ARA model relationship.

Application of ARA model helps to focus analysis of a business network performance on such aspects as cooperation between network parties, distribution of roles, resources, and activities in value creation, and defining what network actor gains control over direct relationship with customers. Hence, the model in a form of a graph with defined activities and relationships for each business network actor have been used in description of cases in *Section 4*.

The effect of mobile payments on business networks in retail industry has been analyzed using the analysis framework specified in sub-section 2.2 *Analysis Framework*. Description of cases is presented in the next section.

4 Description of Cases: Mobile Payment in Retail Industry

Swedish market of mobile payments is quickly developing. Currently, a range of retail and restaurant chains selected to deploy mobile payment solutions in their stores and restaurants. This paper is specifically focused on two cases: SEQR and Bart. SEQR was selected because it can be perceived as a more successful solution getting wider and wider acceptance by merchants. In contrary, Bart service was ceased in February 2014. In addition, both solutions were deployed by the same merchant.

4.1 Mobile Payment Service: SEQR

The main actors involved in the network of the mobile payment provisioning are:

- Payment service provider: *Seamless*.
- Financial service and credit companies: *Collector* and *Gothia*.
- Retailers: *Axfood* and *McDonald's*. These two retailers were selected as examples for analysis. Currently, more than 100 restaurant, retail, and coffee shop chains are accepting SEQR solution.
- Consumers.

Payment service provider: Seamless

Seamless is a Swedish company providing a mobile payment solution SEQR. The company was founded in 2001, is active in 30 countries, and currently “handles more than 3,1 billion transactions annually” (Seamless, 2013b). The company selected to develop own service network, hence, the solution is not linked to any bank account, Visa or MasterCard. This means that there is no dependence on consumers’ affiliated banks. The solution is QR-code based.

In order to attract the retailers, Seamless offers the transaction fee that is 50% less compared to credit card fees. So, in the case of a big database of customers, this offering allows retailers considerable money savings. In addition, the service roll out is free for retailers.

In spring 2012, SEQR was launched for payments (Seamless, 2012; Sellebråten, 2013). Since then, Seamless was focused on the development of a network of merchants. Now, it is possible to use the service at a number of grocery, fast food, and pharmacy chains, such as Hemköp, Willy:s, Ur&Penn, McDonald’s, Apoteksgruppen, and so on (Seamless, 2013b; Seamless, n.d.). In 2013, SEQR mobile payment solution was integrated with one of the most popular cashier systems LS Retail (Seamless, 2013b). So, service installation does not require any additional equipment in shops.

This year the company started targeting consumers by different types of media. In addition, loyalty accounts for several big retailers have just been integrated with payment application. Another new feature is a cachback payment: when the consumer pays with SEQR for some certain products, he gets money back. This service is promoted by the credit companies, merchants, and brands. Some additional values proposed by the service to the consumers are digital bills, P2P payments, parking payments, p-commerce (purchases in printed advertisements), and public transport ticketing in one region of Sweden.

Financial service and credit companies: Collector and Gothia

These financial service companies handle all questions related to payment transfers and issue monthly bills to the consumers. Hence, all SEQR users have to register a credit account at one of these companies (Sellebråten, 2013).

Retailer: Axfood

Axfood is the third largest Swedish retailer that was established in 2000. Currently, Axfood owns following retail shop chains: Hemköp, Willys, a grocery chain PrisXtra; convenience store wholesaler Axfood Närlivs; and centre of logistics Dagab¹. Retail stores of Hemköp and Willys are distributed all

¹ Axfood. About Axfood. <http://www.axfood.se/en/About-Axfood/>

over Sweden. The vision of the company accents innovative thinking and growth as means to become “the best retail company in the Nordic region”². Company has a strong focus on consumer needs³ and seeks to develop loyalty programs, improve shopping experience, and customer offerings⁴.

In October 2012, after a prior trial, Axfood announced about introduction of SEQR in its grocery retail chains Hemköp, Willys, and PrisXtra (Axfood, 2012a). By December 2012, about 2400 PoS were installed at about 400 Axfood’s stores throughout Sweden.

Retailer: McDonald’s

McDonald’s is the leading global foodservice retailer. There are approximately 220 franchise-based restaurants throughout Sweden.

SEQR was tested at four of McDonald’s restaurants in Stockholm during summer 2012 (Seamless, 2013a; Thoresson, 2012). The pilot project was successful, and in March 2013, Seamless and McDonald’s reached an agreement about the introduction of SEQR solution in other chain’s restaurants in Sweden (Seamless, 2013a).

Consumers

In order to use the service, SEQR users have to register a credit account at financial companies Collector or Gothia (Sellebråten, 2013). In order to pay with SEQR, a corresponding app should be downloaded to a user’s smartphone. When performing a payment at a PoS terminal, customers have to scan a QR-code and approve a payment using a personal PIN code. Retailers’ issued bills are saved in the mobile payment app. A sum of expenses is provided in a monthly bill by Collector or Gothia (Sellebråten, 2013).

Business Network: ARA Model

Seamless, as a PoS mobile payment service provider, manages relation with the end consumers, providing the mobile payment solution, and handling the accounts of the consumers. The financial companies (i.e. Collector and Gothia) handle all questions related to payment transfers. The retailers issue bills via the mobile payment app. Finally, the mobile operators and the banks are not directly involved in the payment. The relationship between the main actors is illustrated in *Figure 2*.

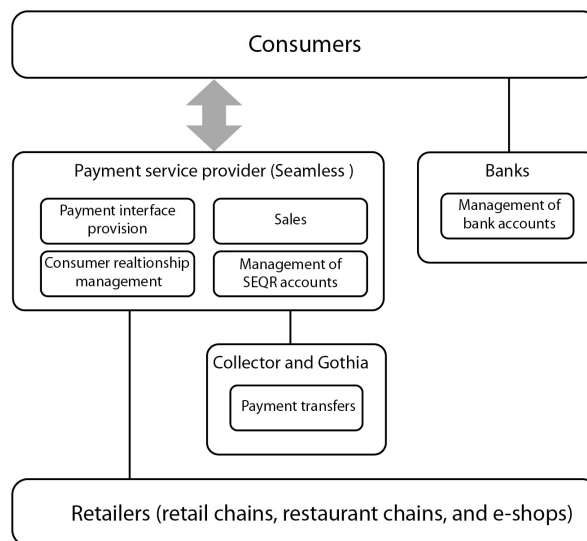


Figure 2. Actors and relations for SEQR mobile payment solutions. The grey arrow indicates “billing relationship”.

² Axfood. About Axfood. <http://www.axfood.se/en/About-Axfood/>

³ Axfood. The Brand. <http://www.axfood.se/en/About-Axfood/The-Brand/>

⁴ Axfood. Strategy. <http://www.axfood.se/en/About-Axfood/Strategy/>

4.2 Mobile Payment Service: Bart

The main actors involved in the network of the mobile payment provisioning are:

- Payment service provider: *SwedBank*.
- Retailer: *Axfood*.
- Consumers.

Payment service provider: SwedBank

SwedBank is one of the biggest Swedish banks with a long history. Currently, it has 306 branches in Sweden and 178 in the Baltic countries⁵. The developed mobile payment solution, Bart, was initially dedicated to retail. The solution was directly related to consumer's bank account, acted as a bank card on mobile phone, and performed payment transactions via QR-codes (Swedbank, n.d.; Sellebråten, 2013). The solution was presented in the market in 2011 and launched at Axfood in 2012 (Swedbank, n.d.). However, due to a low number of users (about 20 000) and a need to focus on more advanced payment solutions, the Bart service was ceased on the 28th of February 2014 (SvD Näringsliv, 2014).

Retailer: Axfood

Axfood became the only retailer that rolled out Bart in its stores. In November 2012, there was a pilot project trying the Bart payment service in three shops in Stockholm (Axfood, 2012b; Swedbank, 2012). By June 2013, the service was rolled out in 400 Axfood's stores (including Hemköp, Willys, Willys Hemma, and PrisXtra) all over Sweden (Swedbank, 2013).

Consumers

The consumers could make payments using the separate payment application directly connected to their bank accounts. To start using the service, Bart app should be downloaded to a user's smartphone. When performing a payment at the PoS terminal, customers had to scan a QR-code and approve a payment using a personal PIN code.

Business Network: ARA Model

In this case, the mobile payment solution provider is the bank. It has a direct relation with the consumers, manages their bank accounts, and performs money transfers. Additionally, bills issued by merchants are saved in the electronic form within the payment app. The mobile operators just provide connectivity for the performance of the transaction. The consumers make payments using the separate payment solution directly connected to their bank accounts (see in *Figure 3*).

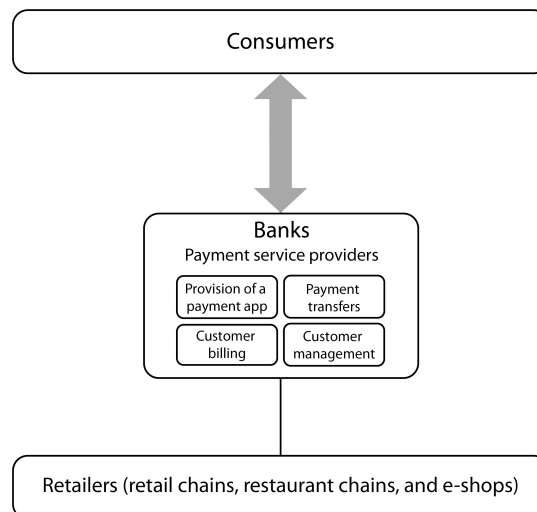


Figure 3. Actors and relations for Bart mobile payment solutions. The grey arrow indicates "billing relationship".

⁵ SwedBank. Quick facts. <http://www.swedbank.com/about-swedbank/quick-facts/index.htm>

5 Analysis of the Mobile Payments Effect on Retailing

5.1 Interdependency

Economic source: Relatedness of economic entities. Due to the fact, that the both analyzed mobile payment services were deployed by one of the retailers – Axfood – it is possible to build a single model of the business network of mobile payment service including all mentioned actors. This model illustrates that the main actors (mobile payment providers (SwedBank and Seamless) and retailers (Axfood and McDonald's)) are parties of a much bigger network. A conceptual view of interactions in this network is presented in *Figure 4*. Hence, the level of analysis would be network, when all relationships within the mobile payment network are analyzed (Ritter et al., 2004).

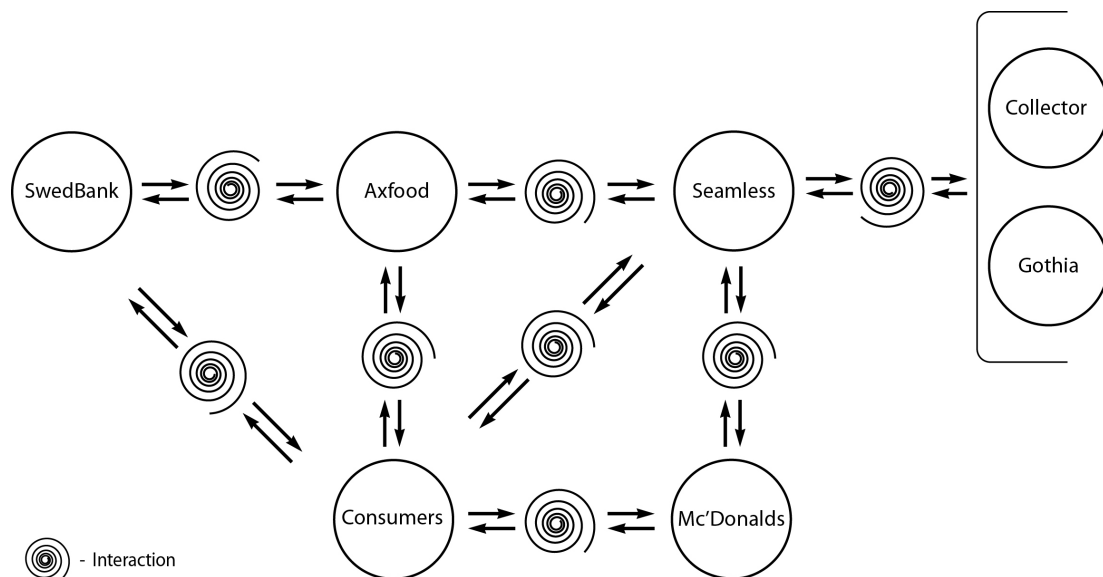


Figure 4. Interactions in the business network of mobile payments in retailing.

It is possible to notice that the innovative service has brought new entities into the business network and, consequently, new relationships. In the analyzed cases of mobile payments that is the mobile payment provider Seamless. SwedBank has already been a part of the retail network performing actions of a bank. In the analyzed case, the bank performed a new role – a role of mobile payment provider.

The business network becomes even more complicated taking into account card payments running in parallel with mobile payments (see *Figure 5*). In the illustration mobile payments are shown in black colour and card payments – in red. In order not to complicate the figure, interactions between network actors are shown by simple arrows.

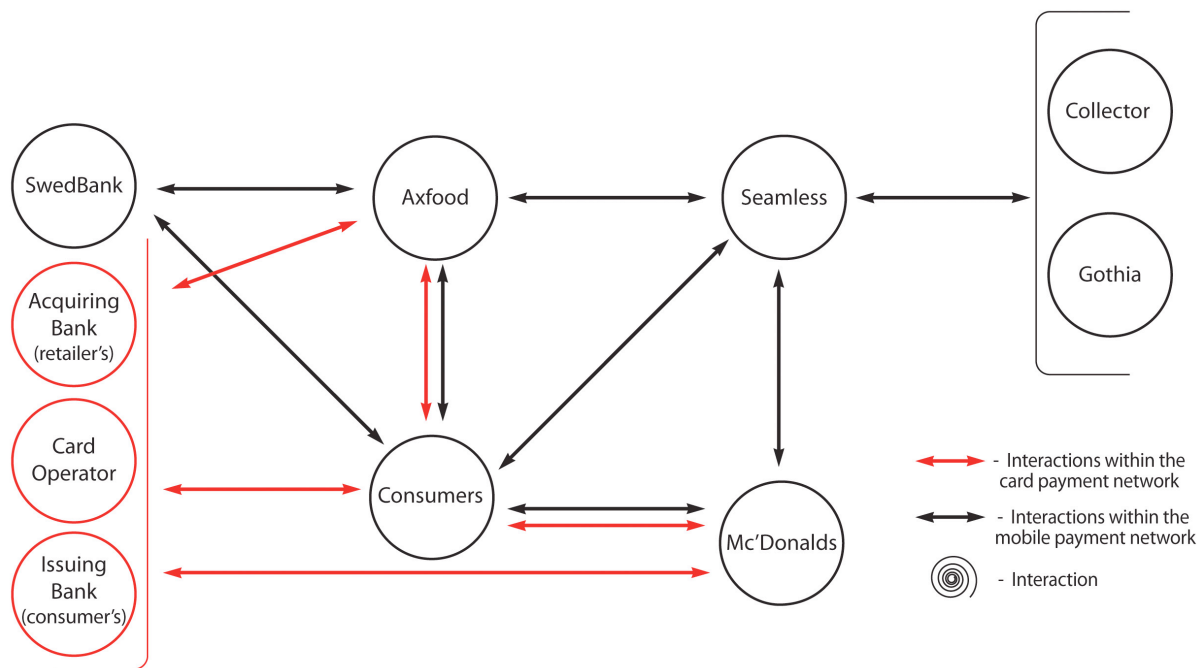


Figure 5. Business network for mobile and card payments in retailing.

Innovation dimension: Specificity. It is stated that “The more developed the interactions across interfaces are, the more specialized and precise must be the functional offers represented by the innovation proposed” (Håkansson and Olsen, 2012). Indeed, in the analyzed cases, mobile payment services are very specialized: Bart service was focused only on PoS payments. SEQR service has been targeting payments in retail and public transport ticketing. Now, the range of services has been extended by new ones, such as parking payments, e-commerce, p-commerce, and P2P money transfers. This service provides more options to engage more business network actors.

Managerial issue: Activating others. In order for mobile payments to take off, mobile payment providers need to activate and align others. In this case, the “important others” are retailers, merchants, and consumers. The analyzed mobile payment providers selected different strategies. So, SwedBank collaborated only with one retailer – Axfood. Activities of Seamless have been focused on a development of a more extended network of merchants, since the company’s management realized that there should be a merchant network when consumers start using the service on a bigger scale.

Starting from this year, Seamless is activating both retailers and consumers by “focus on advancing specific solutions that must be able to connect to, engage with and influence others” (Håkansson and Olsen, 2012). These “advancing specific” improvements are attractive proposals like integration of loyalty cards of retailers with payment solution and cashback payments for consumers; and offers where retailers and product brands are exposed, that is an additional promotion of brands.

Consumers are actors of the network, but they can also be treated as a vital resource that is highly important to all of the parties involved. Hence, the bigger number of consumers will affect all parties: with increased number of service users retailers will benefit from smaller transaction fees, mobile payment provider will get a bigger share of the payment market, and all this will result in a success of innovation, i.e. a higher rate of mobile payment solution penetration. In addition, consumers are commonly acquired by all network parties. However, all interviewed representatives of different companies (merchants and service providers) have mentioned, that the actual number of service users is not that big, yet. They expect an increase in number of users, due to new service options.

In contrast, SwedBank did not attract more retailers and did not develop a more extended network. That might be explained by too long time that took the introduction of the solution in the market, and by a need of additions PoS terminals. Bart service has also failed to attract more consumers.

5.2 Dynamism

Economic source: Friction across interfaces. By one or another way, an innovation affects all actors within the business network. Their nature of these changes can be incremental and more substantial (Håkansson and Olsen, 2012). As it was mentioned, frictions align pressures caused by innovation, i.e. an investment into innovation and changes in roles and positions of actors.

In the analyzed cases, the following frictions have been observed:

- As it was illustrated with ARA model, in Bart and SEQR cases banks and mobile operators (that are traditional mobile payment service providers and participants) were excluded from the service provisioning.
- In the retail industry, mobile payment providers have a direct relationship with the end consumers by provisioning mobile payment application interface.
- Retailers involved in mobile payment network (Axfood and McDonald's) in their marketing campaigns advertise SEQR service as a payment option. That is an example of changes in marketing strategy and application of cross-marketing approach.
- SEQR service evolves. Its adjustments result in increasing functionality both for retailers and consumers. That improves the quality of the service and quality of interactions between different actors (retailers and consumers).
- Bart service was providing only mobile payment and was a replacement for a credit card. Hence, it is difficult to justify its value, when it is possible just to use a credit card. This draws a question about real competitive advantage that this solution could propose. With lacking economic value, frictions turned the situation back to its initial state resulting in the service failure.

Innovation dimension: Adaptability. SEQR service is being adjusted by bringing more attractive functions both for retailers and consumers. Hence, the solution is adapting to their needs, and more retailers are willing to accept the solution. This was not noticed with Bart service.

Managerial issue: Handling reactions. The main focus is on reactions of counterparties and finding solutions to possible tensions or conflicts. That could be actions implemented by mobile service providers, since they are ones of the parties orchestrating the network by adjusting the solution to the needs and reactions of other actors. When they manage to do so, provisioning of mobile payment results in co-evolution of all involved parties (SEQR example). In the case of Bart service, solution provided the same functionality as a bank card and could not ensure a better service.

5.3 Variety

Economic source: Value combinations. There is a difference in value proposition of analyzed mobile payment services. Bart provided only payment. SEQR provides added value for both retailers and consumers. For retailers that are 50% smaller transaction fees, free service roll out, marketing and brand promotion options in the list of optional offerings. For consumers that are a range of different added value services: loyalty cards integrated with the solution, cashback services, parking payments, public transport payments, p-commerce, and growing network of retailers accepting the service.

Innovation dimension: Combinability. Innovation has to be selective and requires a unique set of actors and resources. The required actors are an extended network of retailers and consumers. These actors demand convenient and easy-to-use mobile payment services and added value services generating economic value. Without these characteristics the service will not get a wider penetration.

There are signs that SEQR is getting needed actors and resources, being easy-to-use solution that does not need any additional hardware. In order for consumers not only to sign up for the service but also to use the service daily, additional services are needed. This was something that Bart was missing. In addition, Bart was not easy-to-use for both personnel and consumers; it had no additional services, and required hardware. Partly, these are the reasons of this service's failure.

Managerial issue: Framing value creation. Value creation is framed by trials of new value services, in order to evaluate their value. This is a core innovation management activity. In the case of SEQR, there are proposals of new service functionalities.

6 Discussion

The main research question of this paper has been an investigation of the effects that innovative mobile payment services have on business networks in retailing. The discussion of this question is presented in this section of the paper. The findings of ARA business modelling and results received by application of model for analysis of innovation have served as initial points of discussion. Additionally, the effect of mobile payment in retail has been compared with the situation in the public transport.

6.1 Mobile Payment Effect on Business network

A provisioning of new innovative services has a number of effects on business network. First of all, introduction and deployment of innovation results in new partnerships (Arias, 1995; Håkansson, 2006). As it was illustrated by analyzed cases, the new parties are mobile payment providers (Seamless) and additional financial and credit companies.

Another effect is a change of roles and activities of network actors, as it was illustrated by ARA modelling. In the case of SEQR, traditional payment actors (i.e. banks) were excluded from the network and replaced by financial companies. In the case of Bart, bank tried a role of mobile payment provider and has performed a number of new activities.

From the comparison of the two analyzed cases, it is possible to state, that not only collaboration between parties of the network is important for the commercial success of the innovation. The role of a mobile payment provider and activities it performs are crucial for the success of the innovation. A mobile payment provider needs to adjust the mobile payment service for the needs of other actors, to actively develop the network of retailers, to think creatively about possible new value of the service, to think about making the service attractive for consumers co-producing value together with other network actors. And this is consistent with findings of other studies (Håkansson and Olsen, 2012; Normann and Ramirez, 1998; Rusanen et al., 2014). Without mentioned activities, the innovation cannot succeed, as it is illustrated by Bart service, a stand-alone solution, providing just mobile payment to just one retailer.

According to the used analysis framework, innovation affects business networks in the three dimensions: interdependency, dynamism, and variety (Håkansson and Olsen, 2012). Summarizing, it is possible to specify the following aspects of effect of innovation:

1. Collaboration of all parties is needed for service provisioning. Moreover, different actors of the network possess different specific knowledge and expertises: merchants are experts in retailing, banks specialize in payments and mobile service providers – in mobile payment service. When these knowledge, expertise, and other needed resources are combined and integrated together (Corsaro et al., 2012), this helps to adapt and adjust service for needs of all actors.
2. Interdependency of actors affects their economic results, willingness of new actors to join the network, or willingness of customers to use the service. So, service providers will get a bigger share of the payment market with a bigger number of retailers and consumers. In turn, retailers will have considerable savings with lower transaction fee if a service has a bigger number of users. Finally, consumers will be interested to use the service accepted by a bigger number of retailers and providing more additional services.
3. Another important aspect of interdependency is the following: mobilisation of customer (Håkansson and Eriksson, 1993). Consumers are attracted by all entities in the network, because all of them benefit from a bigger number of service users. In this case, consumers can be understood as a common resource, even if at different points of time consumers make payments in the stores or restaurants of different retail chains. However, currently, the number of service user is not big.
4. There are some changes in marketing strategy of business network actors. Some of retailers deploy cross-marketing approach, and together with new offerings promote new way of payment.

This is an example, how innovative services are being integrated with existing resources, activities, and actors.

5. As it was already mentioned, managers of mobile payment provider should perform actively and creatively when activating others and orchestrating the innovation process. This can be done by proposing additional value and engaging all parties involved in the network, making the solution more specific (the case of SEQR). This also results in further evolution of the service in improvement of its quality.

When the service does not adapt to the needs of other parties, does not provide additional value, and does not evolve, it cannot attract more actors or consumers. This results in the failure of this service (the case of Bart).

Indeed, there are more other available payment options, and there should be motives for consumers to invest time into learning and using one more payment service. Hence, the question of service value is of very high importance for innovation. And value should be proposed for all. Otherwise the innovation is rejected.

6.2 Comparison to Public Transport Industry

As it was mentioned in the *Introduction*, in Sweden mobile payments are applied and used in different application areas. One of the industries where mobile payments are used for number of years is public transport. Mobile payments in this industry were in the focus of interests of mobile operators. The payment in a form of premium SMS for single public transport tickets was included in the mobile phone subscription bills (Markendahl, 2013; Markendahl and Apanasevic, 2013). This was a common solution for the whole country. The service was provided in cooperation between mobile operators, SMS aggregators and mobile ticket providers, such as Plusdial, Unwire, Mobil, and others (as illustrated in a generalized scheme in *Figure 6*).

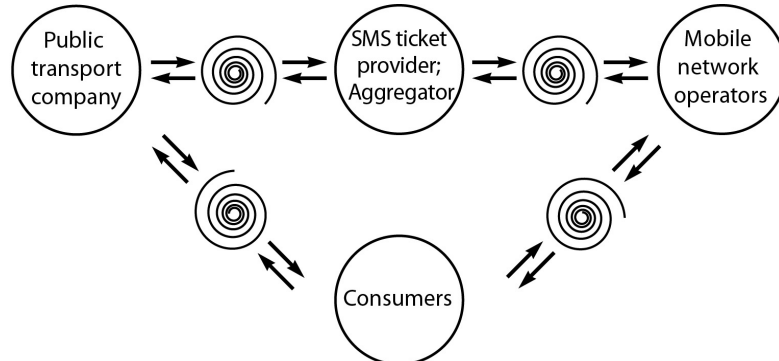


Figure 6. Interactions in business network for mobile payments in public transportation before February 2013.

However, the situation transformed in February 2013, with the change in regulation stating that mobile network operators cannot include payments for non-telecom services in their bills (Markendahl, 2013). In order to remain in the market, a joint venture 4T Sweden has been formed by mobile operators. Its provided mobile payment service – WyWallet – was designed as a replacement for SMS payments.

However, currently, this solution did not succeed to be involved in mobile payment in the public transport on a large scale. Instead, new actors providing mobile payment solutions have got the contracts for the SMS tickets and payment provisioning (Markendahl, 2013). Currently, different mobile payment providers operate in different regions. Hence, provisioning of the innovative service has transformed the whole business network. Due to a change in regulation, new actors (mobile payment providers) have joined this network, and the traditional actors (mobile network operators) have been excluded. This is illustrated in a generalized scheme in *Figure 7*.

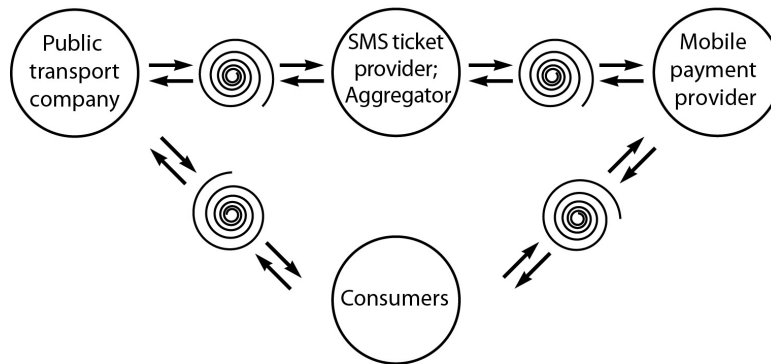


Figure 7. Interactions in business network for mobile payments in public transportation after February 2013.

In the bellow provided sub-sections, the effect of mobile payment on both industries has been compared in terms of interdependency, dynamism, and variety.

6.2.1 Interdependency

When comparing business network in retailing (*Figure 4* and *Figure 5*) and public transport industries (*Figure 7*) it is possible to notice that the latter network includes a less number of actors. Hence, the network usually consists of one regional public transport company, a mobile payment provider, and a SMS ticket provider and aggregator.

As already discussed, the mobile payment solutions can be very specific and target specific services. An example of a very specific solution is Bart that was targeting only retail. Already mentioned WyWallet was targeting mobile payments in the public transport. SEQR is a solution that can be used for a wider range of applications: for retailing and public transport ticketing, and some other kinds of payments. Hence, it can attract and be useful to a bigger number of users.

Consumers are not willing to use mobile payment services for public transport ticketing and find this too complicated. Indeed, the service was mainly rejected by consumers (Markendahl, 2013). Hence, the main managerial issue for mobile payment providers in public transport is to activate and collaborate with others, as it is done in retail. That could also include additional travel discounts and services for consumers.

6.2.2 Dynamism

The number of frictions has happen in both industries due to introduction of mobile payments. One of the outcome is a change of business network actors.

Composition of actors involved in mobile payment business networks of retail and public transport industries is one of differences existing between the industries. So, the traditional actors for retail industry are banks, card operating companies, and retail chains, for public transport industry, that were mobile network operators and small companies providing technical solutions. It needs to be mentioned, that banks have never been interested in mobile ticketing service.

Due to changes brought by the introduction of new mobile payment solutions, in retail industry a new concept of payment has been introduced by Seamless and other service provides (PayEx and Payair that were not analyzed in this paper). This resulted in excluding banks from the business networks. In transport industry, the main change is the replacement of mobile operators by mobile payment providers. Hence, in both industries the provisioning of innovative solution has brought new entities and new relationships into the business networks. The comparison between industries is provided in *Table 2*.

Table 2. Comparison of traditional and new payment networks in retailing and public transportation.

	Retailing	Public transportation
Actors of traditional payment business network	<ul style="list-style-type: none"> • Retail chains • Banks • Card operators 	<ul style="list-style-type: none"> • Public transport companies • Mobile network operators • Technical solution providers (SMS ticket solution providers and aggregators)
Actors of mobile payment business network	<ul style="list-style-type: none"> • Retail chains • Mobile payment providers (Seamless and others) • Financial companies 	<ul style="list-style-type: none"> • Public transport companies • Mobile payment providers • Technical solution providers (SMS ticket solution providers and aggregators)

Another important transformation has happened with mobile payment introduction in the public transport industry. A common solution working for the whole country was replaced with different mobile payment services applied in different regions. The usage of service became more complicated for users. Those users who have to travel in different Sweden's regions need to sign up for a number of services provided by different providers. This also created a market fragmentation. Therefore, from the perspective of market fragmentation, the situation with mobile payments is similar in both industries: a range of alternative competing mobile payment services can be used.

6.3 Variety

The value of mobile payment for retailers is in using mobile phone as a personalized channel to increase loyalty. This can be addressed by added services, such as coupons, informational service, and improved purchasing experience. Another value is economic. These are reduced transaction fees, free service roll out, and reduction of amount of cash. Mobile payment usage allows speeding up a purchasing process at cash register in the shop. However, not all of these values are fully explored yet.

The value of the mobile payment implementation in the public transport has been cash replacement. However, this has some drawbacks. So, for example, customers cannot directly pass the gates in the subway with the mobile ticket. Instead, it should be shown to the personnel at the gates. This results in relatively longer time needed to enter subway. A mobile ticket is an object for fraud, since a fake ticket can be downloaded to a smartphone. In addition, the mobile ticketing coupled to mobile payment service is a complicated solution for consumers. They tend to select more user-friendly and easy-to-use ticketing solutions.

7 Conclusions

7.1 Summary

Introduction and deployment of innovative services affect business networks actors, their roles and activities. This was illustrated using the example of two cases of mobile payment services applied in the retail industry that were analyzed in the current study. Analysis of the impact of the innovation has been performed using ARA modeling of business networks and a theoretical framework for analysis of innovation.

Analysis helped to identify a number of effects that innovation has on business networks in terms of interrelatedness, dynamism, and variety. New services mainly result in appearance of new business actors – innovative service providers. In the analyzed cases, these were mobile payment providers. This results in new relationships, a change of activities of existing actors, and exclusion of some of traditional actors.

Depending on the service, different kinds of other parties should be activated. In the case of payments, retailers are an important party for service penetration. In the case of SEQR, the managers were concerned about activating a wider number of retailers, provisioning of a wide range of payment types, and by introducing such services as integrated loyalty cards and offers. In contrary, the Bart solution was providing only mobile payment and was adopted by only one retailer that was insufficient.

Consumers are other party to engage, because a considerable number of users is needed for service penetration. In the case of SEQR, this is done with additional services such as cashback, opportunity to pay parking fees, to buy public transport tickets, to use service in p-commerce, and so on.

Introduced innovative solution results in frictions over the interfaces of other parties. As it was illustrated, due to frictions, SEQR solution evolved and became better adapted for needs of all business parties. In contrary, Bart solution was not evolving, being just a replacement for a card. So, it was finally rejected by the market.

Finally, the question of value of the innovation is highly important. When there is a value for all business parties, the innovation will succeed in the market.

When compared between industries, it is possible to notice some similarities of innovation's impact on business networks and business landscape. The introduction of innovation leads to changes in business networks, excluding traditional actors, and bringing new. That also means establishing of new relationships. Another key question remains a question of service value.

7.2 Contribution

This paper contributes to IMP thinking in several aspects. First of all, one of the contributions is in application of IMP thinking and approach for analysis of implications that innovation has on business networks. In addition, this is an attempt of a better understanding of the effect that a new technology has on business networks. The effect has been illustrated using mobile payment applied in retailing as an example.

Another contribution is in analysis of relationships between actors in the network. This approach helped to present a more complete and comprehensive picture of the industry. In addition, the analysis emphasized B2B2C relations, putting more attention on consumers. This is explained by their importance to service acceptance.

From the theoretical aspect, the main contribution is in application of a theoretical innovation application framework proposed by Håkansson and Olsen (2012). From managerial aspect, this study might be useful for practitioners. The analysis is based on more and less successful mobile payment services. Comparison of managerial decisions of both solutions might be valuable lessons.

The analysis of this research is based on only two cases, and comparison between two industries. This might affect and inflate the research results.

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