THE INNOFUSION OF ELECTRONIC BANKING IN INDONESIA:
AN EXAMINATION OF THE DIFFUSION AND INNOVATION
MANAGEMENT OF ATM, INTERNET BANKING, AND MOBILE
BANKING

A dissertation submitted to The University of Manchester for the degree of Master of
Science in the Faculty of Humanities

2009

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Abstract

In the financial industries, as in other business sector, innovation is the launching of a new or better product/process aiming at lowering the cost of financial services production. Even though financial innovation plays an important role in the modern economy, surprisingly there have been few empirical literatures. In developing countries, electronic banking (e-banking), for example, received relatively little attention although has been deployed for years.

Indonesia, although not the most competitive in the world, presents unique case of Asian tiger economies, especially after experiencing crisis, financial recession, and economic reform. This research address how e-banking being developed in Indonesia, how it diffused from time to time, what factors that drives and influences the e-banking implementation, how banks manage their e-banking, and what lessons can we learn from it. This dissertation concludes by summarising the case of innofusion of electronic banking in Indonesia.

This research also found that Indonesian banks are directed by customers and competitors in adopting e-banking services. ‘Fee-based income’ and ‘third-party funds’ have become the main jargon in Indonesian banks. There is also an indication that bigger and older banks are not as innovative and dynamic as their smaller and newer peers. Interestingly, the unavailability of legal protection does not discourage them to partner and cooperate with each other and probably true that it is only “those” people who drive innovation among Indonesian banks.

Keywords: innofusion, diffusion of innovation, electronic banking, financial services
Declaration

I declare that no portion of the work referred to in the dissertation has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

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Acknowledgement

First and foremost, I thank Allah (SWT) for His graciousness, mercies, and guidance. All praise to God Almighty, the Lord of the ‘Alamin, for giving me all the good things of life. I would also like to thank to my parents for all they have sacrificed for my sake and their unconditional encouragement.

I would particularly like to thank Professor Ian Miles for his valuable time and useful advice about the conceptualisation and research. I also wish to extend my thanks to Dr. Yanuar Nugroho for his insights and hands-on support. I would also like to thank Ms. Kate Barker and Dr. Silvia Massini. I feel honored for having known in person and learnt from the Manchester Business School faculty and classmates during this period.

I would also like to thank to Joko Puryanto, Dr. Mahfud Sholihin and family, Muhammad Agung Gunawan, Nino Firmansyah, Rr. Nur Abrajuwita, and Triagung Wibawa for helping me making this work possible. A very big thank you also goes to Aviandri Hidayat, Ilham Riedfi, Muhammad Rafiq, and Rachmat Anggara. Financial assistance from the Ministry of Communication and Information Technology of the Republic of Indonesia is greatly appreciated indeed. Words cannot express the debt of gratitude I have.

Last but not least, I hope this small work will be useful to academics and practitioners alike.
Chapter 1     Introduction

“"The beginning is the most important part of the work". —Plato
"Things should be made as simple as possible, but not simpler." —Albert Einstein.

1.1     Financial Innovation and e-Banking

Innovation is undeniably an important aspect in any business sector of a modern economy (Schumpeter, 1942). Innovation in financial services has been described as the “life blood of efficient and responsive capital markets” (Van Horne, 1985, p621). In the financial industries, as in other business sector, innovation is the launching of a novel or better product/process aiming at lowering the cost of financial services production. Innovation encompasses not only the organisation that is the first to introduce it, but also the subsequent spread to others.

Even though financial innovation plays an important role in the modern economy, surprisingly there have been few empirical studies (Frame and White, 2002). Financial firms are rarely engaged in research and development (R&D) works. They are rarely publicising their patenting proclivities because such legal protection are uncommon in financial sector (Rogers and Greenhalgh, 2006). Even worse, data and research environments have been unfavourable enough to investigate innovation empirically.

Historically, financial innovation not only has been a dynamic attributes, but also critical to the changing economic landscape over the last centuries. Financial markets have kept up introducing a variety of new products and services, i.e., derivative instruments, exchange-traded funds (ETFs), alternative risk transfer products, and tax-deductible equities (Miller, 1986). Indeed, this Schumpeterian process of innovation can be seen as a continuing and evolving part of profit maximising economy.
One of the financial innovation products that would be very interesting to view is electronic banking (e-banking), which is the deployment of banking products and services carried over electronic and communication networks directly to customers (Singh and Malhotra, 2004). This may include Automated Teller Machines (ATMs), credit/debit cards, Internet banking, telephone banking, mobile banking, etc. Apparently, electronic banking in developing countries, particularly in Indonesia, received relatively little attention. This research will address how e-banking is being developed in Indonesia, how it has diffused over time, what factors drive and influence e-banking implementation, how banks manage their e-banking, and what lessons can we learn from it.

1.2 Research Aims

It is obvious that more empirical research is possible, particularly for investigating the circumstances that encourage financial innovation. There is spacious room to investigate how financial innovation arrive, how their particular characteristics compare with those of prior innovations, how fast they diffuse and adopt, why they fail or succeed, who adopt and exploit them and why, etc. (Frame and White, 2002). The focus of this study is to investigate innofusion—in electronic banking in particular—among Indonesian banks. Financial innovations that will be examined in this research are primarily ATMs, mobile banking, and Internet banking. This dissertation will address following research questions:

- The innofusion of innovation. The major emphasis of this study will be on the active adoption of innovation across the financial industry. This will include evaluation of the drivers, barriers, impacts, and implications of the innovation. Much of the research on financial innovation centralise on the new idea. However, at least as important is the diffusion and adoption of an innovation spread across banking industry. What are the characteristics of the diffusion? Who are the front runners and laggards of the innovation? Who are the actors and what are their characteristics? Is there any particular circumstance that encourages rapid adoption?
• Other related issues on innovation. It is also interesting to find out how other sorts of innovation have emerged in financial services. For example, how important are the consumer-facing technological innovations as compared to internal organisational and technological innovations, user-led innovation and hidden innovation, or new financial products and strategies? Is there any pattern of change in the association between financial innovation and market forces? Is there any different pattern compared to other countries? How about legal protection and R&D collaboration among financial services firms?

1.3 Research Contributions

Most innovations in financial services unquestionably were developed in Western and developed countries that have very distinct characteristics to those of developing countries. Thus, it is not unusual that adoption of innovation in developing countries has not always been promising. At this point, unfortunately there are only a few works on the diffusion of innovation by emerging countries such as Indonesia (for example Chaudhuri, 1994; Van Dijk and Szirmai, 2006).

Indonesia has been selected in this research because it presents an exceptional case as a developing country (Dowling and Yap, 2008). Indonesia’s economic growth prior to 1997 was one of the highest in South East Asia. But, the aftermath of the 1997 economic crisis, and the subsequent political uncertainty between 1998 and 1999, left the country in a decline in terms of its economic performance, much to the detriment of Indonesian financial industries. However, following restructuring implemented in the wake of these crisis, Indonesian banks remain in a far stronger position and have become highly involved in products and services innovation.

Indonesia, although not the most competitive in the world, presents unique case of Asian tiger economies, especially after experiencing crisis, financial recession, and economic reform. Thus, the theoretical contribution of this study to the literature will be twofold. First, this will be one of the limited numbers of empirical studies on financial innovation, especially in a developing nation. Second,
it describes the characters underlying financial innovation and its key success factors.

From a practical point of view, this research hopefully will help senior managers to understand how financial innovation should be managed in banks. The data and conclusions presented will also aid in understanding their customers’ needs, the complementary products and services to offer, and the resources and strategies to develop in order to maintain customer satisfaction and to maximise bank revenues. On the other hand, the research will also have a policy contribution that will help governments and regulators not only to manage, but more importantly, to also protect, both customers and banks. Indeed, the results of the research presented here hopefully can be used to formulate guidelines that will allow achievement of enormous benefits with respect to financial innovation in Indonesia.

1.4 Summary of the Dissertation

In addressing the above objective and answering the aforementioned research questions, five chapters will be developed. The process of this research is analogous to the structure of this dissertation, to some extent. The first step was to identify research aims, objectives, and scope of this research, and this is the focus of chapter one. Chapter two is then a review of the main literature applicable to this research. In addition, conceptual and operational definitions for this research are developed in this chapter and grounded in existing theory.

In chapter three, research design, research framework, research strategy, data collection, as well as the limitations of research method will be addressed. Chapter four follows with an overview of preliminary findings and the interviews in this work. This chapter deals with data analysis for both qualitative and quantitative data. Discussion and analysis based on the data and information collected are then presented in chapter five.

Last, but not least, this dissertation concludes by summarising the case of innofusion of electronic banking in Indonesia. This dissertation also highlights the
need for banks to align between e-banking innovations with other organisational context, communicate innovation with their customer, as well as effectively acquire knowledge and ensure communication among their peers. Implications and recommendations from this research, a summary of contributions, as well as appraisal of potential future work are also presented in chapter six. In addition to the main chapters, appendices are providing additional details of the interview protocol adopted in this work.
Chapter 2  Literature Review

“Innovation is the specific instrument of entrepreneurship... the act that endows resources with a new capacity to create wealth.” —Peter Drucker, Innovation and Entrepreneurship, 1985

“Innovation distinguishes between a leader and a follower.” — Steve Jobs

2.1  Innovation, Diffusion, ‘Innofusion’

Innovation can be described as “an idea, practice, or object perceived as new by an individual or other unit of adoption (Rogers, 1995, p11)”. However, the field of innovation itself has mainly focused on understanding issues such as the rate and direction of technical progress, the sources of innovation, and the organisation and management of R&D (e.g. Von Hippel, 1978). In the mid 1980s, Michael Porter’s work on the competitive forces transformed the strategy field into innovation to increase understanding of the implications of market structure on competitive choices and a firm’s positioning (Porter, 1980). Still, at the time, innovation was not yet really viewed as a central actor.

About twenty years ago, David Teece initiated a convergence between two fields that lived apart: innovation and strategic management (Teece, 1986). He introduced new theoretical perspectives, such as evolutionary economics, transaction economics, and legal aspects of intellectual property into the field of innovation and strategy. Many of the ideas in his highly influential article “Profiting from Technological Innovation” shaped the way academia, scholars, and practitioners now think about the role of innovation management in firm’s strategy (Pisano, 2006).

Rogers (1983) introduced the term of diffusion, which can be defined as “the process by which an innovation is communicated through certain channels over time among the members of social systems (p5).” The factors he identified were relative advantage over current products and methods, compatibility with existing
modes and customer values, trialability, observability and complexity, and the perceived risk associated with the innovation (Rogers, 1995). However, the association between the diffusion of innovations and organisation’s size has produced mixed conclusions. Some argue that large organisations have more advantages over smaller one (Brown, 1981) while others believe that small organisations tend to be more innovative (Noteboom, 1994; Segers, 1993).

Subsequently, Jamie Fleck (1993) introduced the concept of ‘innofusion,’ which is of innovation and diffusion combined. Both are processes of social learning; creating innovations within the context of use rather than in a laboratory environment. Fleck (1993) argued that the actors of innovation are seen as being involved in a continuous process of attributing meaning to the artefacts and embedding them to their needs. Thus, there is a chance that every innovation will be taken up into a wider environment, become crystallised, and made permanent (Bijker, 1992).

Innofusion itself is a dynamic concept, whereby new products will have consequences for the environments into which they are introduced (Baskerville and Pries-Heje, 1998; Oudshoorn and Pinch, 2003). In becoming normal and permanent, some “radical” innovations disrupt and challenge previously established skills, experiences, institutional arrangements, expectations, and common conventions (Abernathy and Clark, 1985).

This research utilises the sociotechnical constituency approach, as social constituents (customers and their values, communities, advocacy groups, etc.) and technical constituents (computers, Internet, telecommunications, etc.) are inseparable and dynamic. Social constituents and technical constituents influence each other in the process of creation, production, adoption, and diffusion of particular technologies (Molina, 1990; 1993). Moreover, the advancement of these sociotechnical constituencies is always needed in building technological capabilities (Molina, 1993). Thus, the remainder of this research will use the term of ‘innofusion’ instead of only ‘diffusion’ or ‘innovation.’
2.2 Innofusion in Financial Services

The service sector—like financial services—can be described as a tertiary business sector compared to raw materials and manufacturing industries (Miles, 1994). Gallouj (2002) argues that services are a process, are interactive, and are one of extreme diversity. The main characteristics that distinguish these from manufacturing are intangibility, coterminality, and heterogeneity (Miles, 2005). Service firms focus on continuous change and development based on personnel capabilities and cooperation with suppliers, customers, and associations (Tether, 2005). Oftentimes, service production is organised into networks that encompass sectoral boundaries (Consoli, 2007).

Table 2.1. Traditional Comparison of Services and Manufacturing Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Service industries</th>
<th>Manufacturing industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product characteristics</td>
<td>Intangible, easy to multiply and transport</td>
<td>Tangible, easy to store, high transport and distribution costs</td>
</tr>
<tr>
<td>R&amp;D organisation</td>
<td>Chaotic, costs often not assignable, research often outsourced</td>
<td>Project-oriented, budget-driven, research and development units aligned</td>
</tr>
<tr>
<td>R&amp;D approach</td>
<td>Ad hoc</td>
<td>Systematic, scientific</td>
</tr>
<tr>
<td>Intellectual property rights</td>
<td>Weak, copyright</td>
<td>Strong, patents</td>
</tr>
<tr>
<td>Technology orientation</td>
<td>Technology/market-pull, consumer/client-led</td>
<td>Technology-push, science- and technology-led</td>
</tr>
<tr>
<td>Innovation approach</td>
<td>External and internal sources combined</td>
<td>Mainly in-house resources</td>
</tr>
<tr>
<td>Innovation cycle</td>
<td>Long</td>
<td>Short</td>
</tr>
<tr>
<td>Innovation form</td>
<td>Mainly incremental</td>
<td>Attempt to be radical</td>
</tr>
<tr>
<td>Commercialisation strategy</td>
<td>Direct to markets</td>
<td>Prototyping and testing</td>
</tr>
<tr>
<td>Knowledge condition</td>
<td>Create new service-specific knowledge</td>
<td>Make use of scientific knowledge</td>
</tr>
<tr>
<td>Time to market</td>
<td>Relatively short</td>
<td>Short to very long</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>Small, social</td>
<td>Big, technological</td>
</tr>
<tr>
<td>Spatial scale of system or reach</td>
<td>From regional to national to global, many services are national because of law an regulatory constraints</td>
<td>From national to global</td>
</tr>
<tr>
<td>Labour productivity</td>
<td>In most industries very high (highest in financial services)</td>
<td>Depends on industry (very high in hi-tech, low in heavy industries)</td>
</tr>
<tr>
<td>Physical capital</td>
<td>Low, outsourcing/leasing</td>
<td>High, ownership of production</td>
</tr>
</tbody>
</table>

Source: Adopted from Fasnacht (2009, p45).
In the field of financial services, the significance of innovation is widely recognised (for instance: Ben-Horim and Silber, 1977; Frame and White, 2002; Merton, 1992, 1995; Miller, 1986; Tufano, 1989). Interestingly, financial innovations are critical not only for firms in the financial industries, but also for other industries as well. Financial firms have the ability to raise larger amounts of capital at a lower cost than they could otherwise (Lerner, 2006). Unfortunately, there have been only a small number of comprehensive explorations of innovation in this area.

In the last few decades, financial services sector has been faced with a number of fundamental changes, different forms of government intervention and deregulation, tighter business competition, more demanding customers, increasing cost of developing new financial products and services, the rapidity of technological advancement, and recent mergers and acquisitions (M&A) of financial firms (Akamavi, 2005). As customers become more demanding, financial services have enforced to expand into new products, new services, not to mention new markets.

“The primary function of the financial system is to facilitate the allocation and deployment of economic resources, both spatially and across time, in an uncertain environment (Merton, 1992, p12).” This role will incorporates a payment system with “a medium of exchange, the transfer of resources from savers to investor-users of the resources, the gathering of savings for the purposes of pure time transformation, and the reduction of risk through insurance and diversification (Frame and White, 2002, p3).”
There are several works on financial innovation that can be expanded further. Ben-Horim and Silber (1977), for example, studied New York-based banks in 1950s to 1970s, and found that regulation induce innovations on the negotiable certificate of deposit. Lerner (2006) investigated the drivers of innovation in more than 15,000 U.S. financial firms, focused on the attribute of the financial firms that devoted to the innovations. Another research has examined the conditions that encourage automated teller machine (ATM) adoption (Hannan and McDowell, 1984). Subsequent research also indicated the presence of network externalities in ATMs adoption (Saloner and Shepherd, 1995).
Table 2.2. Key Innovation in Financial Services

<table>
<thead>
<tr>
<th>Category</th>
<th>Innovation</th>
<th>Adoption (est.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service delivery or access to financial markets</td>
<td>Bond</td>
<td>1960s</td>
</tr>
<tr>
<td></td>
<td>Credit cards</td>
<td>1969</td>
</tr>
<tr>
<td></td>
<td>Money market mutual funds</td>
<td>1970s</td>
</tr>
<tr>
<td></td>
<td>Derivatives</td>
<td>1970s</td>
</tr>
<tr>
<td></td>
<td>Cash management account</td>
<td>1978</td>
</tr>
<tr>
<td></td>
<td>Certificate of deposit</td>
<td>1979</td>
</tr>
<tr>
<td></td>
<td>Mortgage-backed securities</td>
<td>1980s</td>
</tr>
<tr>
<td></td>
<td>Debit cards</td>
<td>1987</td>
</tr>
<tr>
<td></td>
<td>All in one account</td>
<td>1990s</td>
</tr>
<tr>
<td></td>
<td>Structured products</td>
<td>1990s</td>
</tr>
<tr>
<td></td>
<td>Credit derivatives</td>
<td>1993</td>
</tr>
<tr>
<td></td>
<td>Exchange-traded fund (ETF)</td>
<td>1993</td>
</tr>
<tr>
<td>Organisational functions</td>
<td>Risk management systems</td>
<td>1970s</td>
</tr>
<tr>
<td></td>
<td>Automated voice response</td>
<td>1980s</td>
</tr>
<tr>
<td></td>
<td>Discount brokerage service</td>
<td>1980s</td>
</tr>
<tr>
<td></td>
<td>Telephone banking</td>
<td>1983</td>
</tr>
<tr>
<td></td>
<td>Customer information file</td>
<td>1990s</td>
</tr>
<tr>
<td></td>
<td>Electronic trading of shares</td>
<td>1990s</td>
</tr>
<tr>
<td></td>
<td>Profitability analysis by customer</td>
<td>1990s</td>
</tr>
<tr>
<td>Organisational functions and service delivery</td>
<td>ATMs</td>
<td>1967</td>
</tr>
<tr>
<td></td>
<td>Home banking</td>
<td>1983</td>
</tr>
<tr>
<td></td>
<td>Electronic fund transfer (EFT)</td>
<td>1985</td>
</tr>
<tr>
<td></td>
<td>Branch automation</td>
<td>end 1990s</td>
</tr>
<tr>
<td></td>
<td>Internet banking</td>
<td>1997</td>
</tr>
<tr>
<td></td>
<td>Mobile banking</td>
<td>1999</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>Lockbox system</td>
<td>1980s</td>
</tr>
<tr>
<td></td>
<td>Treasury workstation</td>
<td>1990s</td>
</tr>
<tr>
<td></td>
<td>Video banking</td>
<td>1990s</td>
</tr>
<tr>
<td></td>
<td>Loyalty schemes</td>
<td>1990s</td>
</tr>
<tr>
<td></td>
<td>One-stop banking</td>
<td>1990s</td>
</tr>
<tr>
<td></td>
<td>Personal banker</td>
<td>1990s</td>
</tr>
<tr>
<td></td>
<td>Open architecture</td>
<td>2000s</td>
</tr>
</tbody>
</table>

Source: Adapted from Fasnacht (2009, p47-48)

With regard to the diffusion of financial innovation, Molyneux and Shamroukh (1996) examined the diffusion of the underwriting of financial instruments, such as junk bonds and notes. Many literatures have called for further examination of the diffusion of Internet banking, such as Daniel (1999) and Bradley and Stewart (2003). Similarly, Akhavein et al. (2001) examined the diffusion of small business credit scoring method in the mid-1990s by large financial firms. More recently, Sahut (2008) examined the adoption and diffusion of electronic wallets, named Monéo, in France.
In the financial services, it is believed that a strong banking industry can have a significant effect in supporting economic development through efficient financial services. Thus, the banking industry needs to innovate to keep up with the globalisation movement, both at the procedural level and at the informational level, including moving from traditional (conventional) distribution channels to electronic distribution channels.

Indeed, it is quite obvious that the banking industry has undergone major IT transformations over the last few decades (i.e. Consoli, 2005; Harris, 2001; Nielsen, 2002). Information and communication technology (ICT) and ICT-related technology are vital for innovative activities in financial services. As mentioned by Gallouj and Weinstein (1997), service is a process of operations in which its provision is intangible. At the forefront of innovation, the financial services sector uses IT extensively and technological change has radically transformed the industry (Barras, 1990; Consoli, 2005; Miles, 1994).

However, although IT plays a crucial role and has become a strategic decision (Sethi and King, 1994), this does not always mean that IT will automatically increase productivity (Harris, 2001). Moreover, despite the fact that large firms have more resources with which to exploit technologies, they are often disadvantaged when it comes to harnessing technological innovation (Christensen, 1997; Leonard-Barton, 1995).

2.3 Defining Electronic Banking

Electronic funds transfer (EFT)—probably the first electronic banking (e-banking) application—was programmed to enable funds to be transferred electronically among financial firms in early 1970s (Johnston, 1998). In the early 1980s, the Automatic Teller Machine (ATM) was developed as an extension to EFT to allow regular financial transactions to be carried out over a telecommunication network (Barnes and Hunt, 2001). Later on, the Internet was commercialised and Internet banking was subsequently introduced.
According to the Basel Committee on Banking Supervision (1998), electronic banking can be defined as “the provision of retail and small value banking products and services through electronic channels. These types of products and services can include deposit-taking, lending, account management, the provision of financial advice, electronic bill payment, and the provision of other electronic payment products and services such as electronic money [p6].”

E-banking can also be described as the deployment of banking products and services carried over electronic and communication networks directly to customers (Singh and Malhotra, 2004). This may include Automated Teller Machines (ATMs), credit/debit cards, Internet banking, telephone banking, mobile banking, smart cards/pre-paid cards, etc. Meanwhile, FinCEN (2000) defined e-banking as “an umbrella term for the process by which a customer may perform banking transactions electronically without visiting a brick-and-mortar institution [p25];” including personal computer (PC) banking, Internet banking, virtual banking, online banking, home banking, remote electronic banking, and phone banking (FinCEN, 2000).

Historically, PC-based online banking started its operation in the late 1970s and early 1980s; however, because of its high monthly fee, limited features, and complicated access procedures, PC-based online banking was initially not very popular (Fight, 2002). Nonetheless, along with the development of technology, e-banking has become extremely popular today. E-Banking in Indonesia—which includes ATM use, call banking, credit/debit cards, Internet banking, and mobile banking—is believed to be the alternative for customers who seek much higher comfort and value. E-banking replaces the conventional transactions, which in turn benefits the customers in the form of lower transaction fees.

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1 The definitions of e-banking and e-finance are probably quite synonymous. Fight (2002) defines e-finance as “all which relates to the linking of business, finance, and banking via electronic means, encompassing information gathering, processing, retrieval, and transmission of data as well as the transmission, purchase, and selling of goods and services [p12].”
<table>
<thead>
<tr>
<th>Name</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automated Teller Machine (ATM)</td>
<td>Devices activated by an encoded bank card, allowing customers to do routine transactions as they would at a bank teller window. ATMs function around the clock and can be located either on the bank or at some remote location off the premises (Fitch, 2000; Woelfel, 1994).</td>
</tr>
<tr>
<td>Credit Card</td>
<td>Any card or other single credit device that may be used to obtain money, property, or services on credit with particular credit terms established by the issuing institution (FDIC, 1974; Woelfel, 1994).</td>
</tr>
<tr>
<td>Debit Card</td>
<td>A bank card that give customers access to their funds electronically to pay or withdraw money at ATM machines. Unlike credit card, debit card withdraw funds immediately and do not offer the convenience of paying over time. (Fitch, 2000).</td>
</tr>
<tr>
<td>Direct Debit</td>
<td>A method of collecting loan or payments by deducting the amounts owed from the borrower’s checking account on the date payment is due (Fitch, 2000).</td>
</tr>
<tr>
<td>Direct Deposit</td>
<td>A method of payment in which money is transferred to the payee’s account without the use of checks or cash (Merriam-Webster Dictionary, 2009).</td>
</tr>
<tr>
<td>Electronic Fund Transfer</td>
<td>Any transfer of funds which are initiated through an electronic terminal to order, instruct, or authorise a bank to debit or credit an account; may include point-of-sale (POS) transfers, ATM transactions, direct deposits or withdrawals, and transfers initiated by phone (FDIC, 1978).</td>
</tr>
<tr>
<td>Internet Banking</td>
<td>Conducting banking activity—such as manage account balances, pay bills, transfer funds, purchase financial instruments, etc.—through Internet as the delivery channel. Customer accesses their accounts from a computer browser that runs banking applications reside on the bank’s server. (Insley et al., 2003)</td>
</tr>
<tr>
<td>Mobile Banking</td>
<td>Provision and availing of banking services with the help of mobile devices, including facilities to conduct bank transactions, to manage accounts, and to access other customised information (Tiwari and Buse, 2007).</td>
</tr>
<tr>
<td>Prepaid Card</td>
<td>A stored value card that can be used for a numerous payment purposes and sometimes might be used either on a domestic or international scale (ECB, 2000).</td>
</tr>
<tr>
<td>Smart Card</td>
<td>A bank card containing a chip, which gives the authorised cardholder access to account balances, to approve retail purchases, and so forth. Its internal memory may store information on a cardholder’s relationship with other institutions and databases that are updated every time the card is used (Fitch, 2000).</td>
</tr>
</tbody>
</table>

According to Molina and Ben-Jadeed (2004), the main reason why banks implement e-banking services is “to provide a faster, easier, and more reliable service to clients, to improve the bank’s competitive position and image, and to meet clients’ demands [p90].” Similarly, Brown and Molla (2005) argue that cost reduction, convenience, availability, accessibility, and administration are main
drivers behind the offering of e-banking services. In addition, e-banking services might provide other benefits, such as opening new markets, minimalising operational and administrative costs, and improving the workforce and competitiveness. In Indonesia, e-banking implementation is aligned with government policy in order to reduce paper money circulation, to increase efficiency in every transaction, and to move towards a cashless society.²

On the other hand, there are questions regarding financial firms’ efficiency in utilising e-banking features for improving their competitive advantages, for example, how far banks can realise their return on investment and increase the success rate of the diffusion of innovation. Electronic banking implementation might also have radical impacts on a bank’s managerial structures, operational processes, products and services, and relationship with other parties (Molina and Ben-Jadeed, 2004). On the demand side, customers’ expectations are of main attention, whilst on the supply side, technology, regulation, and market forces affect the choice of banks’ distribution channels. This is the focus of this research.

2.4 Collaboration and Knowledge Transfer

It is generally acknowledged that the demand to acquire knowledge resources correspondingly increases with the service intensity of firms. The main activities of these types of firms include “acquisition, creation, packaging, and application of knowledge (Davenport et al., 1996, p54).” These firms are characterised by employing professional and technical personnel with a high levels of skills and expertise. Leonard-Barton (1995) suggested that combining different personnel with a particular set of activities will encourage knowledge building and enable innovation. In the same spirit, Moss-Kanter (1994) emphasised that collaboration enhances organisational learning. Consequently, more valuable knowledge will be generated if organisations and their partners create synergies instead of working alone (Brown, 2008).

² See Bank Indonesia Regulation No. 11/12/PBI/2009 regarding Electronic Money.
Knowledge transfer undoubtedly is an extensively explored issue in the literature of innovation. Knowledge becomes the main input and main output of the knowledge creation process and variety in this process becomes an important factor in influencing creativity, which in turn calls for access to external vertical and horizontal knowledge sources (Metcalfe, 2001). Transfer of knowledge can also be seen as a mere extension of physical movement and an economic circulation that involves transfer of ownership (Gallouj, 2000). The quality of knowledge transmission will increase if knowledge is codified and will decrease if knowledge is perceived by the source as strategic (Gallouj, 2000).

Knowledge transfer is unequivocally a complicated process. It requires contacts with various sources, enhanced absorptive capacity, and adequate financial resources. The knowledge creation process also needs a balance of both internal and external tacit and codified knowledge (Antonelli, 1999). Knowledge does not flow freely, but needs an input of effort for its adoption. This internalisation process incurs absorption costs (Cohen and Levinthal, 1990). As well, the knowledge production process itself is a cumulative and interactive process; thus, communication among the participating agents is fundamental (Edquist, 1997).

Knowledge-intensive business services (KIBS), like financial services, play an essential role in the knowledge transfer process (Storper and Scott, 1995). KIBS are users, producers, and carriers of innovation that interpolate between generic external knowledge and the recipient organisations (Miles et al., 1995; Miles et al., 2000). The medium of knowledge transfer may vary from the use of consultants (Bessant and Rush, 1995) or dedicated training personnel (Grosse, 1996), to personnel secondment or exchange (Hicks, 1993). This exchange and absorption process requires the sharing of communication and trust among involved actors. Thus, it may explain why banks, financial firms, suppliers, consultant, and other related parties are geographically concentrated in the capital city or major financial hubs.

Roessner (2000) describe technology transfer as “the movement of know-how, technical knowledge, or technology from one organizational setting to another [p1].” However, due to the emphasis of knowledge element in technology transfer, we can use the term of knowledge transfer to replace the term of technology transfer (Cowan et al., 2001).
Table 2.4. Intermediary Roles of Consultants

<table>
<thead>
<tr>
<th>User Needs</th>
<th>Bridging Activity</th>
<th>Supply Side</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology</td>
<td>Articulation of specific needs Selection of appropriate options</td>
<td>Sources of technology</td>
</tr>
<tr>
<td>Skills and Human Resources</td>
<td>Identification of needs Selection Training and development</td>
<td>Labour market Training resources</td>
</tr>
<tr>
<td>Financial Support</td>
<td>Investment appraisal Making a business case</td>
<td>Sources of finance</td>
</tr>
<tr>
<td>Business and Innovation Strategy</td>
<td>Identification and development Communication and implementation</td>
<td>Environmental signals</td>
</tr>
<tr>
<td>New Technology Knowledge</td>
<td>Education information and communication Locating key sources of new knowledge Building linkages with the external knowledge system</td>
<td>Examples of best practice Emerging knowledge base</td>
</tr>
<tr>
<td>Implementation</td>
<td>Project management Managing external resources Training and skill development Organisational development</td>
<td>Specialist resources</td>
</tr>
</tbody>
</table>

Source: Bessant and Rush (2005, p101)

Bessant and Rush (1995) argued that external consultants play an important role in an interactive and client-oriented technology transfer model. They identified activities that consultants may carry out: direct transfer from experts and specialised knowledge producers, experience sharing, marriage broker, and diagnostician to solve clients’ needs and problems. Hislop (2002) found that client firms may play an important role in shaping consultancy relations, while Dodgson (1996) states that this intermediary institution also contributes to the process of establishing trust relationships. Inarguably, these types of “innovation agents” are vital in building capability and bridging the “managerial gap” (Bessant and Rush, 1995; Dodgson and Bessant, 1996).

2.5 Network Externalities and Legal Protection

Literature on strategy argues that collaboration helps organisations to acquire skills and resources that cannot be produced internally (Hamel, 1991; Hamel et al., 1989; Teece, 1986). The main objective is to obtain resources through direct transfer of assets, shared key equipment, IPR, or personnel, and through the transfer of organisational knowledge (Hamel et al., 1989) in order to survive in the
turbulent competition and develop their own distinctive capabilities (Powell et al., 1996; Prahalad and Hamel, 1990).

Network theory synthesises organisations as embedded within networks of linkages that facilitate and constrain their actions and interests (Nohria and Gulati, 1992). Network effect might be used to explain why financial innovations often require collaboration among different organisations. For example, they design smart cards, develop standards for communication and transaction exchanges, and share access with others. In contrast to the manufacturing sector, an innovator’s success frequently depends on innovation developed by competitors, that are important to “share the risk, increase market depth, liquidity, and price transparency (Kumar and Turnbull, 2008, p.2013).”

As in other industries, there is a tension within financial industries between the need to create innovation and the need to exploit innovation (Dew, 2007). On the one hand, banks want to attract customers by providing them with minimum cost and maximum quality. On the other hand, they have to protect their innovation from free riding imitators. Another problem is that all new financial products and services must be completely explained to imitators, vetted by government regulators, and probably promoted to potential imitators in order to enter into common use. Indeed, this brings the imitation cost to almost zero.

Not surprisingly, although patenting usually occurs in IT-intensive services, patenting in banking is perceived as a minor instrument for appropriate service innovations (Miles et al., 2000). Financial services are also characterised by network externalities and standardisation (Wagner, 2008). Network externalities come from standard setting which then make interoperability become possible. Those standardisations and compatibilities between various products will give competitive advantage for the standard owner in the market. Patents can also stimulate network effects and accumulate big portfolios of patent. This situation, in turn, will raise a barrier to entry and hamper innovative entrants.
Financial patents are also often characterised by high unpredictability about enforceability because in the patent databases there is usually little prior art on financial innovation (Lerner, 2006). Additionally, most business method innovations have a practical nature; thus, there is no need for written documentation, or they are simply a common process widely spread over the Internet (Wagner, 2008). Because of uncertainty over patent validity, investing in innovation becomes unattractive and simply not worth a financial firm’s effort. Thus, trademarks are much more popular in financial services than are patents (Rogers and Greenhalgh, 2006).
Chapter 3    Research Methodology

“The first principle is that ‘less is more’. It is more important to work longer, and with greater care, with a few people than specifically with many of them. The quantitatively trained social scientist reels at the thought of so small a ‘sample’, but it is important to remember that this group is not chosen to represent some part of the larger world. It offers, instead, an opportunity to glimpse the complicated character, organisation and logic of culture.” —McCracken (1988, p.17)

3.1 Research Design

Cooper and Schindler (2003) described business research “as a systematic inquiry that provides information to solve managerial problems [p5].” Cooper and Schindler (2001, 2003) argued that this type of scientific research must have certain characteristics, such as direct observation of a particular phenomenon; the variables, methods, and procedures must be defined clearly; the hypotheses must be tested empirically; there has to be an ability to rule out opposite hypotheses; the conclusion must be justified statistically rather than linguistically; and there needs to be an ability to self-correct.

In contrast, the naturalistic approach is opposite to the scientific approach. It denies the form of standardised theoretical structure because it aims for new theory, not to verify the current theory. The naturalistic approach is in line with the grounded theory that postulates that the best way to explain a theory is to find the theory from the data. This kind of approach assumes that grounded theory lies within the data, while the scientific approach claims that facts do not speak for themselves (Blalock, 1969).

Exploratory research is developed based on grounded theory which was intended as a flexible approach to formulate theory based upon generic principles of theoretical saturation, constant comparison method of analysis, and theoretical saturation (Glaser and Straus, 1967). Subsequently, grounded theory was reformulated by putting emphasis on its proceduralisation and its formalisation
into a set of techniques (Strauss and Corbin, 1990). However, despite the fact that grounded theory is one of the most preferred methodological approaches for qualitative research, it might have been deployed in many different ways and honoured more in breach than in observance (Bryman, 2001).

This research aims to reveal innovation in depth and in detail, not shallowly and broadly; therefore, the naturalistic approach seems to be more suitable. In addition, the existing data tend to be qualitative in nature as they are derived primarily from interviews with the respondents. This research largely uses a qualitative approach because its emphasis is on the detailed critical aspects using case study on a particular innovation. The data are collected using qualitative methods, not quantitative ones; therefore, the approach is also termed qualitative. Consequently, the researcher was unable to set an artificial setting since the data tend to be qualitative in nature.

However, whenever possible, the qualitative approach will be combined with a quantitative one in order to give added value and synergy, since each approach essentially has its own advantages and disadvantages (Perry et al., 1999). Scientific research can be used first in order to analyse the quantitative data on innovation (i.e. timing and number of adoption). Next, the naturalistic approach can be used in order to obtain more detail and in depth result from the interview.

### 3.2 Research Approach

The research results will be presented in the form of logical argument, which can be used by the research for explaining, interpreting, defending, challenging, and finding further meanings (Cooper and Schindler, 2003). The arguments used by the researcher can be deductive or inductive in nature. The scientific approach uses theoretical structure to develop hypothesis and then uses the empirical data to test the hypothesis and draw a conclusion. This approach is called a deductive method/deductive research. In contrast, a naturalistic approach sets out and relies on the data to obtain a conclusion. The hypothesis is created based on the data.
and information obtained from the field observation. This approach is called an inductive method/inductive research (Miles and Huberman, 1994).

This dissertation is more likely to incorporate an inductive approach and let the data speak for themselves. This study will adopt a multi-method approach because this method not only helps in developing a more holistic view, but also facilitates explanation and prediction (Perry et al., 1999). Hypotheses are created from the observed data and information. The process of creating hypotheses is carried out by first collecting the data and then formulating hypotheses if necessary, or directly creating a conclusion if no hypothesis is being used. The process of creating a conclusion and hypothesis is based on the facts of evidence obtained from the observation results (Miles and Huberman, 1994). This research is more a “hypothesis-generating” form of research rather than “hypothesis-testing” research.

The main tool for data collection in this study was qualitative interviewing, supported by the analysis of secondary data as well as internal documentation. However, it should be understood that a constructivist style of interviewing typically tends to involve a small number of interviewees because it emphasises the text, not the individual, and in-depth explanation analysis, not generalisation (Dick, 2004; King, 2004). McCracken (1988) argued that it was perfectly fine to work with very few people and that this offers “an opportunity to glimpse the complicated character, organisation, and logic of culture [p17].” Consequently, it must be reflected in both the selection of the interviewees and the style of interview itself.

Exploratory interviews have been conducted with senior banking officials in Indonesia. The interviews explored the nature of electronic banking as an innovation, its infusion, influencing factors, barriers and drivers of innovation, its impacts and implications, and how the managers manage their innovation, including the future of those innovations. The individuals participating in this study shared a common fact that they were at least in the middle management level, located in division/unit related to electronic banking, and had an adequate amount
of work experience in the company as well as some sort of knowledge of electronic banking.

### 3.3 Research Strategy

According to Cooper and Schindler (2003), research can function as providing data and information for obtaining certain conclusions (reporting), describing and defining a phenomenon using 5W1H principles (descriptive), and trying to explain a phenomenon (predictive). Ideally, good research should be able to elaborate all of the above purposes. However, this research will focus more on the descriptive and explanatory aspects.

Yin (2003) emphasises particularly at answering “why” and “how” research questions. By asking those particular questions, the research tends to be valuable in generating fresh perspectives of the phenomenon (Eisenhardt, 1989). This research is aiming at investigating the innofusion of e-banking, the main factors that influenced these strategic decisions, and the lessons that can be learned from this case. Thus, this research will employ semi-structured questions for the interviews in order to explore diffusion and management of innovation in the banking industry.

The interview questionnaire was adopted from The Community Innovation Survey (CIS), particularly UK CIS4 (which took place in 2005) and UK CIS5 (took place in 2007). UK CIS questionnaire items which are closed in nature were transformed into open-ended questions to anticipate more in-depth exploration of the issues. Several questions have been added, modified, and clarified in order to uncover and reveal the research question. Apparently, the UK CIS innovation survey also seems to be biased to technological innovation, while there are other interesting aspects to be elaborated such as service innovation, organisational innovation, user-led innovation, and also hidden innovation.

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The interview questionnaire has been tested through a pilot test involving several colleagues. Thanks to the precise formulation of interview questions, assisted by the supervisor, there were few changes that needed to be taken into account in the final version of the questionnaire. The only fundamental change was translating the questionnaire from English into Bahasa Indonesia. Some adjustments were also made because not all words and phrases in English can be translated “as-is” into Bahasa Indonesia without changing their meaning.

This research was composed using the following systematic and strategy. First was to identify topic to be researched and then to explain why the topic is worthwhile researching. The purpose and contribution of the research was also explained in detail. Then, a literature review was conducted to delve for information and to develop the data set to be used later. Data were then collected using primary or secondary sources. Analysis of the data was conducted and information regarding the results was then summarised, evaluated, discussed, and conclusions were drawn. Last but not least, the research limitations and obstacles were also explained along with the suggestions for further research.

3.4 Data Collection

Data and relevant information were collected using both primary and secondary data sources. Secondary sources may include newspapers, magazines, academic journals, trade reports, regulations, annual reports, and company websites. These secondary sources were analysed and integrated with data drawn from the direct interviews with respondents to ensure construct validity and to avoid post hoc rationalisation (Yin, 2003).

The interview is conducted to obtain primary data. Interviews were conducted with a number of senior banking officials in Indonesia. All of the interviewees were located in Jakarta, Indonesia. Contacts for the interview were obtained from the alumni network and friends of friends. The rest of the contacts were obtained by utilising the LinkedIn network or by direct cold calling to the banks.
The top ten Indonesian banks were selected using criterion sampling (Miles and Huberman 1994). All of these were approached either by preliminary email or telephone, but only four agreed to cooperate.\(^5\) Interviews were conducted over the phone using the Skype Internet telephony service. An additional plugin, called Callgraph, was used to record the conversations to be transcribed into a document. Most of the interviews were conducted during 11.00 am–2.00 pm Indonesian Time, or 4.00am–7.00am British Time. The interviews generally lasted on average about 45 minutes.

Before conducting an interview, two types of questionnaires were delivered: the respondent version and the researcher version (see Appendix). The respondent version contained general questions and was delivered before the interview. The researcher version was more extensive and contained some probing questions to assure that the research questions were covered well and also to anticipate if the respondents answered questions and to open up more in-depth discussion.

Data and information gathered were manipulated before being analysed using the following techniques (Miles and Huberman, 1994): data categorisation to highlight characteristics and comparisons, and data contextualisation to reveal unforeseen contextual relationships between particular events and circumstances. A preliminary analysis was then performed to consider each case separately and to systematically fold the variables. Finally, a cross-case analysis was performed to compare each case in order to obtain a general explanation of the observed phenomenon. This set of strategies will help in ensuring the reliability of the research (Yin, 2003).

### 3.5 Limitations of Method

Because this research uses a more qualitative approach, it inherits the weaknesses of naturalistic research. First, the research will value the data

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\(^5\) One more bank has been included in this study. Even though they are not on the top ten list, but continuously growing and improving, and fortunately agreed to be interviewed.
subjectively because the observation result is directly concluded by the researcher. Ideally, research should be more objective and value-free. The research is also vulnerable to intellectual bias because the researcher is familiar to the observed research object. Personal experience of the researcher might form a pre-understanding with the subjects of the research and the present understanding of the data situation under study (McAuley, 2004).

Secondly, choosing middle managers as the respondents can be viewed as deliberate as it could lead to particular insights, since middle managers often carry out a mediating role between the core and periphery of their organisations (Clegg, 2003). Although McCracken (1988) ensured that working with a few interviewees would be sufficient, it might imply a relatively low external validity as this research only involved an issue and phenomenon in a small number of banks.

However, it should be remembered that the available time for the research is only 3 months or less; therefore, observing all banks becomes unfeasible. This research also relies heavily on primary data, which usually takes a longer time to collect. As a result, the researcher must face a trade-off between the number of objects to be observed and the time available. Because this research is used as a requirement for the MSc programme, the researcher sets out more time factors and sacrifices the number of observation objects. However, these limitations are not believed to invalidate the discussion and analysis of this work.
Chapter 4  Data and Findings

“I do believe that in the not-too-distant future the internet and mobile banking service will be acceptable here just like in advanced countries where the infrastructure is already good. In Indonesia, the infrastructure is improving.” —Rico Usthavia Frans, Citibank’s VP for e-Business, early 2004

“In fact, our internet and mobile banking transactions have increased sharply and exceeds such transactions in any bank in Singapore, it has becomes more than just a fashion statement that we have mobile banking, but it’s really useful for our customers.” —Djohan Emir Setijoso, President Director Bank Central Asia (BCA)

4.1 ICT in Indonesia

In terms of percentage, penetration of the Internet in Indonesia is far behind that of other countries in Asia (Table 4.1). Not only does Indonesia have a low score for E-Readiness Index (ERI) and Network Readiness Index (NRI), but it also has devoted only a small percentage of its gross domestic products (GDP) to information and communication technology (ICT) implementation (Indjikian and Siegel, 2005). However, in terms of numbers, the Internet users in Indonesia are quite substantial and are very active. Unfortunately, data are unavailable for analysing the number of users and the level of skills/knowledge of the users. There are also no data available to explain how many users use the Internet for reading news, sending email, chatting, watching videos, downloading music, or managing business activities via the Internet.

Table 4.1. Internet Usage and Population Statistics per 2008

<table>
<thead>
<tr>
<th>Country</th>
<th>Users</th>
<th>Population</th>
<th>% Penetration</th>
<th>GDP p.c.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hong Kong</td>
<td>4,878,713</td>
<td>7,018,636</td>
<td>69.5%</td>
<td>US$ 43,800</td>
</tr>
<tr>
<td>India</td>
<td>42,000,000</td>
<td>1,129,667,528</td>
<td>3.7%</td>
<td>US$ 2,800</td>
</tr>
<tr>
<td>Indonesia</td>
<td>25,000,000</td>
<td>237,512,355</td>
<td>10.5%</td>
<td>US$ 3,900</td>
</tr>
<tr>
<td>Japan</td>
<td>94,000,000</td>
<td>127,288,419</td>
<td>73.8%</td>
<td>US$ 34,200</td>
</tr>
<tr>
<td>Malaysia</td>
<td>14,904,000</td>
<td>25,274,120</td>
<td>47.8%</td>
<td>US$ 15,300</td>
</tr>
<tr>
<td>Singapore</td>
<td>2,421,800</td>
<td>3,654,103</td>
<td>66.3%</td>
<td>US$ 52,000</td>
</tr>
<tr>
<td>Thailand</td>
<td>8,465,800</td>
<td>67,249,456</td>
<td>12.6%</td>
<td>US$ 8,500</td>
</tr>
</tbody>
</table>


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7 The Jakarta Post, Jakarta: 30 August 2005. Fee-based income boosts BCA revenue.
Table 4.2 shows that there has been a significant increase in the number of PC users and Internet users from year to year. Between 2003 and 2008, the number of PC users in Indonesia has doubled. Internet users in Indonesia in 2008 were four times more numerous than in 2003. Probable *raisons d’être* for these increasing numbers are: (1) technological advancement that makes Internet access easier and faster, and (2) decreasing cost of Internet access, which makes it widely available for everyone.

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCs in use</td>
<td>2,911.5</td>
<td>3,349.8</td>
<td>3,836.4</td>
<td>4,373.5</td>
<td>4,962.6</td>
<td>5,604.7</td>
</tr>
<tr>
<td>Internet users</td>
<td>8,080.5</td>
<td>11,226.1</td>
<td>16,000.0</td>
<td>21,284.4</td>
<td>27,100.4</td>
<td>33,276.6</td>
</tr>
<tr>
<td>Internet subscribers</td>
<td>865.7</td>
<td>1,087.4</td>
<td>1,500.0</td>
<td>2,070.2</td>
<td>2,727.1</td>
<td>3,411.9</td>
</tr>
<tr>
<td>ISDN subscribers</td>
<td>3.6</td>
<td>3.4</td>
<td>3.2</td>
<td>3.1</td>
<td>3.0</td>
<td>2.9</td>
</tr>
</tbody>
</table>


As shown in Table 4.2, there were an estimated 33 million Internet users in Indonesia in 2008. Despite its immense population of over 230 million, the Internet subscriber base is still relatively low. PC and Internet penetration, as well as income levels are comparably low outside Jakarta and other main cities. Limited purchasing power makes PCs (and other kinds of electronics and mobile devices that can be used to access the Internet) still largely out of reach for most Indonesians. However, increased competition between Telkom and Indosat—the market’s key players—could push prices down and encourage more people to sign up for Internet services.

Similar to what is seen for the Internet and PC users, mobile telephone users in Indonesia have also increased significantly in number over time. In 2003, at 18 million users, it increased more than five times into 94 million users in 2008. Initially, the service was monopolised by old players such as Telkomsel, Indosat, Satelindo (which then merged with Indosat), and XL. However, at the moment, many players have now entered the cellular provider market.

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8 There is a slight variance between the data in the table 4.1 and 4.2 because different sources have been used.
Table 4.3. Mobile Telephone Users in Indonesia

<table>
<thead>
<tr>
<th></th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile subscribers ('000)</td>
<td>18,495.3</td>
<td>30,336.6</td>
<td>46,910.0</td>
<td>63,803.0</td>
<td>79,911.3</td>
<td>94,205.7</td>
</tr>
<tr>
<td>Mobile calls (million minutes)</td>
<td>9,141.6</td>
<td>14,937.5</td>
<td>22,888.8</td>
<td>32,365.8</td>
<td>42,000.2</td>
<td>50,419.3</td>
</tr>
<tr>
<td>Mobile calls per subscriber (minutes)</td>
<td>494.3</td>
<td>492.4</td>
<td>487.9</td>
<td>507.3</td>
<td>525.6</td>
<td>535.2</td>
</tr>
<tr>
<td>Mobile telecom revenues (% of revenue)</td>
<td>41.3</td>
<td>44.8</td>
<td>47.4</td>
<td>49.9</td>
<td>52.4</td>
<td>54.9</td>
</tr>
</tbody>
</table>


In the GSM sector, there are Hutchison Charoen Pokphand Telecom (Three), Indosat (Mentari, Matrix, IM3), Natrindo Telepon Seluler (AXIS), Pasifik Satelit Nusantara (ByRU, PASTI), Telkomsel (simPATI, kartuAs, kartuHALO), and XL. For Mobile CDMA, there are Mobile-8 (Fren, Mobidi, Sampoerna Telekom (Ceria), and Smart Telecom. While for Fixed Wireless CDMA, there are Bakrie Telecom (Esia, Wifone, Wimode, EsiaTel), Indosat (StarOne), Mobile-8 (Hepi), and Telkom (TelkomFlexi).  

Table 4.4. Mobile Market Liberalisation

<table>
<thead>
<tr>
<th>Provider</th>
<th>2G</th>
<th>2.75G</th>
<th>3G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indosat</td>
<td>November 1994 (GSM 900/1800), August 2001 (GSM 1800);</td>
<td>2004 (EDGE)</td>
<td>November 2006 &amp; October 2007 (HSDPA), May 2004 (CDMA2000 1X), August 2006 (CDMA2000 1xEV-DO Rel. 0)</td>
</tr>
<tr>
<td>Excelcomindo</td>
<td>June 1996 (GSM 900/1800)</td>
<td>-</td>
<td>September 2006 (W-CDMA, HSDPA)</td>
</tr>
<tr>
<td>PT Natrindo Telepon Seluler (NTS)</td>
<td>April 2001 (GSM 1800)</td>
<td>-</td>
<td>February 2008 (W-CDMA)</td>
</tr>
<tr>
<td>PT Hutchison</td>
<td>March 2007 (GSM 1800)</td>
<td>-</td>
<td>March 2007, June 2007 (HSDPA)</td>
</tr>
</tbody>
</table>


The increasing number of users and mobile telephone providers is also balanced with the development of cellular phone technology. At the moment, mobile telephony is supported by operating systems such as Windows Mobile or

Symbian OS, which is equipped with software full of features and is very user friendly. According to Moore’s Law, technology such as mobile telephones or PCs will become more sophisticated with affordable prices (Schaller, 1997). This is suspected as one of the factors that will speed up the diffusion and adoption process of electronic banking, especially in Indonesia.

Table 4.5. Market Structure

<table>
<thead>
<tr>
<th>Sub Sector</th>
<th>Narrowband</th>
<th>Broadband</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State of Competition</strong></td>
<td>Competition</td>
<td>Competition</td>
</tr>
<tr>
<td><strong>Leading Players</strong></td>
<td>Telkom Multimedia, IndosatNet and others</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sub Sector</th>
<th>2G</th>
<th>2.75G</th>
<th>3G</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State of Competition</strong></td>
<td>Competition</td>
<td>Competition</td>
<td>Competition</td>
</tr>
<tr>
<td><strong>Leading Players</strong></td>
<td>Telkomsel, Indosat, Excelcom, NTS, PT Hutchison</td>
<td>Telkomsel, Indosat</td>
<td>Telkomsel, Indosat, Excelcom, NTS, PT Hutchison</td>
</tr>
</tbody>
</table>


Unfortunately, the same situation regarding data concerning Internet users in Indonesia also exists for data concerning the classification of the mobile telephone user: how many of them use mobile telephone for telephony, short message service (SMS), video calling, application download, Internet banking transaction, and so forth, is unknown. Therefore, it cannot be concluded directly that there is positive correlation between the Internet users and mobile phones for the diffusion and adoption of processes related to e-banking.
The Republic of Indonesia—located between the Pacific Ocean and the Indian Ocean—is the world’s largest archipelagic state (with more than 17,508 islands), the world’s third-largest democracy, and the world’s fourth most populous country. With more than 240 million population (July 2009), Indonesia still encounters with unemployment, lack of infrastructure, a complex bureaucracy, and disparate distribution among different regions. However the government has made enormous economic advances, thanks to the solid GDP growth, sound fiscal stewardship, significant reforms in the financial sector and investment law.

The nation’s capital city is Jakarta and the local currency is the Rupiah (Rp). The people of Indonesia consist of a large number of ethnic groups and acknowledge several religions and faith. Indonesia—lying along equator line with tropical climate—is the world’s second highest level of biological diversity. Indonesia is richly endowed with various natural resources such as natural gas, crude oil, coal, tin, gold, and copper. The agricultural products of Indonesia include palm oil, rubber, rice, tea, coffee, coconut, fruits, spices, and much more. The major trade partners of Indonesia are Japan, U.S., and neighbouring ASEAN countries.

Indonesia began an industrialisation process in the 1960s which emphasised the development of import substitution industries. After oil receipts in 1980s, Indonesia joined other Asian countries in encouraging export-led manufacturing sectors while domestic industry was protected under a regulatory shield. Liberal investment laws

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were enacted, bureaucratic red tape reduced, and duty-free zones established. Foreign investment rose sharply in the late 1980s and Indonesia became one of the successful “tiger” economies. After Asian crisis in late 1990s and another financial recession in 2008, Indonesia slowly restored its macroeconomic stability. Thanks to the exchange rate stabilisation, fiscal and balances reform, banking sector recapitalisation, and foreign debt restructuring.


4.2 Indonesian Banking Landscape

According to Law No. 7/1992 regarding Banking, as amended with Law No. 10, 1998, a bank is defined as a business entity that collects funds from the society in form of savings and distributes the funds to the society in form of loans or other forms in order to improve people’s living standard. There are three types of banks in Indonesia (Table 4.6): central bank, state-owned bank (bank persero), commercial bank (bank umum), and development bank (Bank Pembangunan Daerah/BPD) (Kamsir, 2002).

According to Law No. 23/1999 regarding Bank Indonesia, the central bank (Bank Indonesia) has a status and position as a completely independent institution and is free from the influence of government or other parties. Bank Indonesia has as its main purpose to constantly ensure the stability of the Indonesian Rupiah: stability of the Rupiah towards goods and services, and stability of the Rupiah towards other currencies.

Table 4.6. Commercial Banks in Indonesia Based on Total Assets

<table>
<thead>
<tr>
<th>Category of Bank</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Owned Banks</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Foreign Exchange Commercial Banks</td>
<td>35</td>
<td>34</td>
<td>35</td>
<td>35</td>
<td>35</td>
</tr>
<tr>
<td>Non-Foreign Exchange Commercial Banks</td>
<td>38</td>
<td>37</td>
<td>36</td>
<td>36</td>
<td>33</td>
</tr>
<tr>
<td>Development Banks</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>Joint Venture Banks</td>
<td>19</td>
<td>18</td>
<td>17</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Foreign Owned Banks</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>134</td>
<td>131</td>
<td>130</td>
<td>130</td>
<td>126</td>
</tr>
</tbody>
</table>

Source: Bank Indonesia (2009).

The state-owned bank is a bank of which part or all of the shares is owned by the government of Republic of Indonesia. The history of banking in Indonesia
cannot be separated from the era of Dutch colonisation and other foreigners such as China (Tiongkok), Japan, and Europe, which established banks in Indonesia. After the Independence Day, some banks were nationalised by the government, such as Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI), which used to be De Algemenevolks Crediet Bank or Syomin Ginko, and Bank Dagang Nasional Indonesia (BDNI).

Besides state-owned banks, there are also commercial banks owned by legal entities. A commercial bank can be further categorised as a foreign exchange commercial bank \((\text{bank umum devisa})\), a non-foreign exchange commercial bank \((\text{bank umum non-devisa})\), a joint venture bank \((\text{bank campuran})\), or a foreign bank \((\text{bank asing})\). A joint venture bank is a private bank established in Indonesia by one or more Indonesian citizens (and/or legal entity in Indonesia fully owned by Indonesian citizen), with one or more banks established in foreign countries.

Table 4.7. Indonesian Bank Rating Based on Assets

<table>
<thead>
<tr>
<th>No.</th>
<th>Bank Name</th>
<th>Total Asset*</th>
<th>Portion to Total Assets at Commercial Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bank Mandiri (Persero) Tbk</td>
<td>328.01</td>
<td>13.95%</td>
</tr>
<tr>
<td>2</td>
<td>Bank Rakyat Indonesia (Persero) Tbk</td>
<td>250.54</td>
<td>10.65%</td>
</tr>
<tr>
<td>3</td>
<td>Bank Central Asia Tbk</td>
<td>247.61</td>
<td>10.53%</td>
</tr>
<tr>
<td>4</td>
<td>Bank Negara Indonesia (Persero) Tbk</td>
<td>198.92</td>
<td>8.46%</td>
</tr>
<tr>
<td>5</td>
<td>Bank Danamon Indonesia Tbk</td>
<td>102.98</td>
<td>4.38%</td>
</tr>
<tr>
<td>6</td>
<td>Bank CIMB Niaga Tbk</td>
<td>74.48</td>
<td>3.17%</td>
</tr>
<tr>
<td>7</td>
<td>Pan Indonesia Bank Tbk</td>
<td>68.14</td>
<td>2.90%</td>
</tr>
<tr>
<td>8</td>
<td>Citibank NA</td>
<td>55.49</td>
<td>2.36%</td>
</tr>
<tr>
<td>9</td>
<td>Bank Permata Tbk</td>
<td>54.37</td>
<td>2.31%</td>
</tr>
<tr>
<td>10</td>
<td>Bank Internasional Indonesia Tbk</td>
<td>53.09</td>
<td>2.26%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1,433.63</td>
<td>60.95%</td>
</tr>
</tbody>
</table>


Lastly, there is also the rural development bank, in which part of all of the shares is owned by the provincial government. In Indonesia, banking practices have been spread out up to the villages. Beside commercial banks, there are also Bank Perkreditan Rakyat (BPR), Bank Umum Syari‘ah, and also BPR Syari‘ah (BPRS).

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11 Persero means that the majority of shares (more than 51%) are owned by government of Indonesia (state-owned banks). Tbk (or Terbuka) is a type of limited company in Indonesia which is permitted to offer its shares to the public, same as p.l.c in the UK.
After more than a quarter century since the deregulation in 1983, Indonesian banking has undergone many ups and downs, which have influenced the Indonesian economy. Indonesia adopted rapid liberalisation in the banking sector in 1988. The crisis of 1997 led the financial sector into chaos and required a bailout from the Government to ensure the stability of the Indonesian banking system (Santoso, 2000). The worst situation of the banking itself probably occurred during the multidimensional crisis in 1997 known as monetary crisis.

Indeed, the crisis and the restructuring program brought a new structure to the Indonesian banking system. Bank closures and recapitalisation programmes have affected a number of banks as well. Since that time, a number of new regulations have been issued in order to guarantee that the bank management is more prudent in managing the customers’ funds. Bank Indonesia (2008) has also developed *Bank Indonesia Government e-Banking (BIG-eB)* to improve the efficiency of payment services associated with government transfers. Still, the banking sector is not contributing sufficiently to the Indonesian GDP (Table 4.8).

Table 4.8. Indonesian Top-10 Sectors Ranked by Value Added

<table>
<thead>
<tr>
<th>No.</th>
<th>Business Sector</th>
<th>2008 Level (billion US$)</th>
<th>2009 % Change (real terms)</th>
<th>% Share of GDP (nominal basis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agriculture</td>
<td>72.7</td>
<td>3.8</td>
<td>13.6</td>
</tr>
<tr>
<td>2</td>
<td>Oil and Gas Mining</td>
<td>58.7</td>
<td>-3.8</td>
<td>11.0</td>
</tr>
<tr>
<td>3</td>
<td>Construction</td>
<td>36.1</td>
<td>-1.1</td>
<td>6.7</td>
</tr>
<tr>
<td>4</td>
<td>Wholesale Trade</td>
<td>34.9</td>
<td>2.6</td>
<td>6.5</td>
</tr>
<tr>
<td>5</td>
<td>Retail Trade - Total</td>
<td>27.7</td>
<td>2.3</td>
<td>5.2</td>
</tr>
<tr>
<td>6</td>
<td>Hotels and Restaurants</td>
<td>16.5</td>
<td>1.4</td>
<td>3.1</td>
</tr>
<tr>
<td>7</td>
<td>Telecommunications</td>
<td>15.5</td>
<td>13.6</td>
<td>2.9</td>
</tr>
<tr>
<td>8</td>
<td>Tobacco Products</td>
<td>10.7</td>
<td>0.2</td>
<td>2.0</td>
</tr>
<tr>
<td>9</td>
<td>Food Products</td>
<td>10.3</td>
<td>-2.1</td>
<td>1.9</td>
</tr>
<tr>
<td>10</td>
<td>Land Transport</td>
<td>9.0</td>
<td>-0.7</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td><strong>Top-10 Total</strong></td>
<td><strong>292</strong></td>
<td></td>
<td><strong>54.6</strong></td>
</tr>
</tbody>
</table>


At this point in time, innovation in a bank’s products and services has increased significantly, thus make it difficult to differentiate from the products and services of other institutions (Bank Indonesia, 2008). Customers have become more aware and familiar with various kinds of products and services, and this can be

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12 BIG-eB is legislated by Law No. 1/2004 regarding the state treasury.
considered as a positive sign in financial sector development in Indonesia. However, it should be noted that without proper regulation and risk management, banks are exposed to greater risk, which in turn may harm their customers.

4.3 ATMs in Indonesia

Bank Central Asia (BCA) introduced ATMs in 1979 by Mochtar Riady—a strategy which was considered odd at that time.\textsuperscript{13} Bank Niaga then implemented ATMs in 1980 by Robby Djohan.\textsuperscript{14} The first time they were launched, people considered ATMs to be a weird thing. The hesitation to do transactions using these machines was very frequent. It was 15 years before ATMs were well accepted by BCA customers. In 1993-1994, BCA ATMs underwent a boom and this was followed by other banks, which continued to increase the number of their ATMs (Table 4.9).

Table 4.9. ATM Cards Performance in Indonesia

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactions (million)</td>
<td>640.0</td>
<td>668.8</td>
<td>694.9</td>
<td>717.8</td>
<td>737.2</td>
<td>753.4</td>
</tr>
<tr>
<td>Transaction value (Rp trillion)</td>
<td>399,992.9</td>
<td>420,249.7</td>
<td>438,036.7</td>
<td>454,528.1</td>
<td>468,620.9</td>
<td>481,564.7</td>
</tr>
</tbody>
</table>


Nowadays, even though cash is still the preferred method of payment, ATMs are widespread. In 2007, ATM cards issued by leading banks in Indonesia offered dual debit functionality, carrying the logos of operators such as Prima, ATM Bersama, MasterCard, and Visa Electron. Debit card transactions in Indonesia were conducted either via personal identification number (PIN) for local debit operators or signature for international logos Visa or MasterCard. Local cards were usually limited with daily amounts of Rp 5 million or Rp 10 million transactions, while international cards could be used up to Rp 15 million. ATM/debit cards can now be used not only to withdraw cash, but also to pay telephone bills, top-up credit for mobile phones, pay utility bills, pay credit card charges, make inter-bank transfers, and so on.

\textsuperscript{13} http://swa.co.id/swamajalah/artikellain/details.php?cid=1&id=4724&pageNum=2
\textsuperscript{14} http://majalah.tempointeraktif.com/id/arsip/2004/01/19/WAW/mbm.20040119.WAW87974.id.html
Table 4.10. Debit Cards Performance in Indonesia

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>36.9</td>
<td>38.9</td>
<td>41.3</td>
<td>44.1</td>
<td>47.2</td>
<td>50.7</td>
</tr>
<tr>
<td>Transactions (million)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transaction value (Rp bn)</td>
<td>16,972.3</td>
<td>17,973.8</td>
<td>19,186.4</td>
<td>20,543.6</td>
<td>22,080.5</td>
<td>23,902.7</td>
</tr>
</tbody>
</table>


Table 4.11. Debit Cards Issuer in Indonesia

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4,214.2</td>
<td>4,252.5</td>
<td>4,358.8</td>
<td>4,472.0</td>
<td>4,614.8</td>
</tr>
<tr>
<td>Bank Mandiri</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank Central Asia (BCA)</td>
<td>4,029.9</td>
<td>4,064.9</td>
<td>4,078.4</td>
<td>4,030.0</td>
<td>3,989.7</td>
</tr>
<tr>
<td>Lippobank</td>
<td>1,658.7</td>
<td>1,751.0</td>
<td>1,848.0</td>
<td>2,015.0</td>
<td>2,127.8</td>
</tr>
<tr>
<td>Bank Negara Indonesia (BNI)</td>
<td>1,105.8</td>
<td>1,275.8</td>
<td>1,312.7</td>
<td>1,365.0</td>
<td>1,423.0</td>
</tr>
<tr>
<td>Bank Internasional Indonesia</td>
<td>442.3</td>
<td>450.3</td>
<td>446.1</td>
<td>429.0</td>
<td>399.0</td>
</tr>
<tr>
<td>Others</td>
<td>6,242.9</td>
<td>7,631.6</td>
<td>8,952.2</td>
<td>11,163.8</td>
<td>13,091.8</td>
</tr>
<tr>
<td>Total</td>
<td>17,693.7</td>
<td>19,426.2</td>
<td>20,996.3</td>
<td>23,474.8</td>
<td>25,646.0</td>
</tr>
</tbody>
</table>


The data from Bank Indonesia, until the second quarter of 2007, has noted that 54 banks have issued ATM cards. There are also 21 credit card issuers, consisting of banking institutions, non-banking institutions, and syariah units of a bank. The number of banks issuing ATM and also debit cards was 37 banks. BCA—with more than 5,000 ATM machines—continued to dominate the market with an estimated Rp 558 trillion or 315 million transactions in 2006, followed by Bank Mandiri with more than 2,800 ATMs—up from 2,500 in the previous year.\(^{15}\)

In Indonesia, four local consortiums developed ATM channels and provided the “switching” links to the majority of ATM machines: Rintis Sejahtera, Artajasa Pembayaran Elektronis, Daya Network Lestari, and Sigma Cipta Caraka under the name of Prima, ATM Bersama, ALTO, and Cakra brands. ATM Bersama had more than 10,000 machines with over 65 member banks in 2007, followed by Prima, Link, ALTO, and Cakra.\(^{16}\) ATM channels enable account holders of a particular bank to perform routine transactions at ATMs owned by other banks within the same channels.


\(^{16}\) Euromonitor International. Data retrieved 1 April 2009.
Earlier this year, Bank Indonesia enacted the Regulation on Electronic Money No. 11/12/PBI/2009, which attempted to encourage the nation to move a step further towards a cashless society.\(^\text{17}\) Bank Indonesia particularly emphasised the usage of chip-based prepaid cards for the purposes of high-volume-but-small-value transactions such as toll payments, fuel payments, grocery shopping, and bill payments. BCA and Bank Permata launched pre-paid cards during the review period; however, the exposure and visibility of these cards remained low. Not only was the number of retailers and merchants that were willing to accept those cards still limited, but apparently people still preferred and accepted debit cards better.

\[\text{Box 4.2. Smart Cards, Pre-Paid Cards, and Store Cards}\]

\[\text{Figure 4.2. BNI-ITB Smart Cards}\]

\[\text{Source: Company website}\]

Smart cards are relatively new in Indonesia, compared to ATM cards and debit cards. Although magnetic-striped cards dominate the market, a number of banks have introduced chip-based smart cards complying with Bank Indonesia regulation. Smart cards in Indonesia also introduced by leading local university such as Institut Teknologi Bandung (ITB), Universitas Gadjah Mada (UGM), and Universitas Indonesia (UI). They partnered with Bank Negara Indonesia (BNI) to provide its student ID cards using chip-based smart cards to store students’ information, perform debit transactions, and providing Internet access.

Angkasa Pura, partnered with American Express and Bank Danamon, also provided smart cards that can be used as ID cards for frequent business travellers allowing them

\[\text{17} \text{ Previously, in 2007 Bank Indonesia has published a study on the applications of e-wallets in Indonesia.}\]
immediate access through immigration checkpoints at Soekarno-Hatta International Airport. In late 2006, Bank DKI also launched its “JakCard” which is chip-based pre-paid cards that can be used to withdraw money from ATM machines and micropayments at a number of places, including entrance fees to amusement park Taman Impian Jaya Ancol.

Table 4.12. Smart Cards Sector Performance

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of circulation (mn)</td>
<td>0.9</td>
<td>0.9</td>
<td>1.1</td>
<td>1.2</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Source: Euromonitor International, data retrieved 4 June 2009

Indonesian Ministry of Transportation also recently announced the implementation of contactless smart card in Jakarta Outer Ring Road II to reduce traffic at toll gates. In Indonesia, smart cards manufactured by Indoartha Ciptalestari, Number One Card, as well as international manufacturer Gemplus and Korean Aju Media Solutions. It is believed that the demand for smart cards will increase significantly as Bank Indonesia's goal to moving the nation towards cashless society in the next few years.

Similarly, pre-paid cards in Indonesia also emerge gradually as it becomes popular to pay groceries, parking fees, toll payments, bus tickets, and other kind of micro payments. Bank Permata introduced its e-wallet card partnered with Indofood Sukses Makmur and Motorola just a few years ago. Pertamina, state-owned oil and gas company, launched Pertamina Gaz Card, allowing its users to pay conveniently at the gas station. Pertamina also introduced Pertamina Aviation Card catered to airline companies who purchased fuel regularly from them which accepted in local and international airport terminals.

Table 4.13. Pre-paid Cards Sector Performance

<table>
<thead>
<tr>
<th>Year</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of transaction (mn)</td>
<td>2.5</td>
<td>2.6</td>
<td>2.7</td>
<td>2.9</td>
<td>3.0</td>
</tr>
<tr>
<td>Transaction value (Rp bn)</td>
<td>50.00</td>
<td>52.25</td>
<td>54.75</td>
<td>57.33</td>
<td>60.19</td>
</tr>
</tbody>
</table>

Source: Euromonitor International, data retrieved 4 June 2009

In 2007, Bank Central Asia (BCA) also entered the industry with its BCA Flazz Card that can be used in a number of food outlets and stores. BCA also committed to spread the usage of its pre-paid cards as BCA has competitive advantage over electronic data capture (EDC) terminals at a lot of strategic public outlets in Indonesia. However, inadequate infrastructure and high costs of installing EDC remained the most significant barriers in spreading pre-paid cards. Secondly, security over pre-paid cards becomes other concerns as it can be quite difficult to reclaim or block when the cards were lost or stolen.

Last but not least, there are also a number of store cards offered by leading retailers such as Carrefour, Matahari, and Metro. They distributed their own ‘loyalty cards’ partnered with a number of financial institutions such as LippoBank (now merged with Bank CIMB Niaga) and GE Consumer Finance. Although it was introduced in 2007, store cards become a more popular choice as it offers discounts, credit means for particular electronic products, and other benefits.

Source: Euromonitor International: Country Sector Briefing Indonesia, March 2008
4.4 Internet and Mobile Banking in Indonesia

In 1997, PT Bank Papan Sejahtera (BPS) became the first to introduce on-line banking services, making it the first bank outside the U.S. to use the U.S. banking security system.\textsuperscript{18} Although a number of financial institutions in Indonesia have their own websites, BPS claimed to be the first bank to offer transactions through its website. BPS has invested US$ 500 million in this facility to provide its customers with facilities related to commonly known general banking transactions, such as current account information, payment of telephone bills and housing loans, fund transfers and changing personal identification numbers (PIN). This service will also allow customers to see details of their transactions for the past two months.

At the same time, the Tirtamas Group, which owns BPS, inaugurated Infomas, an IT company that provides banking services such as banking working relationships, integrated banking apparatus systems, the Internet, Intranet and managerial consultancy. Infomas, which was set up with an investment of Rp 21 billion, enjoys the support of IBM Corp, Lotus, Hughes and other foreign consultancy institutes. Unfortunately, the financial crisis in 1997 has forced BPS to shut down its operations.

In 2000, Panin Bank, a merger of three private national banks, launched the first mobile banking services in Indonesia.\textsuperscript{19} They were partnered with Telkomsel, one of Indonesia’s leading mobile phone operators, to integrate banking and cellular technology and offer their customers full access to banking services, including performing routine transactions. IBM and eMobile Pte. Ltd (Singapore) provide Panin Bank and Telkomsel with transaction security technology to assure safety for their users.

In the following year, of the top 10 largest banks in Indonesia, only four offered Internet banking services. They were Bank Bali, Bank Central Asia (BCA), Bank Internasional Indonesia (BII), and LippoBank.\textsuperscript{20} In 2003, only Bank Danamon and


\textsuperscript{19} Indonesian Observer, Jakarta: 24 August 2000, Panin Mobile Banking Services.

\textsuperscript{20} The Jakarta Post, Jakarta: 12 February 2001. E-banking inevitable, but too early for local banks.
Citibank had begun offering mobile banking services. Probably Internet banking and mobile banking at that time were too early for Indonesians. Not only was there a lack of infrastructure, the unavailability of human resources and lack of management awareness made it difficult to develop profitable e-banking channels. However, not doing so could cost banks an opportunity loss to their business.

Indeed, implementing Internet and mobile banking can be very costly and may face resistance and challenge from within the bank due to different management priorities. An international research institution estimated that every transaction costs US$1.07 at the branch office, US$ 0.27 via ATMs, and a mere US$1 using mobile banking. Internet banking in Indonesia typically requires an investment of US$15 million to $50 million (around Rp 180 million), while investment in an ATM machine requires US$ 15,000 to US$ 20,000 and investment of an electronic data capture (EDC) machine requires US$ 4,000. Thus, only a small number of banks are healthy enough to put Internet and mobile banking as a priority and to achieve the economies of scale to make it profitable.

Despite the increasing popularity of Internet and mobile banking, ATMs still dominate the majority of transactions. For example, more than 90% of electronic banking transactions in Bank Mandiri are dominated by ATMs. The same situation occurred in Bank Rakyat Indonesia (BRI) where 7 million of 7.3 million monthly transactions are performed from their ATM machines. However, as mentioned by Inkawan Jusi, Group Head Mass and Electronic Banking Bank Mandiri and Hartono Sukiman, Corporate Secretary Bank Rakyat Indonesia, in the near future, as Internet users in Indonesia reach a critical mass, investment in e-banking will become feasible.

Unfortunately, there are no complete and comprehensive data concerning Internet banking and mobile banking in Indonesia. One source says that the volume of total e-banking transactions in the second quarter of 2007 has reached 298.65 million or increased 8.04%, compared to the previous quarter. From the

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23 Kontan, Jakarta: 30 April 2008. ATM Masih Mendominasi Layanan Elektronik.
value aspect, it reached Rp 419.86 trillion, increasing 19.6% compared to the previous quarter. The increase in transactions was still dominated by fund transfer transactions using ATMs and ATM+Debit. See Table 4.14 for more comprehensive precedents and notable events concerning Internet and mobile banking in Indonesia.

Table 4.14. Some Precedents and Notable Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>First ATM in Indonesia has introduced by Bank Central Asia.</td>
</tr>
<tr>
<td>1993</td>
<td>PT Artajasa Pembayaran Elektronis initiated the first shared ATM network in Indonesia, adopted from Megalink, an interbank network in Philippines.</td>
</tr>
<tr>
<td>1994</td>
<td>PT Daya Network Lestari/PT Alto Network initiated their shared ATM network named ALTO with 180 ATMs plugged into its network at that time.</td>
</tr>
<tr>
<td>1997</td>
<td>PT Bank Papan Sejahtera (BPS) introduced the first online banking in Indonesia. Unfortunately, a financial crisis a few months later forced BPS to shut down its operations.</td>
</tr>
<tr>
<td>October 1997</td>
<td>Asian financial crisis forced Indonesian banks to be closed, merged, and nationalised. The massive real depreciation of the rupiah and the sharp rise in interest rates led to the insolvency of many banks. Most of the assets of the banking sector were managed by the Indonesian Bank Restructuring Agency (IBRA).</td>
</tr>
<tr>
<td>1998</td>
<td>Due to globalisation, Indonesian government took out the ban on foreign investment in March 1998. There have been numerous changes to market competition because of incoming foreign investors, particularly a significant ICT investment growth in many business sectors.</td>
</tr>
<tr>
<td>February 2000</td>
<td>Bank Central Asia (BCA) has initiated their Internet banking solutions.</td>
</tr>
<tr>
<td>2000</td>
<td>Panin Bank launched the first mobile banking services in Indonesia. They were partnered with Telkomsel, IBM, and eMobile Pte. Ltd.</td>
</tr>
<tr>
<td>2000</td>
<td>Bank Indonesia successfully implemented a real-time gross settlement (RTGS) system.</td>
</tr>
<tr>
<td>2001</td>
<td>Of the 10 largest banks, only four offered Internet banking: Bank Bali, Bank Central Asia (BCA), Bank Internasional Indonesia (BII), and LippoBank. E-banking implementation required radical innovation and cost a lot of money. Internet banking typically required an investment of US$15 million to $50 million.</td>
</tr>
</tbody>
</table>

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26 http://en.wikipedia.org/wiki/ATM_Bersama
27 http://main.alto.co.id/
31 Bank Technology News, 1 February 2000. Asia Bank Internasional Indonesia: Against the odds, a Southeast Asian bank makes strides in e-commerce. (Company Business and Marketing)
Table 4.14. (cont.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Events</th>
</tr>
</thead>
</table>
| 2002    | Bank Indonesia has successfully implemented an inter-city clearing system. There was an increasing demand for more sophisticated cash management solutions and electronic delivery channels. However, local banks were not yet ready to compete with the foreign banks to offer e-banking services to business clients as they were more focused on individual customers.  
| 2003    | The number of mobile phone users reached 18.5 million. Bank Danamon and Citibank began offering mobile banking while others still preparing to launch their own services. BCA’s mobile banking users leapt to more than to 3.6 million from only 304,719 users in 2001 with the value of transaction of Rp 272.58 billion (US$32.07 million).  
36 The Jakarta Post, Jakarta: 30 August 2005. Fee-based income boosts BCA revenue. |
| 2004    | PT Artajasa Pembayaran Elektronis made a cross-border ATM Bersama with partner provider MEPS (Malaysia), NETS (Singapore), and ITMX (Thailand) to service Indonesians there.  
37 http://www.artajasa.co.id/atmbersama.htm |
| 2004    | By 2004 the value of Internet banking transactions were Rp 2.96 trillion (about US$321.73 million), increased from Rp 621 billion last year. The number of Internet banking customers were 424,000, increased from 290,000 (1.79 percent of the banks’ total customers) in 2003. About 81 percent of customers used the Internet banking service to check account balances, while the remaining transferred money or paid bills.  
| 2005    | A number of the top 20 banks were now controlled by foreign owners, i.e. Bank Buana, Bank Danamon, Bank Internasional Indonesia (BII), Bank Niaga, Bank NISP, Bank Panin, Bank Permata, and LippoBank. It is believed that foreign ownership has encouraged the industry to become more innovative and competitive.  
| 2005    | Bank Indonesia implemented Sistim Kliring National (SKN), a paperless national clearing system based in Jakarta. The new system has helped banks reduce their operating costs and improve receipt of funds from three days to one. This project has completed in all major cities in Indonesia by 2007. More local banks had developed electronic systems to win back cash management business that had been previously dominated by foreign banks.  
| March 2007 | Bank Indonesia enacted a memorandum of understanding (MoU) of ATM cards and debit cards technical standard named as NSICCS (National Standard Indonesia Chip Card Specification) between 3 ATM networks: PT Artajasa Pembayaran Elektronis (ATM Bersama), PT Daya Network Lestari (ALTO), and PT Rintis Sejahtera (Prima). In January 2007, 8.3 million credit cards and 31.8 million ATM-debit cards were issued.  
41 See Bank Indonesia, Press Release No.9/14/PSHM/Humas. |
Table 4.14. (cont.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2008</strong></td>
<td>Bank Indonesia enacted the ‘single presence policy’, whereby investors would only be allowed to maintain a controlling stake in one bank within Indonesia. Current investors were given options to resolve this issue: reduce direct ownership, merge or consolidate, or form a holding company. The regulation directly affects Temasek Group (controls Bank Danamon and Bank International Indonesia (BII)), Malaysian Khazanah Asset Berhad (Bank Niaga and LippoBank), and the government (which controls Bank Mandiri, Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI) and Bank Tabungan Negara (BTN)).</td>
</tr>
<tr>
<td>November 2008</td>
<td>The government of Indonesia enacted the Law on Electronic Information and Transactions, No. 11/2008 which is the first to accommodate online transaction, including electronic fund transfer, e-government, capital market, online taxation, and online banking.</td>
</tr>
<tr>
<td>September 2008</td>
<td>Indonesia’s economy was once again facing a difficult period through one of world’s deepest recessions. Although exposure to volatile global energy and other primary commodities’ prices was quite high, Indonesia was better off than many of its regional peers, partly due to its lesser export dependence and a more resilient domestic economy.</td>
</tr>
<tr>
<td><strong>June 2009</strong></td>
<td>Bank Indonesia enacted the Regulation on Electronic Money No. 11/12/PBI/2009 which attempted to encourage the nation to move a step further towards a cashless society. Previously, in 2007 Bank Indonesia has published a study on the applications of e-wallets in Indonesia.</td>
</tr>
<tr>
<td><strong>June 2009</strong></td>
<td>Indonesia plans to allocate the remaining US$154.8 million universal service obligation (USO) fund to finance the Palapa Ring project and to develop Internet infrastructure on the sub-district level. At the moment, Internet access, particularly in the rural areas, is also highly insufficient and it is on the government’s agenda to stimulate roll-out of Internet infrastructure in the underserved areas.</td>
</tr>
</tbody>
</table>

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42 See Bank Indonesia Regulation No 8/16/PBI/2006 concerning Single Presence Policy.
44 Bisnis Indonesia, Jakarta: 25 June 2009, Remaining USO Funds to be allocated to Palapa Ring.
Chapter 5  Discussion and Analysis

“One cannot seek knowledge about an innovation until he or she knows it exists.”
—Everett M. Rogers

“I believe that radical changing landscape for the electronic delivery of retail banking services will be very interesting. Paper money and coin will become extinct. More and more people doing Internet banking as computer and mobile devices become cheap and affordable. I cannot imagine the mobilisation of money in the near future.” —NN, interviews, 23 June 2009

5.1 Innofusion Framework

To sharpen the examination, several interviews were conducted to analyse the innofusion of electronic banking in Indonesia. Indeed, it was necessary to take into account together both theoretical and empirical frameworks, and to develop an approach to uncover e-banking practices in Indonesian banks. The assimilation of an innovation begins from a firm’s initial awareness and evaluation of the innovation (Rogers, 1995). This initial stage includes identifying needs and problems, prioritising them, and then searching the potential usefulness of innovation to meet the organisation’s requirements (Rogers, 1995).

Rogers (1995) also emphasised that relative advantage, observability, trialability and complexity are the main factors in influencing new technology adoption. In the case of e-banking, relative advantage can be represented in terms of cost efficiency, customer loyalty, or organisational performance. Observability can be represented in terms of customers being able to see the advantage and positive impact of adoption, i.e., convenience in performing their routine transactions. Trialability means that the customer has a choice of these new services, while complexity means that more complex the e-banking innovations are adopted more slowly.

Other factors are also believed to influence adoption, such as compatibility, perceived risk, and effective marketing (Lockett and Littler, 1997). Compatibility means that innovation is easier to adopt if it compatible with the values or beliefs
of the individual or group. Perceived risk can be referred to the financial risk, physical risk, and social risk associated with e-banking. Perceived innovation may be used to indicate the adoption behaviour instead of personal characteristics (Lockett and Littler, 1997).  

A complementary concept ‘innofusion’ can characterise how banks adopt and incorporate users’ innovation feedback loop improvements (Robertson et al., 1996). Innofusion views technology as emerging as stable solutions that can be applied directly in the subsequent phase of diffusion (Fleck, 1993). On the other hand, users and customers also play an important role in the innovation processes, as they have strong influences in the social side of innovations, thus improving and modifying the products to shape technological innovation in all its phases (Baskerville and Pries-Heje, 1998; Oudshoorn and Pinch, 2003).

The term ‘innofusion’ refers to innovation activities taking place after initial design and implementation of technologies. Innofusion challenges the “old” linear model of innovation. However, the perception of “generic” technology might be problematic. The design and development of a “generic” technology happens where all possible user requirements and circumstances are anticipated in the design of the system prior to the first adoption (McLoughlin, 1999).

In contrast, configurational technologies, such as e-banking, are largely shaped in each application by user requirements and particular situations. There is a move to uncover inter- and intra-organisational processes, interpretations, and actions that inform innofusion in partner with configurational technology and its suppliers (McLoughlin, 1999). That is where e-banking is adopted in Indonesian banks and which possibly has some degree of interpretative flexibility in use. This is where the role of the consultant may help in filling the gap between technology design and use in context.

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45 User perception of technology adoption can be explained further by the theory of acceptance model (TAM), theory of planned behaviour, and theory of reasoned action. See Ajzen (1991), Davis et al. (1989), and Karahanna et al. (1999).
5.2 E-banking Practices in Indonesia

This study focused on the ten largest banks in Indonesia, as these tend to be more innovative than the others. These banks also tended to be more “open” and “approachable”, thanks to the help of friends and alumni networks. From the 10 largest banks in Indonesia, only four responded and agreed to be interviewed. Those banks are Bank Internasional Indonesia (BII), Bank Negara Indonesia (BNI), Bank Mandiri, and Bank X.\textsuperscript{46} Bank Mega is not on the top ten list, but continuously improving and increasing their assets significantly over the last few years.

As shown from the interviews (Table 5.1), banks have begun to build awareness when they actively search for customers’ needs and also what their competitors do to satisfy these. According to Mochtar Riady, a senior banker in Indonesia, banking business—either consumer banking or corporate banking—is a trade of trust, not a trade of money.\textsuperscript{47} Customers are willing to deposit their money in the bank because they believe in that bank. It is not a guarantee such as letter, but it is more than just a trust. Customers’ trust must be a business philosophy. Most respondents interviewed in this research acknowledged that the primary driver of innovation is the customer.

Basically, a bank is willing to do anything to guarantee the relationship and customers’ satisfaction. Banks receive feedback from customers from various channels, such as private customer relationships, customer gatherings, customer complaints, readers’ mail, etc. This feedback becomes the input for the bank to innovate. A senior banker official expressed his view regarding this situation:

\textit{The customer plays an important role. We conducted surveys actively, [so] customers may give invaluable input for us to innovate. We also often conduct customer gatherings, including the complaints, so that we can take further actions (Budi Harsono, interview, 5 May 2009).}

\textsuperscript{46} One of the top ten banks in Indonesia. Name withheld by respondent’s request.
\textsuperscript{47} http://swa.co.id/swamajalah/artikellain/details.php?cid=1&id=4724&pageNum=2
Table 5.1. Summary of Interviews

<table>
<thead>
<tr>
<th>Banks</th>
<th>BII</th>
<th>BNI</th>
<th>Bank Mandiri</th>
<th>Bank X</th>
<th>Bank Mega</th>
</tr>
</thead>
<tbody>
<tr>
<td>nature of organisation</td>
<td>foreign-exchange commercial bank</td>
<td>state-owned bank</td>
<td>state-owned bank, largest bank in terms of asset</td>
<td>foreign-exchange commercial bank</td>
<td>foreign-exchange commercial bank</td>
</tr>
<tr>
<td>interviewee</td>
<td>Channel Management Group Division</td>
<td>Change Management Office Division</td>
<td>Mass &amp; Electronic Banking Group</td>
<td>IT Planning &amp; Architecture Group</td>
<td>Information Technology Group Head</td>
</tr>
<tr>
<td>start using this sort of financial innovation</td>
<td>1990s (ATM), 1998 (Internet banking), 2002 (mobile banking)</td>
<td>2007 (Internet banking), 2002 (mobile banking)</td>
<td>2002 (Internet banking), 2003 (mobile banking)</td>
<td>late 1980s (ATM), early 2000s (Internet and mobile banking)</td>
<td>around 1990s (ATM), 2001 (Internet banking), 2005 (mobile banking)</td>
</tr>
<tr>
<td>factors that influence innovation</td>
<td>market (competitor and customer)</td>
<td>customer, technological advancement</td>
<td>internal management</td>
<td>competitor</td>
<td>customer</td>
</tr>
<tr>
<td>cooperation and partnership</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>organise and manage this sort of innovation</td>
<td>project manager in the business unit level</td>
<td>develop internally in business unit level</td>
<td>dedicated business group</td>
<td>small cross-departmental group</td>
<td>dedicated department</td>
</tr>
<tr>
<td>legal act to protect innovation</td>
<td>no</td>
<td>no</td>
<td>patent and confidential agreement</td>
<td>no, probably confidential agreement</td>
<td>patent, to some extent</td>
</tr>
<tr>
<td>factors that constrain innovation</td>
<td>cost</td>
<td>organisational bureaucracy</td>
<td>none</td>
<td>cost</td>
<td>none</td>
</tr>
<tr>
<td>difficulties in using this innovation</td>
<td>n/a</td>
<td>n/a</td>
<td>aligning changing technology and customer needs</td>
<td>n/a</td>
<td>lack of readiness of third party</td>
</tr>
<tr>
<td>Innovative-ness</td>
<td>ranks 5th</td>
<td>quite innovative</td>
<td>ranks 1st-2nd</td>
<td>top 5</td>
<td>n/a</td>
</tr>
<tr>
<td>main benefit of e-banking innovation</td>
<td>fee-based income, individual and organisational learning</td>
<td>fee-based income, company’s image</td>
<td>customers’ loyalty, fee-based income, cost efficiency</td>
<td>fee-based income</td>
<td>fee-based income</td>
</tr>
<tr>
<td>future of e-banking innovation</td>
<td>more feature development, better integration</td>
<td>feature enrichment, consolidation</td>
<td>more integrated, full of feature</td>
<td>cashless transaction, increasing popularity of Internet banking</td>
<td>better feature, complicated, but integrated</td>
</tr>
<tr>
<td>perception on other sorts of innovation?</td>
<td>aligned together, support each other</td>
<td>more emphasis on system innovation and internal organisation</td>
<td>every innovation proceeds with the needs priority</td>
<td>every innovation treated equally</td>
<td>must be in line with organisational structure, corporate strategy, and resources</td>
</tr>
<tr>
<td>particularly good practice of financial innovation</td>
<td>bill payment</td>
<td>innovation ATM, credit scoring and processing</td>
<td>online transaction between branches and headquarter</td>
<td>n/a</td>
<td>electronic data capture integration between Bank Mega and Bank Mega Syariah</td>
</tr>
</tbody>
</table>

Source: Author; data collected from interviews.
The factor of customer perception is also an important aspect in supporting innovation. For example, the failure of a mobile banking system in BNI has created the perception that mobile banking is not fully safe; therefore, customers tend to show little interest in it. Another example is that the skimmer of ATMs, where the bank has completely upgraded their system and security of their ATMs—even though this case occurred at another bank. As expressed in one of respondent’s views:

_After finding out the above case, [we] then decided to apply new technology or buy a new one. Because [we] could not afford to face any risks, as long as the technology was suitable, then [we] will buy it directly._

_A bank worries when customers’ trust is low and customers withdraw their money or switch to other banks (NN, interview, 14 April 2009)._ 

Another factor that becomes the driver of innovation is technological improvement. Sometime customers do not really need a particular improvement, but the technology has developed regardless. As a result, willing or not, the bank must upgrade their technology. Sethi and King (1994) state that the potential of IT to enhance a firm’s performance is a significant motivation for them to adopt IT. However, upgrading technology opens up another business opportunity that could be utilised by the bank. It is obvious that the incremental innovation in the technological aspect was because of the perception that it could shorten the processing time, improve security, guarantee uptime, etc. Indeed, it should be noted that massive investments in IT may not always be translated into significantly increased productivity (Harris, 2001).

5.3 Firm Size and Innovativeness

The relation between firm size and innovativeness has been a debate since Schumpeter’s (1942) argument that large firms are tend to be more innovative than are smaller firms (Brown, 1981). This research tried to take samples from the ten largest banks in Indonesia and compare firm age, firm size, and the time that Internet banking and mobile banking were introduced. Because the sample taken
was relatively small, statistical analysis cannot be used as the basis of the conclusion.

Table 5.2. Correlations Analysis

<table>
<thead>
<tr>
<th></th>
<th>Firm Age</th>
<th>No. of Branches</th>
<th>No. of ATMs</th>
<th>No. of Employees</th>
<th>Internet Banking</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Branches</td>
<td>Pearson corr</td>
<td>0.453</td>
<td>-0.159</td>
<td>0.482</td>
<td>-0.469</td>
</tr>
<tr>
<td></td>
<td>P-Value</td>
<td>0.189</td>
<td>0.020</td>
<td>0.660</td>
<td>0.159</td>
</tr>
<tr>
<td>No. of ATMs</td>
<td>Pearson corr</td>
<td>-0.159</td>
<td>-0.469</td>
<td>0.482</td>
<td>-0.356</td>
</tr>
<tr>
<td></td>
<td>P-Value</td>
<td>0.020</td>
<td>0.049</td>
<td>0.671</td>
<td>0.012</td>
</tr>
<tr>
<td>No. of Employees</td>
<td>Pearson corr</td>
<td>0.482</td>
<td>0.159</td>
<td>0.671</td>
<td>0.313</td>
</tr>
<tr>
<td></td>
<td>P-Value</td>
<td>0.660</td>
<td>0.034</td>
<td>0.459</td>
<td>0.012</td>
</tr>
<tr>
<td>Internet Banking</td>
<td>Pearson corr</td>
<td>-0.469</td>
<td>0.171</td>
<td>0.200</td>
<td>0.313</td>
</tr>
<tr>
<td></td>
<td>P-Value</td>
<td>0.159</td>
<td>0.034</td>
<td>0.671</td>
<td>0.012</td>
</tr>
<tr>
<td>Mobile Banking</td>
<td>Pearson corr</td>
<td>-0.356</td>
<td>-0.752</td>
<td>0.299</td>
<td>0.313</td>
</tr>
<tr>
<td></td>
<td>P-Value</td>
<td>0.020</td>
<td>0.012</td>
<td>0.402</td>
<td>0.011</td>
</tr>
</tbody>
</table>

Source: Author, based on statistical analysis; data collected from interview and annual report 2008 from each banks. Correlation is significant at 0.1 level.

However, there are some interesting findings to be seen from the statistical results. For example, the number of branches and employees are positively correlated. The factor of when Internet banking and mobile banking were introduced had positive correlation as well. However, both of these were negatively correlated with the number of branches or the number of employees. It seems that the banks that first introduced Internet banking tended also to be the first to introduce mobile banking. There is a possibility that the IT platform used in this system is relatively the same, therefore both are developed simultaneously.

On the other hand, correlation between firm age, number of branches, or number of employees, with the number of ATMs appears to be mixed and relatively low. Furthermore, although not very significant, the factor of firm age was also negatively correlated with the time Internet banking and mobile banking were introduced. This situation may imply that bigger and older banks already took their steps in investment in ATMs as their main delivery e-channel, while smaller and newer banks prefer to invest in Internet banking and mobile banking services. Smaller and newer banks typically do not have as solid a capital structure as their older competitors, thus, they preferred to join ATM channels instead of building their own ATM networks and spent the rest of the money to invest in better and more reliable Internet and mobile banking service.
Considering the aggressiveness of banks in introducing their e-banking (especially Internet banking and mobile banking) over the last few years, it becomes obvious that there is a tendency for a bank to minimise costs and expenditures. Maintaining branch operations is far more expensive than maintaining ATMs, Internet banking, and mobile banking services. As to what Joseph Georgino Godong, Director of IT and Operation of Bank Permata has said, the trend of banking in the future will tend to focus on reducing the amount of distributed paper money and transaction using cards for public services.\footnote{http://web.bisnis.com/edisi-cetak/edisi-harian/teknologi-informasi/1id34401.html} In the same spirit, a senior banking official said:

\begin{quote}
All of our internal staff has used Internet banking. Now all of the bills, bank statements, etc., do not use paper anymore. All of the reports are in the form of e-billing. On the positive side, we become paperless, more efficient, quite economical, and greener (Budi Harsono, interview, 05 May 2009).
\end{quote}

However, the primary motivation that drives a bank to innovate is the potential to generate more revenue. As clearly shown from the interviews, the major benefit from e-banking innovation is fee-based income. For example, if a bank joins in an ATM network, it can generate income from other bank’s customers that use its ATM machines or from third parties that cooperate with it. The more transactions with a third party, the more fee-based income is acquired. Therefore, the bank tries to enrich the features of e-banking transactions, such as mobile telephone top-ups, ticketing, paying telephone or electricity bills, house taxes, etc. As one of respondents said:

\begin{quote}
We have evaluated that the innovation in e-banking in the future will become more integrated and full of features to satisfy our customers’ needs. We hope that this innovation can increase the number and loyalty of customers significantly, not to mention the increasing amount of third-party funds, fee-based income, cost efficiency, and better service quality. (Anna Triana Kurniasih, interview, 1 June 2009).
\end{quote}

Indeed, besides monetary benefit, there are also other benefits such as improving corporate image. By joining in a certain ATM network, it automatically creates customer awareness of that bank. It also perhaps influences the market
share, but the bank has never researched this. Another benefit is organisational learning. By executing certain innovations, the unit/personnel of a bank becomes more expert in that area. After developing some innovations, and succeeding, either realised or not, usually a bank will find new opportunities that could be exploited further and that, in the end, will provide more profit for the bank.

5.4 Management of E-Banking Innovation

Financial innovations are critical for more than just firms in the financial sector. Financial innovations enable firms from all sectors to raise money in larger amounts and at a cheaper cost than they could elsewhere (Lerner, 2006). In general, financial institutions are money transformers—they buy money, do something with the money, and then sell it to their profit (Dew, 2007). They are constantly developing innovative ways to buy and sell money. Thus, in the end, financial innovation is aimed at obtaining more capital at the lowest cost as possible.

As can be seen from the interviews (Table 5.1), external forces (such as customers’ needs and tight competition) remain the main factor that encourages innovation in Indonesian banks. This is slightly different from the findings of Brown and Molla (2005), where internal forces (such as cost reduction, convenience, availability, accessibility, and administration) were the key drivers behind offering e-banking services.

In undertaking their innovation, the bank uses the profit per customer concept as the main indicator. The innovation plan will be implemented as long as it can improve the ratio of profit per customer. Based on the interviews, the formula to be used in calculating the profit is relatively simple. However, there are also banks that do not only use monetary indicators, but also complex measurement systems such as Balanced Scorecard, Six Sigma, Malcolm Baldrige, etc.

However, it should be noted that organisational culture and inertia could hinder innovation. A number of banks choose to focus their attention on other aspects
such as loan policies based on NPL/CAR\(^{49}\) regulations from the Bank Indonesia, or doing a merger for an acquisition based on single presence policy, \(^{50}\) and so forth. As a result, they cannot be 100% dedicated to innovation activities. Janice and Dennis (2002) previously warned about this and argued that development choices and potential channel conflicts need special attention.

According to the interview, in some banks, many innovative ideas emerge, but are not facilitated, as there is no medium to develop them, and no clear reward mechanism. As a result, these ideas have never been realised. Even worse, sometimes business units are ready to innovate with mature planning, but this stops at the top management or shareholders for reasons that are non-existent. Thus, a critical assessment of these issues must be outlined clearly so that the bank can make the right strategic choice according to their resources and capabilities in creating and providing appropriate delivery channels to their customers.

Secondly, in financial services, the lifeblood of a bank is determined by how well they can gather funds from the customers at the lowest cost (Dew, 2007). According to the interviews, the majority of the fund composition is high-cost funds such as deposit accounts or time deposits. Only a small amount of funds are low-cost, such as saving accounts. Therefore, banks must innovate well, and every innovation must be communicated effectively and attractively to their targeted market.

Interestingly, in order to attract more people to open an account or deposit more money into their account, Indonesian banks tend to offer a kind of prize lottery and gift, either to old customers or new ones (Table 5.3). According to Djoemingin Budiono, Head of Marketing Retail Banking of Bank Danamon, a savings account with a prize is still an effective draw to attract customer funds (\textit{dana pihak ketiga/DPK}).\(^{51}\) This is obvious from the many programs of prize lotteries offered by the banks. However, the banks should be more creative and

\(^{49}\) NPL stand for Non-Performing Loan, while CAR stand for Capital Adequacy Ratio.

\(^{50}\) See Bank Indonesia Regulation No. 8/16/2006 regarding Single Presence Policy, 5 October 2006.

\(^{51}\) http://swa.co.id/swamajalah/tren/details.php?cid=1&id=7621&pageNum=2
innovative in gathering customers’ funds. If they just follow what other banks do and offer the same prize lottery or gifts, of course they cannot be a leader.

Table 5.3. Campaign Impact on Customer Savings Growth

<table>
<thead>
<tr>
<th>Bank</th>
<th>Campaign Programme</th>
<th>Customer Savings</th>
<th>Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Dec 2007</td>
<td>Dec 2006</td>
</tr>
<tr>
<td>Bank BCA</td>
<td>Gebyar Tahapan BCA</td>
<td>Rp 89.5 tn</td>
<td>Rp 71.57 tn</td>
</tr>
<tr>
<td>Bank Mandiri</td>
<td>Mandiri Fiesta</td>
<td>Rp 81.5 tn</td>
<td>Rp 57.81 tn</td>
</tr>
<tr>
<td>Bank BRI</td>
<td>Untung Beliung Britama</td>
<td>Rp 72.27 tn</td>
<td>Rp 58.3 tn</td>
</tr>
<tr>
<td>Bank BNI</td>
<td>Rejeki Durian Runtuh</td>
<td>Rp 47.3 tn</td>
<td>Rp 38.52 tn</td>
</tr>
<tr>
<td>Bank Danamon</td>
<td>Danamon Menjemput Impian</td>
<td>Rp 11.46 tn</td>
<td>Rp 9.71 tn</td>
</tr>
<tr>
<td>Bank Bukopin</td>
<td>Tabungan SiAga Bukopin</td>
<td>Rp 2.6 tn</td>
<td>Rp 2 tn</td>
</tr>
</tbody>
</table>

Source: SWA Magazine (http://swa.co.id/swamajalah/tren/details.php?cid=1&id=7621&pageNum=2)

Thirdly, it is suspected that most banks tend to use the same external consultant agency, which then plays an important role in shaping innovation (Bessant and Rush, 1995). As a result, the innovation product of one bank and another tend to be the same. However, what is also interesting is that there is an indication that the innovation actor is just the same. It is thought that they are probably just an elite group that are highly innovative, graduates of reputable schools and alumni of a “big name” bank that is the leader of innovation. They move from one bank to another, developing new innovations, and they also frequently drag their colleagues to switch. This is probably why the turnover rate in the e-banking division tends to be very high. Two senior banking officials shared their views:

*Somehow, we hired consultants because we thought they were more updated with current market condition and really understood what product could be implemented. Consultants were used in some units and each unit will have different consultant which depends on the area of expertise of each unit (e.g. Wyatt Watson for HRM, Accenture for IT, and Oracle for finance). They might play important role which is not only as an advisor, but sometimes also as a system integrator (NN, interview, 23 June 2009)*

*The turnover [of our staff] is quite substantial. Many of the people in technology division, for example, move to other banks and develop an innovation there. They often get a higher position, and then invite their friends to migrate there. They do not stop there, it may happen that they then move to yet another bank. So it is probably true that it is only “those” people (Budi Harsono, interview, 05 May 2009).*
For example, in the top management level, Mochtar Riady was the person who introduced electronic channels in BCA. He then established LippoBank. Robby Djohan, who formerly worked at Citibank, was the person who introduced e-banking in Bank Niaga. He then became the pioneer of the merger and establishment of Bank Mandiri. Barry Lesmana was an alumnus of BCA, just like Mochtar Riady; he then became the director of Citibank Indonesia. Citibank itself is known as the producer of great bankers. Indeed, it is suspected that the phenomenon of “jumping ship” did not only occur in the top level management, but also in the middle one.

5.5 Legal Protection and Cooperation

There is a tendency for banks to attract customers by providing them with minimum cost and maximum quality and at the same time to protect their innovation from free riding imitators (Dew, 2007). This is problematic, as every new financial product and service should be explained completely to governments, competitors, and probably imitators, to promote common use.

As a result, although patenting usually occurs in KIBS, patenting in banking is perceived as a minor instrument for appropriate service innovations (Miles et al., 2000). Financial patents are also often characterised by high uncertainty, which makes investing in financial innovation unattractive. The inventors of subsequent inventions may also be discouraged, due to the previous inventions that are covered by patents with questionable validity.

Unlike innovation in the manufacturing sector, innovations in financial services tend to be quite similar to one another. It is suspected that this is because the actor is the same, the consultant agency is the same, and the recipe is also the same, therefore the innovation product tends to also be the same. There is also a tendency for banks to always spy on their competitors. Every new innovation will be followed by others just like it. As a result, this innovation seems to be
communal in nature; if any period exists between them, it is usually very short (Rogers, 1995).

Because the innovation is the same, the competition between banks tends to focus on accessories, bundling, or marketing. For example, the same ATM card might be issued, at Bank A as a debit card, while the one from Bank B offers a prize lottery, and Bank C offers a discount at certain merchants. The concept of profit per customer becomes the primary concern here. Sometimes, a bank is willing to suffer a loss by cutting the ATM fee but charging more for other products (i.e., time deposits, insurance, mutual funds, etc). What is obvious is that in the end, the innovation product must be able to increase profit per customer. Therefore, it is common to find an innovation in Bank A that is also adopted by Bank B, with different bundling. The point is that it is okay to copy the innovation from other banks. What should be underlined is that some innovations perhaps succeed in Bank A but fail in Bank B, and vice versa (Christensen, 1997). A respondent explained that:

> There is no legal patent for Internet banking because any banks do the same. The ATM seems have no patent as well. Everyone can imitate it. No legal protection for this service. Usually the innovation is conducted by the market leader, and followed by other banks with different tagline/marketing package. Besides, in order to attract customers, there are various benefits offered by the bank. This, in turn, becomes a dilemma. It is not certain that the innovator will receive the most benefits for their innovation. It can turn out that the follower is the party that will benefit most (NN, interview, 14 April 2009).

Rogers and Greenhalgh (2006) state that the financial services sector is more likely to use trademarks instead of patents to protect innovations. The majority of intellectual property (IP) assets acquired were trademarks, with only a small number of venture capital companies acquiring patents. This is probably the reason why patenting is not popular in the Indonesian banking sector. Every bank can copy and imitate others’ innovations freely and openly. They just utilise a trademark to protect name, brand, product, or slogan—but what is inside is almost identical.
Interestingly, the lack of availability of legal protection (patent) in financial services does not discourage collaboration with competitors. Based on the interviews, it is clear that the partnership and collaboration between banks is commonly implemented. For example, Bank Negara Indonesia (BNI) invited an executive from Citibank to provide training about credit. Meanwhile, BNI provided guidance for Bank Pembangunan Daerah (BPD) in system composition and credit scoring. This multilateral collaboration also occurs in the establishment of ATM channelling (i.e., ATM Bersama, ALTO, Prima, Link) or in the composition of Standard Financial Accounting of Article 50-55, together with Bank Indonesia.

This cross-partnership and collaboration with competitors is, of course, not a negative issue (Hamel et al., 1989). Respondents said that feature of e-banking are the integration and consolidation. Integration means that features in ATM, mobile banking, and Internet banking have been harmonised and integrated in order that they could be utilised together for real-time transactions. Consolidation means that e-banking will not only becoming specific for saving accounts but also will be consolidated with other accounts such as insurance, mutual funds, deposit accounts, etc. A senior banking official shared his view:

\[
\text{I am pretty sure that in the future, there will be many banks that will innovate to the delivery channel, because it will substitute for customer service in many ways. We have to realise that the change or addition/development will have effect on IT, organisational structure, product, and service of banks. Therefore, innovation in consumer-facing technology must in line with the innovation in the organisational structure, corporate strategy, and resources. Indeed, collaboration and partnership is become the norm for the banking industry, even with our competitor (Abdul Muthalib, interview, 6 July 2009).}
\]

This situation might be called ‘collaborative competition’ (Brown, 2008). It helps banks to identify problems and enables collaborative revision and iteration together. This is a new way of working innovatively in an interdependent world. In order for all these to be realised, harmonised collaboration and cooperation between departments in internal banks is needed and also with insurance companies, mutual funds, mobile telephone providers, etc. Thus, a bank that can benefit from this situation is one that not only has strong core competence, but
also has robust absorptive capacity to value, assimilate, and apply new knowledge from their partners and competitors (Cohen and Levinthal, 1990).

5.6 The Importance of User Education and Communication

There is an interesting example from Bank Central Asia (BCA), which is one of the leaders of electronic banking in Indonesia. However, when BCA released Internet banking for the first time, they did not provide adequate user education. Security jargon such as ‘firewall’ and ‘128 bit SSL’ was used as the ammunition for popularising the Internet banking. BCA’s mistake was when they choose the .com domain instead of co.id. As we already know, .com domains can be registered by any anonymous person. Meanwhile, registration of .co.id domain is tighter because only a company that has NPWP or SIUP is allowed to register. Besides, there are also other rules of copyright, trademark, or patent parameters to that domain.

The other mistake by BCA was that it did not register mistyped domains such as wwwklikbca.com, kilkbca.com, wwwklik-bca.com, clickbca.com, clickca.com, and klikbac.com. In 2001, Steven Haryanto used this crack to establish similar sites, with similar appearance, except that there was no security for doing the transaction and there was a fraudulent login form (Wiryana and Tarigan, 2002). Steven prepared impersonating sites to capture user IDs and PINs of the customers. Around 130 customers’ data were stolen in only 48 hours. BCA could be said to be lucky because Steven did not mean to do a crime. He submitted all the data to BCA and advised BCA to fix their Internet banking. BCA was also lucky because there were no customers that filed a complaint and chargeback.

There are some interesting aspects that arise from this case. First, BCA assumed that all users were already familiar with the Internet and Internet banking—an assumption that proved to be completely wrong. BCA also made the registration

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52 Secure socket layer, some kind of Internet encrypted communication protocol.  
54 Log of Steven’s confession can be viewed at http://yulian.firdaus.or.id/2004/12/02/phishing/.
procedure very easy, so that every customer could acquire an Internet banking account and directly use it. This was made worse by the lack of formal effort to introduce and educate the customers to Internet banking before they used it. This is very important because most of the Internet users in Indonesia have no understanding of what SSL dialog is. They assume that impersonating sites are the same as original site, so they readily provided usernames and passwords with no suspicion at all.

Figure 5.1. Project Communication during the New Financial Service Innovation Process
Source: Lievens and Moenaert (2000, p745)

This phenomenon is generally known as the von Neumann bottleneck, which happens within the architecture of IT (Backus, 1978). Thimbleby (1988) explained that this classical problem occurred because of the architecture (hardware) with limited capacity, a conceptual design of a system that collided with strategy or cost, or because of a managerial factor where the system designer could not manage the complexity and solve the problem adequately. It should be noted that the system designer faces situations where their knowledge and their power are far above the users. Every system designer must have realised that there were entities that owned the system and entities that used the system—and both had different levels of understanding (Lievens and Moenaert, 2000; Wiryana and Tarigan, 2002).
In this case, BCA assumed that every user understood that impersonating sites were not part of their system. Meanwhile, the customers assumed that the impersonating sites were just the same as the official sites of BCA. On one hand, BCA assumed that the user had checked the security certificate authority carefully. On the other hand, customers did not know much about certificates of authentication. It is very clear that there was a quite wide gap between user-designer-artefact, where each different entity interpreted the same system with different meaning. From the regulatory side, it is proper that the government provide comprehensive legal protection to prevent banks and customers from the bad intentions of irresponsible persons (Merton, 1995).

Wiryana and Tarigan (2002) argue that technology solutions are not sufficient and there should be an adequate period for introducing Internet banking. During the introductory period, system designers have to maintain security awareness, take into account accessibility factors and usability of services, as well as educate and communicate these to their customers (Figure 5.1). From the regulatory side, it is obvious that government should ensure the protection of customers or banks from fraud, identity theft, and other security threats (Merton, 1995).

Box 5.3. Innovation in Banking Security Systems

Figure 5.2. BCA Token Key
Source: Author
Internet banking in Indonesia is desirable for working professionals especially in big cities like Jakarta to avoid traffic jams and parking problems. However, unlike Internet banking in U.S. or Europe, in Indonesia, dual authentication is used, which is PIN and access token. For example, BCA, Bank Mandiri, and Bank Niaga require token key in order to perform online transactions. Each bank comes with slightly different shape and colour, but most of them were manufactured by Vasco (see picture).

Why is Indonesia more determined about this issue? First, Indonesia used to be a hotbed of Internet fraud. Moreover, anti-virus and firewall software were sporadic and not updated regularly due to poor Internet connections and lack of software licences. Secondly, as in other Asian countries, Indonesian companies generally do not have any kind of refund policies. Thus, dual authentication forces the customer to do the right and correct transaction on the first try.

As for the ATM, there has been card duplicating fraud (skimming fraud) which occurred in 2007. There was a syndicate that puts small camera under the function screen and card reader that is attached to the place where customers insert ATM card (see pictures). The card reader functions to record all data in the cards that inserted in the machine while the small camera record PIN number entered at the keypad. After the data is recorded, the syndicate will then create some kind of dummy ATM card to withdraw all funds in the account. It would be difficult for customers to recognise as the physical form of the machine is quite similar.

In order to avoid being recorded by security camera inside the ATM booth, the syndicate would withdraw money randomly. In some cases, more sophisticated technology was used such as Bluetooth devices to transfer and copy all recorded data within certain distance. Fortunately, banks have been very responsive in solving this case by reporting this case to the ATM network provider, ATM manufacturer, and Bank Indonesia as a regulator. They immediately developed software to encrypt and randomise data of each card inserted to the machine to prevent it being recorded. They also refined the design of ATM so that it would be very difficult to attach card reader without having the customer suspicious and abort the transaction. Indeed, they also devoted security staff to check and maintain their ATM machines more regularly.
Table 5.4. Credit Card Losses in 2006

<table>
<thead>
<tr>
<th>Fraud</th>
<th>Cases</th>
<th>Loss (Rp million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Counterfeit</td>
<td>5,267</td>
<td>25,304</td>
</tr>
<tr>
<td>Card Lost</td>
<td>48,797</td>
<td>1,921</td>
</tr>
<tr>
<td>Rejected Card</td>
<td>369</td>
<td>1,133</td>
</tr>
<tr>
<td>Identity Theft</td>
<td>748</td>
<td>4,392</td>
</tr>
<tr>
<td>Mail/Phone Order</td>
<td>643</td>
<td>414</td>
</tr>
<tr>
<td>Internet Transaction Fraud</td>
<td>451</td>
<td>63</td>
</tr>
<tr>
<td>Cash Advance</td>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>Card Application Fraud</td>
<td>252</td>
<td>1,581</td>
</tr>
<tr>
<td>Deceit</td>
<td>161</td>
<td>826</td>
</tr>
<tr>
<td>Account Take Over</td>
<td>44</td>
<td>75</td>
</tr>
<tr>
<td>Others</td>
<td>143</td>
<td>604</td>
</tr>
<tr>
<td>Total</td>
<td>56,900</td>
<td>36,326</td>
</tr>
</tbody>
</table>


Another similar fraud has also been occurred in credit card transaction called wire tapping. There was a syndicate that modified electronic data capture (EDC) devices to capture information such as card number, name, and expiry date of the credit card. The syndicate then created dummy cards to perform illegal transactions. Fortunately, in February 2008, the Police Department found more than 7,000 dummy credit cards and arrested the syndicate members.

As can be seen from the Table 5.4 above, more than 69.95% of credit card losses or Rp 25.3 billion came from counterfeiting. This situation has forced Bank Indonesia to develop a new system and encourage banks to migrate from magnetic-based credit card to chip-based credit cards, which is expected to be completed by late 2009.\(^{55}\) In responding to these cases, the government of Indonesia has enacted the Law on Electronic Information and Transactions, No. 11/2008 which is the first to accommodate online transactions, including electronic fund transfers, e-government, capital market, online taxation, and online banking.

The lesson from this case is that screening, maintaining, monitoring, and evaluating the path of development of financial innovation is mandatory as innovation in e-banking can be implemented quickly and unilaterally, while changes in legal and financial infrastructure might be more rigid and take longer to implement (Merton, 1995).

\(^{55}\) http://www.bi.go.id/web/id/Peraturan/Sistem+Pembayaran/se_111009.htm
Chapter 6  Conclusion

“There’s no substitute for innovation, of course, but innovation is no substitute for being in touch [with our customers], either.” —Steve Ballmer

6.1 Recalling the Research

This research tries to present the case of innofusion of electronic banking in Indonesia. It is obvious that in this case, the distinction between innovation and implementation stages becomes meaningless. The process of invention, innovation, and diffusion of e-banking in Indonesia with feedback occurring during the learning process has merged into the process coined ‘innofusion.’ The concept of innofusion obviously implies an interplay between banks, other financial service firms, consultants, and suppliers of technologies, as well as in the wider networks and wider technological development (Fleck, 1993).

The systems of e-banking can be referred to as ‘configurational.’ Banks can choose and assemble their own e-banking from a wide range of choices and components from different vendors and work with various consultants in order to meet the optimum needs of their business and organisational requirements (Davenport et al., 1996; Miles et al., 1995). Indeed, to ensure the interconnection and interoperation—for example in the mobile banking application or ATM machine—it requires standards either at system level or single interface standard. Consequently, it will lead to natural trajectories of development (Fleck, 1993). This might explain why the design of ATM machines has tended to be the same since it was first invented.

Based on the study that has been conducted to date, it appears that in adopting e-banking services, Indonesian banks are directed by customers and competitors. Contrary to Brown and Molla (2005), although technological improvement and regulation will continue to affect the industry, a radically changing landscape for the electronic delivery of retail banking services in Indonesia is still driven by
market forces. In terms of e-banking innovation, two main keywords have become the jargon in Indonesian banks: ‘fee-based income’ and ‘third-party funds.’ It is obvious that e-banking innovation can generate more revenue. With effective and attractive marketing communication, innovation can be used to gather more funds from customers at the lowest possible cost (Dew, 2007).

The empirical cases also show that it probably true that it is only “those” people who drive innovation among Indonesian banks. The consultants also play an important role in shaping the dynamics of innovation processes (Bessant and Rush, 1995; Dodgson, 1996). Therefore, it is common to find the same innovation in a number of Indonesian banks, but bundled and marketed differently. Thus, it does not take a long time until financial innovation becomes communal in nature. However, the empirical cases show that each of the e-banking innovations has emerged gradually, through different speeds of innovation stages and processes (Rogers, 1995). For example, while ATMs appear to be at the maturity level, Internet and mobile banking are still in the initial stages of adoption.

According to the statistical analysis, it appears that bank that introduces Internet banking earlier also tends to introduce mobile banking earlier, and vice versa. There is a possibility that the IT platform used in this system is relatively the same, therefore both are developed simultaneously in order to gain competitive advantage (Sethi and King, 1994; Harris, 2001). Moreover, firm age, number of branches, number of employees, with number of ATMs appears to be mixed and relatively low in correlation. Interestingly, the factor of firm age is also negatively correlated with the time that Internet banking and mobile banking were introduced. This indicates that bigger and older banks are not as innovative and dynamic as their smaller and newer peers (Christensen, 1997; Noteboom, 1994; Segers, 1993).

In the context of corporate strategy, decisions in developing innovation are merely a function of the organisational context within which they are embedded. This context evolves as a result of previous decisions, which in turn affect the ability to innovate effectively (Leonard-Barton, 1995). Thus, alignment between
consumer-facing technologies with other organisational contexts becomes an important determinant of effectiveness in innovation in the present and future (Janice and Dennis, 2002). Secondly, decent communication between banks and their customers is absolutely needed, not only to market their products/services, but also to prevent incidents like the von Neumann bottlenecks which happen quite often in IT-based innovation (Thimbleby, 1988).

It is also obvious that patenting in banking is perceived as a minor instrument for appropriate service innovations, while trademarks and confidentiality agreements are much more popular in financial services (Miles et al., 2000; Rogers and Greenhalgh, 2006). However, though generalisations probably cannot be applied into other business sectors, the lessons learnt by Indonesian banks exemplify that unavailability of legal protection does not discourage them to partner and cooperate with each other (Hamel et al., 1989; Moss-Kanter, 1994). This indicates that collaborative competition can be beneficial in working together to identify problems, revise, and iterate collaboratively (Brown, 2008). Thus, in order to reap benefits from e-banking innovation, banks not only have to offer fabulous products and services, but also have to acquire knowledge and ensure communication among their peers (Cohen and Levinthal, 1990; Edquist, 1997).

Meanwhile, from the regulatory point of view, it becomes clear that government action is needed in screening, maintaining, monitoring, and evaluating the path of development of financial innovation. Innovation in consumer-facing technologies such as e-banking can be implemented quickly and unilaterally. On the other hand, changes in legal and financial infrastructure might be more rigid and might take longer to implement (Merton, 1995). The future of innovation in Indonesian financial services is bright. Nevertheless, without proper protection, this kind of innovation not only can be exciting, but also frightening.

6.2 Lesson Learned

There are several things that can be learned from the case of e-banking innofusion in Indonesia. First, it is suspected that the innovation actors are all the
same. They are an elite group that are highly innovative, graduates of reputable schools, and alumni of “big name” banks that are the leaders of innovation. They move from one bank to another, developing new innovation, dragging their colleagues to switch, which in turn will cause the turnover rate quite high in banks’ e-banking division. Thus, if the turnover rate is too high, the question arises as to whether this then is detrimental to the industry. Unfortunately, it seems that there is no regulation in limiting the turnover in this industry.

Secondly, Indonesian banks seem to use relatively the same external consultant agency. Most of these were foreign consultants who were hired according to their particular expertise. Inarguably, they play an important role and help in shaping financial innovation in Indonesia. At this moment, Bank Indonesia regulates the utilisation of foreign experts and foreign consultants. But what if, in the near future, government decides to limit the use of foreign experts and foreign consultants, and demands that more priority be given to local experts and local consultants?

This can be problematic indeed. In tough times and economic downturns like we are experiencing currently, employing local experts and local consultants may reduce cost and increase productivity. However, it is also obvious that foreign experts and foreign consultants tend to be more innovative than are local ones. Probably the best solution is for the government to continually reduce the use of foreigners and to encourage the transfer of knowledge at the same time. The use of foreigners can be a good starting place for assimilating knowledge and expertise, but what is clear is that Indonesia should not rely on foreign experts and consultant to sustain long-term growth and innovation in its banking sector.

Another surprising finding is that the lack of legal protection certainly does not prevent Indonesian banks from collaborating with each other. By collaborating, banks are able to work together to identify problems, revise, and iterate collaboratively in developing innovation. This situation raises the question whether government should or should not encourage and force the use of legal protection

56 See Bank Indonesia Regulation No. 9/8/PBI/2007 regarding foreign experts’ utilisation.
in the Indonesian banking environment, in order to protect inventors from imitation and free-riders.

In today’s competition, apparently there is a paradox wherein private ownership but too much intellectual property in fact would cause gridlock and discourage innovation. 57 The financial services sector is characterised by network externalities that come from interoperability and standard setting. These standardisations and compatibility between various products will give rise to stronger market position for the owner of the standard. Developing some sort of standard may solve this problem; however, not every area of financial innovation can get a standard negotiated. Thus, enforcing strict legal protection in Indonesian banking sector might be simply useless.

6.3 Limitation and Further Work

Firstly, this study mainly focuses on the time aspect of e-banking adoption. It would be much more interesting to examine the level and depth of adoption as the first adopter does not always take all that is offered. Future research might also include customers’ attributes, such as how intelligent customers influence the inofusion process or how feedback loop mechanisms work at this stage of innovation, which was missing from this study. Secondly, this study focuses mainly on large banks only, due to the availability of data and contacts. However, smaller banks might be the outliers that could be more innovative than the larger ones. Research on smaller banks might be interesting to capture the effects of scale and examine a particular gap in managing capability and applying this service delivery.

On the other hand, this study does not discuss the effects of the financial crisis that has been building since the summer of 2007. Over-optimism embodied in financial innovation is believed to be a source of systemic risk, thus, it would be interesting to investigate how complex financial innovation, international financial integration, and risk management are observed together. It would also be

compelling to analyse how foreign experts and consultants drive innovation compared to the local ones, especially in this global financial integration. The massive incoming foreign investors since mid 2005 and how it influence innovation in banking would also interesting to be investigated. Indeed, replication in either a wider range of financial services or other business sectors is necessary and further research would open the door for more knowledge to be contributed.
References


Appendices

Interview Questionnaire (Respondent Version)

This questionnaire below was translated into Bahasa Indonesia and sent to the respondent prior to interview.

Pertanyaan Interview

Introduksi:
- Pemantau dan penjelasan tentang studi (oleh pewawancara)
- Informasi dasar tentang organisasi—kemungkinan sudah tersedia di web/publikasi
- Informasi angkat mengenai nama/telpon (nama, jabatan, lama memegang posisi tb)

Penggunaan inovasi di bidang finansial:
Kami tertarik dengan inovasi yang memanfaatkan teknologi baru seperti ATM, internet banking dan mobile banking dalam kaitannya dengan intangsi terhadap pelanggan.
- Kapan organisasi Anda mulai menggunakan inovasi tersebut?
- Faktor apakah yang memengaruhi penting dalam inovasi di organisasi Anda?
- Apa (siapa) yang menjadi sumber inspirasi dalam inovasi tersebut? Misalnya, internal organisasi, supplier, klien, kompetitor, konsultan, penguraian tinggi, pemerintah, publikasi ilmiah, asosiasi industri, konferensi, dsb.
- Apakah organisasi Anda bekerja sama dengan pihak lain dalam mengembangkan suatu inovasi? Seperti apakah bentuk kerjasama tersebut?
- Bagaimana Anda mengelola pengembangan, investasi, manfaat ekspansi terhadap inovasi tersebut? Adakah personal/grup/divis tertentu yang bertanggung jawab?
- Ada beberapa hal yang dapat dilakukan untuk melindungi inovasi, misalnya melalui paten, trade mark, copyright, confidentiality agreement, lead-time advantage, dsb. Bisakah Anda jelaskan metode yang Anda gunakan untuk melindungi inovasi Anda?
- Faktor-faktor apa yang menghambat organisasi Anda untuk tidak melakukan inovasi?
- Apakah kesulitan-ke sulit yang dihadapi dalam mengembangkan inovasi tersebut?
- Apakah yang Anda lakukan untuk mengatasinya?

Pengaruh dan Manfaat:
- Bagaimana inovasi tersebut memberikan manfaat bagi organisasi Anda?
- Apakah yang Anda harapkan dari inovasi tersebut di masa depan?
- Apakah bank-bank bekolaborasi untuk mempengaruhi hal-hal seperti hukum, regulasi, consumer attitude, dsb? Atau dalam hal training dan pengembangan SDM?

Lain-lain
- Bagaimana Anda memandang inovasi yang bersifat consumer-face (ATM, internet banking dan mobile banking) dibandingkan dengan inovasi dalam hal lain seperti teknologi, internal organisasi, pengembangan produk dan jasa baru, dsb?
- Apakah organisasi Anda mempunyai aktivitas inovasi yang dibatalkan/tidak diselesaikan?
- Apakah organisasi Anda menemui dukungan dan bantuan dari publik/pemerintah?
- Dapatkah Anda memberikan contoh good practice inovasi dalam organisasi Anda?
- Adakah hal-hal lain teksait dengan inovasi yang belum terungkap disini?

Terima kasih.
Interview Questionnaire (Researcher Version)

This interview questionnaire has probing questions to obtain deeper understanding and ensure that all relevant questions were addressed.\(^{58}\)

**Introduction:**

- Introduction and explanation of the objectives of the study
- Basic details relating to the organisation (vision, mission, aims, goals, history, recent development, etc.)
- Interviewee details (name, function, time in current role, etc.)
- Nature of the organisation (including current issue, emergent activities, etc)

**The use of financial innovation (ATM, Internet Banking, and Mobile Banking):**

I’m particularly interested in innovations using new Information Technologies like the internet, cash machines, and so on, for interactions with consumers.

- When did your organisation start using this sort of financial innovation (ATM, Internet Banking, and Mobile Banking)?
  - How far were these innovations developed by: (1) your organisation or enterprise group alone, (2) your organisation with other partners, or (3) mainly by other organisations or businesses that you acquire technology from?
  - Were any of these innovations: new to your market, as compared to being new to your organisation? Were there any innovations that were completely new (to the world)?

- I have a list of factors that can influence innovation decisions. As I read through these, could you please tell me whether each one is an important factor that influences your decision to innovate?
  - Internal: increasing range of goods or services, improving flexibility of production or service provision, increasing capacity for production or service provision, reducing costs
  - Market: entering new markets or increased market share, improving quality of goods or services, increasing value added
  - Regulation: meeting regulatory requirements, reducing environmental impacts or improved health and safety

- What was (is) your source of inspiration? Is there any general pattern, and whether specific innovations differ from this?
  - Internal: within business group
  - Market: suppliers; clients or customers; competitors or other businesses; consultants, commercial labs, or private R&D institutes
  - Institutional: universities or higher education, government or public research institutes

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\(^{58}\) The interview questionnaire was adopted from The Community Innovation Survey (CIS), particularly UK CIS4 (2005) and UK CIS5 (2007). UK CIS questionnaire items which are closed in nature were transformed into open-ended questions to anticipate more in-depth exploration of the issues. Several questions have been added, modified, and clarified in order to uncover and reveal the research question.
• Does your form cooperate with others in developing innovations? Which types of cooperation partner did (do) your organisation typically use? Where were (are) they located?

| Internal: within business group |
| Market: suppliers; clients or customers; competitors or other businesses; consultants, commercial labs, or private R&D institutes |
| Institutional: universities or higher education, government or public research institutes |

• How do you organise and manage the development of this sort of innovation in your organisation?

| How are investment decisions made? What defines strategic, portfolio and project success? |
| How are diverse expectations managed? How are projects managed with high levels of technical, market, resource and organisation uncertainty? |
| Is there any particular person/division that deals with this in particular? |

• I have a list of ways in which innovators may protect their innovations through IP or other strategies. As I read through these, could you please tell me whether each one is important to your organisation for protecting innovation?

| Formal: registration of design, trademarks, patents, confidentiality agreements, copyright |
| Strategic: secrecy, complexity of design, lead-time advantage on competitors |

• What factors constrain the decisions in your organisation and may lead you not to innovate?

| Cost: excessive perceived economic risks, direct innovation costs too high, cost of finance, availability of finance |
| Knowledge: lack of qualified personnel, lack of information on technology, lack of information on markets |
| Market: market dominated by established businesses, uncertain demand for innovative products |
| Other: need to meet government regulations, need to meet international regulations (i.e. Bank for International Settlements (BIS), Basel Standards, etc) |

• What difficulties has your organisation encountered in using this sort of financial innovation so far? How do you solve them?

| What internal factors have contributed to the difficulties experienced? |
| What external factors have contributed to the difficulties experienced? |

• Where do you put your organisation in terms of innovativeness? (top 10%, 20%, below?)

| Do you think/find that other organisations also use that innovation? In what way is their use similar to yours and in what way it isn’t? |
| Do you think other organisations have learned from yours in terms of better use of that innovation? |

**Benefit and Influence:**

• How does financial innovation (ATM, Internet Banking, and Mobile Banking) mainly benefit your organisation?
How do you measure the implementation and success of that innovation in your organisation?

From what you have experienced, what innovation do you think contributed most to your organisation? Why?

Are there any negative impact from that innovation in your organisation?

Have you seen any individual/organisational learning in your organisation since you adopted that innovation?

What were the major impacts on your organisation as a result of adopting that innovation?

Future:

- What do you expect to see in the future, say 5-10 years, with this current financial innovation (ATM, Internet Banking, and Mobile Banking)?
  
  - Can you describe the future of this innovation? How far do you believe it will happen?
  - What negative impacts you may have foreseen from the use of this innovation in the future? What future impediments have you seen and how they could be dealt with?

Other:

- Could you tell me about other sorts of innovation in your organisation? How important are the consumer-facing technological innovations as compared to internal organisational and technological innovations, new financial products and strategies, etc.?
- Did (does) your organisation have any innovation activities to develop new product/process that were abandoned or incomplete?
- Did (does) your organisation receive any public financial support for innovation activities from government, authorities, agencies, ministries, etc?
- Do banks need to collaborate to change laws, regulations, consumer attitudes, retailers, etc? How about in training and skills development?
- Would you suggest a particularly good practice of financial innovation in your organisation?
- Are there important things about your innovation experience being neglected here?
Interview Transcript 1

This interview has been conducted with banking official from Bank BII, at Tuesday, 14 April 2009, 9.17 AM.

First of all, I would like to explain the general overview of this research. Like what I have said before, the research aims to finding out more about diffusion process and adoption of banking innovation, especially e-banking, which includes ATM, internet, and mobile banking. The focus of this research is on driver, barrier, benefit, and dynamics behind the process. Do you have any question before we start the interview?

Okay. Everything is fine.

What is your position and responsibilities in this company?

I lead channel management group division. There are electronic channel management and branch channel management under my command. In e-channel, there are ATM, internet banking and mobile banking. However, mobile banking is currently not running in BII. So, the data is only ATM and internet banking.

I’m particularly interested in innovations using new Information Technologies like the internet, cash machines, and so on, for interactions with consumers. When did your organisation start using this sort of innovation?

We started to implement ATM in the 90s. Internet banking has just emerged in 2000s. For the ATM, the development was conducted by our internal group, especially the IT division. For internet banking, we cooperate with one of the vendors available in the market. The development of ATM focused more on features. ATM used to be for conventional transactions (balance checking, withdrawal, transfer), however, as time went by, and the needs of customers for payments via ATM, then this feature was developed. The technology was developed by our internal team, but we will cooperate with other parties. For example, we cooperate with mobile (cellular) provider (i.e. Telkomsel, Indosat, Excelcomindo, etc) for payment via ATM. We have discussion with their IT experts to find out what systems needed to be adjusted. So the developments came from us but we also review the readiness of the IT provider so that we can run in line with them.

I have a list of factors that can influence innovation decisions, for example internal factor, market factor, or regulation. Could you please tell me whether each one is an important factor that influences your decision to innovate?

Our influencing factors are usually market-based. Our primary competitor is BCA and Bank Mandiri. They developed their features so rapidly. In the end other banks (including BII) were forced to develop that features. For example, BCA was the first who provide telephone payment service, and usually the vendors asked to BII customers whether they have the same service or not. If no, then we could loose our customers because for every cellular credit purchasing (top-up) or post-paid cellular payment (contract) we receive fees from the providers. Inevitably, we have to adopt the trend and need from customers.

What was (is) your source of inspiration?
The same holds true for the above problem. Inspiration for innovation starts from the customer needs and what the competitor has done. For example, at the beginning, the cellular providers were only Telkomsel, Indosat, Excelcomindo; but now, there are other new providers such as Mobile 8, Axis, Three, and Esia. These new providers also encourage us to innovate in order that our customers can do transaction via ATM/internet banking. The more providers in the markets, the more features that must be developed.

*Is there any general pattern, whether specific innovations differ from above? Probably, the monetary crisis, banking deregulation, restructuring of banking institutions, IPO, transfer of ownership, and others also influence innovation.*

In BII, there is no significant change because of merger or the above-mentioned problems that forces us to develop more. Central Bank or Bank Indonesia (BI) does not oblige any banking institutions to innovate more because whenever bank institutions develop more features, there are costs behind it and this will become the expense of the bank. Of course, the answer lies on the banks themselves, whether they are ready for innovation or not. If they are not ready, there is no sanction from Bank Indonesia. So, there is no strict rule regarding this aspect.

However, when doing new innovations, every bank must report to Bank Indonesia regarding their newly introduced features to the customers in order that the customers also know that the bank has this innovation. But the report only describe about the development, about the feature and not in-depth explanation regarding the features. For example, if we want to open feature for cellular credit purchasing (top-up) via ATM, then there are also electric bill payment, water, taxes and other, we only report the list of features to Bank Indonesia. Bank Indonesia has no regulation about the reporting process, but once again, everything must be reported in order that Bank Indonesia knows what features we offer to the customers.

*Do banks need to collaborate to change laws, regulations, consumer attitudes, retailers, etc? Maybe in training and skills development?*

No.

*Does your organisation cooperate with others in developing innovations? Which types of co-operation partner did (do) your organisation use? Where they were (are) located?*

Yes, indeed. I think, to some extent, banks cooperate with the ‘same’ IT firm, management consultant, marketing agency, and so on. Why? As we already know, the innovation in financial services is usually sporadic. But uniquely, innovation by each bank is usually continuous and similar. For example, when BCA launched *Debit BCA* where people usually use credit card (post paid) and they change their habit into using debit where they can pay directly debited from their saving account. Other banks also have the slightly same item with different names. So, the innovation is basically the same, but they use different tagline for marketing campaign.

*How do you organise and manage the development of this sort of innovation in your organisation? Is there any particular person/division that deals with this in particular?*
Each time we innovate, there is usually a project manager in the business unit level. They are responsible for every innovation development. For example, there is customer need to develop certain features on ATM; the e-channel banking division was assigned as project manager. However, when the project is implemented, the team is basically cross-divisional because the project will involve IT, operation, legal, marketing, and others. They are all involved in one project team with each weight. The responsibility is higher than project manager. While for other project, for example, IT will only be responsible for IT-matters. The legal division will handle only legal aspects. For risk management, we will review the risk of innovation to the bank; will it put the risk on the customers, etc. Later, there will be a percentage of weights.

*How are investment decisions made? How are diverse expectations managed? How are projects managed with high levels of technical, market, resource and organisation uncertainty?*

There is one example. At the time of developing internet banking in BII, the IT was already set up. It only needs restructuring only on the project management aspect. So, there will be human resource that is specially prepared to handle that project. Usually, we propose division needs regarding the extent and the like of the launching process. For example, we need one person in the business level unit, one person in the operation, one person for web design, and one for FAQ. From there, we obtained four people and calculate the cost, the level of expertise, and each level determines the salary standard. From the total salary, we propose into the budget planning for internet banking project. So, for example we have X figure for the budget, then the human resource with Y figure, and Z figure for increasing brand awareness at the customer level (marketing cost), and these total cost will be proposed for approval by management. Regarding the uncertainty, innovation in a bank is similar to other bank, so the uncertainty factors are not considered seriously.

*I have a list of ways in which innovators may protect their innovations through IP or other strategies, such as registration of design, trademarks, patents, confidentiality agreements, copyright, secrecy, complexity of design, lead-time advantage, etc. Could you please tell me whether each one is an important to your organisation for protecting innovation?*

There is no legal patent for internet banking because any banks do the same. Each bank does not patent this system. What is patented is tagline or product name. For example, there used to be *E-Wallet*, some kind of a top-up balance card or MRT card. Bank Permata was the first that introduce this system. The same system/innovation is also developed by BCA with its *Flazz Card*. For example, we have wife or children; we can give them *Flazz Card* with certain amount of balance to be used for purchasing any goods in certain merchants/outlets affiliated with BCA. And this is the one that is patented. *E-Wallet* in Bank Permata, and *Flazz Card* for BCA, and later on *GazCard* for Mandiri. The technology is not patented, just the trademark.

The ATM seems have no patent as well. The designs and features are relatively the same. Everyone can imitate it. No legal protection for this service. Usually the innovation is conducted by the market leader, and followed by other banks with different tagline/marketing package. Besides, in order to attract customers, there are various benefits offered by the bank. For example, *E-Wallet* can only be used and refilled when the balance is empty. While, *Flazz Card* offer discount in certain outlets for example 20% off. What happens next is that people are interested to become re-buyer, buy the product and re-use the product again and again. Gradually, people and customers become familiar...
to the product. It is possible for customers of Bank Permata to switch into Flazz because the better benefits offered to them. This, in turn, becomes a dilemma. It is not certain that the innovator will receive the most benefits for their innovation. It can turn out that the follower is the party that will benefit most.

*What factors constrain the decisions in your organisation and may lead you not to innovate?*

In average, the largest constraints are on the budget. When we want to develop certain innovation, for example IT, there are many things that need to be developed such as infrastructure, program, and so forth. This will cost much money and causes us to suspend the innovation. When developing innovation, we usually review the life cycle. For example, the fluctuation of transaction within 3 months, and whether this generates profits or not.

As for knowledge factors, there are not many issues to be considered because we can imitate from the competitor. When we face difficulty in the development stage, we can recruit 1-2 people from the competitor bank to develop what should be completed, supported, and so forth. Usually, we hire people to handle the innovation development, and we will recruit people from other division to be team members.

*What difficulties has your organisation encountered in using this sort of financial innovation so far? How do you solve them?*

If we still face difficulty, the development process will be carried over to next year planning because innovation program which involves high cost usually cannot be finished in 1 year. There is usually calculation for this kind of project. For example, if we want to develop 5 projects, we will see the cost, benefits, and others. Then, we will prioritise among the projects to find out which is the most feasible. For example, we decide to take project 1-3, and because project 4-5 is not very urgent, they will be suspended until the next year. We will prepare the innovation and development necessary for the project but usually not all can be done in the same year because of budget limitation.

*How does financial innovation (ATM, Internet Banking) mainly benefit your organisation?*

The benefits of ATM innovation are on fee-based income. Few years ago, each ATM was only available for its bank’s customers. For example, BII customers could only withdraw money from BII ATMs. Nowadays, there are 4 largest ATM network in Indonesia: **ATM Bersama**, **ALTO**, **Prima**, and **Link**. After we participate in the **ATM Bersama**, the network of our ATM will be connected into the network of banks within the group of **ATM Bersama**. Nowadays, the transactions are not only limited to cash withdrawal but also transfer, balance checking and others. The more people use ATM nowadays, the more fee-based income that will be obtained. Later on, what is done by most banks nowadays besides participating in **ATM Bersama**, they also participate in **ALTO**, **Prima** and other network because each has different members.

From the implementation aspect, for example, by participating in the **ATM Bersama**, we will change our IT. We should adjust to the existing network. If we want to participate in **ALTO** network, there is also another specific development. It also applies for **Prima** network. There is terms and conditions to be obeyed for each cooperation. For example, each member must deposit Rp 1 billion during the membership. This deposit will be returned if the bank terminates the membership. There is also monthly fee, for example...
transaction fee of Rp 100 millions. From these costs, there is also another cost for development and we will then obtain the final amount of cost. What we need is to generate and maximise the ATM locations in order to generate as many transactions as possible to cover that costs.

*How do you measure the return of investment of that innovation in your organisation?*

If we already obtained figure for average transaction in ATM, from all customers’ transaction, it will generate the figure from BII and also from other banks (which then generates fee-based income). Then we will calculate the total monthly transaction and how much fee-based income that will be generated. We usually target 10% increment for each year. The calculate is so simple, not using complicated calculation such as present value, discounted payback, etc.

*Have you seen any individual/organisational learning in your organisation since you adopted that innovation?*

Of course, there is also influence in individual and organisational learning. It tends to be knowledge accumulation in nature. Besides, we can also find other opportunities. For example, although initially we look at the innovation for payment, we will try to cooperate with other providers. We can also explore other opportunities with other providers so that we can increase the number of transactions which eventually generate more fee-based income.

*Is there any impact on increasing market share as a result of adopting that innovation?*

We should be able to see the influence from this process; however we have never measured this before. What is certain is that when we participate in the network of ATM Bersama, ALTO, and Prima, there will be brand awareness that makes the customers to be more aware to our product. Besides, non-customers will become our customers and opening account in BII. People who initially only open saving account and after reviewing our product and services and result in good perception, they will also open current account and deposit account. However, we still unable to certainly measure whether the innovation will add other benefits to BII.

*Are there any negative impact from that innovation in your organisation?*

I would not say whether this is negative example or not. But, for example, during the payoff period (from date 25 to 5 next month), customer usually do many transactions: receiving salary, cash withdrawal, checking balance, transfer money to their wife/children. During this period of time, if any system of ATM Bersama/ALTO/Prima is not ready and overcapacity, the system will hang. Whenever transaction occurs, it will be rejected by the system and there the transaction will be delayed. Doing transaction is possible but the money transferred will not be sent to the receiving account exactly at the same time because there is system procedure done by each provider.

*What about security issues?*

The internet banking has not been facing any security problem so far. Usually, Internet banking is much safer. In Indonesia, the banks already use token (BCA and Bank Mandiri). But BII has not implement token yet. We have key password (e.g. 6 digits), and then we
have system that randomises password. The system is hard to trace by hackers. So, it can be said that internet banking is pretty safe.

For the ATM, usually there is problem such as card duplicating. There was once a syndicate that puts small camera near the ATM and card reader is attached to the place where we insert ATM card. The physical form of this machine is the same as actual ATM machine. For example, yellow for Bank Danamon ATM, red for Bank Niaga ATM, and so forth, therefore for common customers; it is possible to find out that there is card reader inside the machine. The card reader functions as recording all data in the cards in that machine a period of time (e.g. one day). Camera is put under the function screen to record PIN number entered at the keypad. After data is recorded, the syndicate will then create dummy ATM card. They can do transaction with the PIN they already recorded and they are successful. They can then use the card to withdraw all funds in the account.

With this dummy ATM card and combination of ATM PIN, the syndicate will withdraw money randomly in the ATM in order to avoid being recorded by security camera inside the ATM room. For highly sophisticated syndicate, the data transfer from the recording device and camera can be done via Bluetooth transfer and copied within certain distance; by this way the syndicate usually waits inside the car near the ATM and therefore time for creating dummy ATM card will be shortened and also the cash withdrawal.

*What is the solution?*

This case occurs in 2007 for Bank Mandiri and BCA and specific for BII, after the case is revealed, the staff assigned to refill the cash inside the ATM machine will periodically check the ATM locations. Indeed, the staff found this skimmer device, fortunately, no customers suffer the loss.

After the findings by Bank Mandiri and BCA, automatically they reported this case to the network provider (ATM Bersama, ALTO, Prima) and Bank Indonesia. Bank Indonesia and the provider then agreed to find out mutual solution to prevent the case from happen. Each bank and provider (a, b, c) develops software to randomise data of each card inserted into the machine; therefore the data cannot be directly recorded. For the hardware, the machine which previously attached with card reader was then protected therefore it is difficult to attach card reader on it. If the card reader is forced to be attached on the machine, it will be eye catching and the customer will be suspicious and abort the transaction.

*Can it be concluded that actually there is incremental innovation in ATM?*

Yes, it can. There is indeed continuous improvement based on the findings in the fields. For example, after finding out the above case, the principal of ATM then decided to apply new technology or buy a new one. Because bank could not afford to face any risks, as long as the technology was suitable, then bank will buy it directly. A bank worries when customer trust is low and customers withdraw their money or switch to other banks. So, there is good innovation from hardware and software aspects.

*What do you expect to see in the future, say 5-10 years from now, with this current financial innovation (ATM, Internet Banking)?*
Within next 5-10 years, ATM will undergo many feature development for example banknotes. While currently ATM machine only serve for Indonesian Rupiah cash withdrawal, now, it also serves for Australian Dollar (AUD), and Singapore Dollar (SGD). Of course this will not available in all location but only at certain areas. For example, SGD banknotes ATM is built in Batam and Tanjung Pinang where many businessmen come and go from and to Singapore. Despite going to money changer, why don’t we provide them with banknote ATM machine?

For internet banking, the development tends to address the integration into virtual banking. Customers do not need to come face to face with the banks but doing transaction virtually anywhere and online. The features are mostly adopted from the existing features in the ATM.

*Could you please tell me about other sorts of innovation – how important are the consumer-facing technological innovations as compared to internal organisational and tech. innovations, new financial products and strategies, etc.?*

Of course, everything must be aligned, in line and support each other. For example, if we are in the e-channel division, the team is already there. Each project will have project manager (PM) that will develop any sub-division below. For example, for payment transaction there is 1 working unit, but there is development of payment service for telephone, electricity, water, and so forth. Each time we innovate, there is usually restructuring in other units. They still exists, and impossible to eliminate, but they will be merged into other more suitable division.

*Did (does) your organisation have any innovation activities to develop new product/process that were abandoned or incomplete?*

Yes it does, and it occurs many times. Usually, the main reason is budgetary consideration. Or, our IT is not ready for the system to be adopted. For example, Project A can only be done whenever our IT is in certain level. So, we cannot innovate before our IT is improved to that level.

*Did (does) your organisation receive any public financial support for innovation activities from government, authorities, agencies, ministries, etc.?*

No. Financial support obtained from any internal parties in the company.

*Would you suggest a particularly good practice of financial innovation in your organisation?*

Yes, there is one suggestion. We have innovation called bill payment. The point is that by using ATM, we can do various payment transactions which keep increasing from time to time. Few years ago, we should go to the PLN (state-owned electricity utility company) outlet and to Telkom office to pay the bill. Because of these innovations, BII customers can pay their bill via ATM and they don’t need to go to PLN, and Telkom counter. They can use ATM.

This ATM service also applies to the internet banking. The ATM features are transferred into the internet banking because customers who want to do transaction via ATM must go out and finding ATM machine nearby. By transferring ATM features into the internet
banking, they don’t need to go out and find ATM machine but doing the payment directly and online via Internet. They don’t need to meet the bank in person. Transaction can occur anytime and anywhere.

*Where do you put your organisation in terms of innovativeness? (top 10%, 20%, below?)*

Ranked from 1st to 10th, according to our data, BII ranks 5th position. Sorted from the most innovated bank, we have BCA, Bank Mandiri, Bank Danamon, BNI, and then BII. These ranks can fluctuate. But BII is still follower, not leader.

*Do you think/find that other organisations also use that innovation? Do you think other organisations have learned from yours in terms of better use of that innovation?*

There was once a product innovation conducted by BII but eventually it failed. However, when the competitor did the same innovation, the proved to be successful. BII was the pioneer at that time. But, there was an internal problem and when the competitor imitates our innovation, they were successful. It could be that the person involved switch to the competitor, being hijacked therefore when the innovation that is ready to launch, the replacement person was not ready. So, it was just a matter of human resource.

*Are there important things about your innovation experience being neglected here?*

As far as I can remember, I think I have nothing missed. I have described everything above.

*Okay. I think I have no further questions. Thank you for your participation on this interview.*

You’re welcome. Good afternoon.
Interview Transcript 2

This interview has been conducted with Budi Harsono, senior banking officials from BNI, at Tuesday, 05 May 2009, 02:31 PM.

First of all, I would like to explain the general overview of this research. Like what I have said before, the research aims to finding out more about diffusion process and adoption of banking innovation, especially e-banking, which includes ATM, internet, and mobile banking. The focus of this research is on driver, barrier, benefit, and dynamics behind the process. Do you have any question before we start the interview?

No

What is your position and responsibilities in this company? How long have you been in this company?

I have been working in BNI since 1995. My latest position is the manager of monitoring and reporting in change management office (CMO).

I’m particularly interested in innovations using new Information Technologies like the internet, cash machines, and so on, for interactions with consumers. When did your organisation start using this sort of innovation?

We are developing ATM for years; however, we are probably the first bank (owned by government) that employs ATM in Indonesia. If internet and mobile banking are relatively new lately, we have developed mobile banking instead of internet banking.

Can you tell me, how did you develop the innovation?

For the development, we do not acquire, instead we develop it by ourselves. For ATM, actually its features are in the module of ATM so we only make use of and develop them further. As well as internet and mobile banking, all features are developed by us.

I have a list of factors that can influence innovation decisions, for example internal factor, market factor, or regulation. Could you please tell me whether each one is an important factor that influences your decision to innovate?

Every time we do innovation, there must be a lot of consideration and evaluation. We consider the development of customer, the movement of market, so that we are automatically follow such demand and need. These will be our main driver.

In addition, we also follow the development of technology. Particularly recently, technology also becomes the significant driver. It may provide significant input for the business’ need which we will meet. Sometimes unit business has not thought about that yet, but technology starts “arranging” and “leading” to that direction.

What was (is) your source of inspiration?
Customer plays the important role. In the innovation planning, when at the past time we did not fully seek their desire and need, we have been doing a lot of things in order to provide more customers satisfaction recently.

How do you know what consumers need?

There a lot of things we can do. Not long ago, we conducted surveys actively, which were mostly done by us and the others are conducted by other research /consultant agencies. From those agencies, the customers may give invaluable input for us to innovate. We also often conduct customer gatherings, including the complaints, so that we can take further actions.

Is there any other party that also becomes your inspiration to innovate?

Indeed, there is a compound, such as by managements, but the main factor is customers. Government and Indonesian Bank do not intervene; instead they only have interests related to the regulation. For example, they determine where we may install our ATM or not. However, we need to inform what kinds of innovation we create.

In terms of credit, there is a capacity from government (particularly it is because government is our shareholder). For example, people’s business credit, for which there is an appeal of government with the minimum target of certain percent and in the period of certain years. However, for innovation of e-banking, I think there is no intervene from government as a regulator.

In your opinion, are there certain patterns related to those innovations?

Indeed, there are the same patterns of tendency. For example, in the past time, when mobile banking had boomed, all banks followed it. In fact, customers also have the similar tendency in making use of the same innovation. If our ATM can be used to pay tax and other billings, ATM from other bank must follow the same features. We keep comparing our features to other banks’ in order to keep competitive.

How do you organise and manage the development of this sort of innovation in your organisation? Is there any particular person/division that deals with this in particular?

Basically, the development of innovative product occurs in each business unit. In the past time, our innovation policy was product-driven which is contrary to in the present time yet that we are more customer-centric. Also, there was each innovative product in each business unit owning and being responsible of the product. For example in the case of ATM whose operations was managed by operational division, whose infrastructure is in the division of network and service, whose transactions becomes the responsibility of service and customer division, etc. Besides mobile banking and internet banking, there is certain business unit that is responsible for itself. But, we are in the change management office now and seek to create such management structure which is not too strict and bureaucratic. Therefore, in case of there are incidents of demands to be improved or opportunities to innovate, we will be react faster.

How are investment decisions made? How are diverse expectations managed? How are projects managed with high levels of technical, market, resource and organisation uncertainty?
Basically, innovations may be divided into several projects in which there is a project leader who is in charge of. In each unit, there is performance measurement unit in the form of key performance indicator (KPI). By KPI, we may know the indicators, the results, and the inputs.

Having the innovation programs, we conducted well-planning, market research, and evaluation first. After meeting our standards, it is launched in the market. In its running process, we conduct monitoring and by which we obtain mechanism. Evaluations may come from KPI, quality assurance (QUA), and internal supervision unit. Consequently, in case of the problem occurs, we may solve it sooner.

Each unit, then, is evaluated monthly. For example, why the performance of division organising internet banking is bad, why it does not generate transactions based on the target, there are a lot of troubles in the system, etc; so they will be solved shortly after being detected. There is also incremental innovation in it.

I have a list of ways in which innovators may protect their innovations through IP or other strategies, such as registration of design, trademarks, patents, confidentiality agreements, copyright, secrecy, complexity of design, lead-time advantage, etc. Could you please tell me whether each one is an important to your organisation for protecting innovation?

As far as I know, there is no the right of patent in this industry since basically all banks create the similar innovations. This far, they do not reached that point yet. Moreover, most of innovations are incremental, not radical. The more popular trademark is used to protect our products. Take for example, one of the features of our savings, BNI Taplus, which is parallel to Tabungan Batara. There is trademark for product, but there is no the right of patent for the process since they are almost similar.

For there is no the right of patent, generally the innovations are similar and tend to imitate, is it true?

Yes, it is. If there is another bank is willing to imitate another’s product, it is not difficult. They may use headhunter to hire specific people to imitate, or invest in human resource to create certain innovations. If a particular innovation is succeed in Bank A, but which is contrary in bank B, or en vice versa, it is related to the case of efficacy, depending on how such bank manage its own innovation.

It is also may caused by the difference of their business processes. Though the product is just the same, the process behind such innovation may be different. For example, in the developing of certain product, there are certain measurements, the different indicator and factor, the decision makers and how far their authorihy may be dissimilar. The work flow of its innovation may be different, though in general they remain the same. In addition, it explains why innovation in Bank A is succeed, but when it was imitated by bank B, it fails.

What factors constrain the decisions in your organisation and may lead you not to innovate?

Sometimes we face constraints coming from organisation or bureaucracy. There is no place for us to innovate. There is no clear reward or punishment. The fastest one is only
the innovation award. Though it also may be effective, it does not contribute a lot. In fact, the idea of innovation may come from anywhere and anytime.

Sometimes we give some feedbacks but not all of them are accepted by the top management. Sometimes their reasons are not too strong. So it may be the culture and bureaucracy that need to be repaired.

About the cost, as long as the cost-benefit analysis is reasonable and directly related to the consumers, we will take it. So far the cost never becomes an obstacle for innovating. Human resources do influence, but not very influencing.

Where do you put your organisation in terms of innovativeness? (top 10%, 20%, below?)

We are actually quite innovative, though we do not become no. 1 in Indonesia. From the product side, we compete at the same level with other banks. We always do some innovations, not only in the product/service side, but also in the system. For example, our ATM always improves its uptime. In other area we are also continuously doing innovations. We have some indicators such as KPI, PMS, Six Sigma, Malcolm Baldrige, etc. All of them work simultaneously and are result-oriented.

Do you think/find that other organisations also use that innovation? Do you think other organisations have learned from yours in terms of better use of that innovation?

If not mistaken, we are the first (state owned) bank which implemented ATM and become a model for other banks. But then the innovations tend to be done together. Each bank benchmarks the other. If this bank is good in this, that bank is good in that, and then it is imitated, applied.

Besides, our credit scoring is quite good. When a customer takes a credit in our bank, many other banks will takeover without any further consideration. They even dare to reduce the interest. It may happen because they see that our credit scoring are quite good/prudent so that the consumer is considered save for the other banks.

How does financial innovation (ATM, Internet Banking) mainly benefit your organisation?

The main advantage of ATM is that it is a fee-based income. It also gives the consumers satisfaction. Moreover now the e-channel can be used for various transactions. The more fee-based income we get, the more we can me economic.

Especially for internet banking, our internal staffs have used it since long time ago. All of our internal staff has used internet banking. Now all of the bills, bank statements, etc., do not use paper anymore. All of the reports are in the form of e-billing. On the positive side, we become paperless, more efficient, quite economical, and greener.

Which innovations that contribute most to your organisation? Why?

Among e-channels, the most beneficial is still the ATM, because it has many users and can do many transactions. Instead, the challenge is in how to make the internet and mobile banking more beneficial with optimal transactions. It has not been done yet, especially for mobile banking, but we have a strategic plan towards that direction.
Are there any negative impact from that innovation in your organisation?

When it is first launched, our mobile banking has a system problem. There are transactions that failed to execute, and there are transactions which done twice. We did fix them directly, but the customers may have trauma so that they are unwilling to use it. The customers may have perceptions that it is saver to use ATM and internet.

The ATM once had a problem too, where there were suspended accounts. When a transaction is done, it is recorded in the account, but it is not yet received by the receiver account. Things like this are surely disturbing, but we already fix it and the system is perfected from time to time.

Is there any other non-monetary benefit, i.e individual/organisational learning, uncover new business opportunity, or increase market share/corporate image as a result of adopting that innovation?

Those innovations influence our company’s image. The data from Market Research Indonesia (MRI) shows that there are significant influences toward that direction. That is why our innovations must consider the customer needs.

What do you expect to see in the future, say 5-10 years from now, with this current financial innovation (ATM, Internet Banking)?

For ATM, in the future it is still become the chief and we will keep enriching it with more complete features. While internet banking is more aim at cash management. Essentially, customers are measured using consolidated customer profitability report (CPR). So there is a package deal for the customers such as savings, deposits, credits, trusts, insurances, etc. If later we reduce the interest this much, the fee from others will compensate it.

In our plan, each customer who login by ATM/ internet banking will get consolidated information about their package/account. For example when the customer deposit will reach its due date, we are automatically giving an option to rollover through ATM/internet banking. This feature may already used in the foreign banks, but it is what we are developing. The focus be given more to the institution/private customers first and then to the mass.

We have to admit that Indonesia is still a follower in innovation. We are now rearranging and re-evaluating the technological architecture roadmap to the future. It will be our basis and units to create innovation. We also use a consultant service. The technological roadmap surely must be aligned with the human resources, infrastructures, and other business aspects. That is our long term strategy, and we hope we can catch-up with other banks in the foreign countries which are more innovative.

Do banks need to collaborate to change laws, regulations, consumer attitudes, retailers, etc? Maybe in training and skills development?

There are collaborations. For example there is PSAK (Indonesian Accounting Standards) Article No. 50-55 application which totally changes the banking accounting. Its framework arrangement process is done together by banks. This bank do this part, that bank do that part, etc.
For training, we were once collaborating with other banks. For example there was credit training which invited senior banker from Citibank. We also associated with Bank Pembangunan Daerah (BPD). Many systems and workflows in BPD were our works.

Did (does) your organisation receive any public financial support for innovation activities from government, authorities, agencies, ministries, etc?

None. Financial supports are done independently. No intervention from the government. There are also supports from institutions like Wahana Kendali Mutu or Indonesian Quality Award (Malcolm Baldrige criteria for performance excellence), which is an innovation arena. But they just give support and feedback only.

Apparently the innovation actors are only “those” people. For example a certain elite group, certain university graduates, or certain banks, which hired by other bank to work on a certain project, after the project is over, they will be hired by other bank, and so on. Thus, the turnover rate is usually high. Is it so?

It is so the last time I saw it. Recently the logos of banks/products are similar. They use the same vendor. The technological architecture is probably the same too because we all use the same consultant, such as Accenture. Because many other banks also use their service, it is natural if the innovations are also similar.

Many of our staffs are also frequently move like that. The turnover is quite substantial. Many of the people in technology division, for example, move to other banks and develop an innovation there. They often get a higher position, and then invite their friends to migrate there. They do not stop there, it may happen that they then move to yet another bank. So it is probably true that it is only “those” people.

Did (does) your organisation have any innovation activities to develop new product/process that were abandoned or incomplete?

We actually have many innovation projects, hundreds of it, from big project to small project. But the projects which are really executed are not many; do not reach 20% of it. Usually go or no-go is determined based on process of voice of business, employee, management, business process, etc. The abandoned projects usually do not fulfill some of those voices. It also may be because the process is too difficult or because there is no commitment factor yet.

Would you suggest a particularly good practice of financial innovation in your organisation?

We continuously do some innovations in the ATM side. Our uptime now has reach 99%, one of the best in Indonesia. It is not yet fit our target, but it is better than some years ago. Since then, there are more transactions, less complaint, and we do not lose our opportunity anymore.

System improvement also impacts us a lot. Take for example, in terms of processing speed which grows rapidly. In the past time, the process passed by customers to propose an application of credit card was 12 days, and then it lasts for 3 days for now on. Also, in the case of productive credits which almost had no clear time, up to 3-4 months, but now it reduces to 25 days. Then, for the micro credit, it takes less than 20 days.
Could you please tell me about other sorts of innovation – how important are the consumer-facing technological innovations as compared to internal organisational and tech. innovations, new financial products and strategies, etc.?

In our bank, the emphasis of innovation is more on the system and internal organisation. The existing barrier is that the place for continuous innovation. Others barriers are that sometimes we are not consistent yet, unclear reward/punishment mechanism. For some time, we are highly innovative, on the other times, we are not. In addition, there is a commitment factor from management which is also important. It is because without such commitment, the best innovation will never run.

It often occurs that commitment is absent due to trivial things. Take for example, if we focus on A area, but lazy to innovate in B area. However, slowly but sure, we learn and anticipate the similar conditions. Finally, we employ a lot of indicators and internal management system. Then, there is continuous improvement. Lastly, idle cash which was in the past time reached million rupiah, is able to be reduced. Also, we are far much efficient than 2 years ago.

Are there important things about your innovation experience being neglected here?

In my opinion, it is necessary to lead innovation internally, not only externally (from customers). Take for example in CMO, in which we always monitor each unit, find out how far their action plan, how they improve the process, whether there is opportunity for improvement or not, etc. From audit, KPI or other indicators, we monitor routinely, how far they are conducted, what are their strategies, how about the schedules, what are the barriers. Troubleshooting started internally will be the succeeding factor of innovation. Being innovative inside, we will be innovative outside (marketplace).

Okay. I think I have no further questions. Thank you for your participation on this interview.

You’re welcome.
**Interview Transcript 3**

This interview has been conducted with Anna Triana Kurniasih, from eChannel Business Department, Mass and Electronic Banking Group of Bank Mandiri, at Wednesday, 1 June 2009, 4.33 AM.

*First of all, I would like to explain the general overview of this research. Like what I have said before, the research aims to finding out more about diffusion process and adoption of banking innovation, especially e-banking, which includes ATM, internet, and mobile banking. The focus of this research is on driver, barrier, benefit, and dynamics behind the process. Do you have any question before we start the interview?*

Okay. Everything is fine.

*When did your organisation start using financial innovation (ATM, Internet Banking, and Mobile Banking)?*

In order to make the customer more convenient, in 2002 we developed various electronic access to Saving Account such as ATM, SMS banking, Internet Banking, Phone Banking and EDC machine.

*What were (are) important factors that influence your decision to innovate?*

Strong commitment from management to enter consumer banking market becomes the primary success factor of our product, including innovation in the e-banking service facility which become the derivatives of the product.

Other factor that plays important role is the management support to improve the service quality, either branch-based or e-banking based. The service quality is very important in order to provide the best service for customers. Bank Mandiri continues to refine and innovate itself. The result is that based on Marketing Research Indonesia (MRI) survey (through various method, including mystery shopping), in 2006 the quality service of Bank Mandiri was in the third rank, and in 2007 and 2008 (two years in row), Bank Mandiri ranks number one.

*What was (is) your source of inspiration?*

The main source of inspiration in the refinement and development is the existing needs of the customers towards the improvement on banking service. Besides, the inspiration also comes from the internal organisation and our competitors as well.

*Which types of co-operation partner did (do) your organisation use? Where they were (are) located?*

In this case, the core business of Bank Mandiri is financial institution. Therefore, it is certain that every development/innovation for improving banking services will be assisted by other competent parties.
Basically, the nature of this cooperation is just the same as other form of business. In this case, Bank Mandiri is open to any parties who are willing to cooperate in assisting Bank Mandiri to do its innovation for improving service quality.

How do you organise and manage the use of financial innovation in your organisation? Is there any particular person/division that deals with this in particular?

Bank Mandiri has a special group that is in charge of managing development, investment and monitoring of the innovation result.

What kind of protection that important to your organisation to protect innovation?

Some actions and measures have been taken to protect innovation such as patent and confidential agreement.

What constraint factors that influence a decision in your organisation not to innovate?

Until now, there is no major factor that inhibits innovation. In this case, Bank Mandiri has conducted innovation based on the needs of customers.

What difficulties has your organisation encountered in using financial innovation so far? How do you solve them?

The obstacle faced by Bank Mandiri is the harmonisation of the rapidly changing technology with the customers’ needs. Bank Mandiri continues to find improvement and survey of customers’ satisfaction by following the technological trends.

How financial innovation (ATM, Internet Banking, and Mobile Banking) benefit your organisation?

The benefit we obtained is increasing customers’ loyalty, increasing fee-based income and better cost efficiency.

What do you expect to see in the future with this current financial innovation (ATM, Internet Banking, and Mobile Banking)?

We have evaluated that the innovation in e-banking in the future will become more integrated and full of features to satisfy our customers’ needs. We hope that this innovation can increase the number and loyalty of customers significantly, not to mention the increasing amount of third-party funds, fee-based income, cost efficiency, and better service quality.

Do banks need to collaborate to change laws, regulations, consumer attitudes, retailers, etc? Maybe in training and skills development?

Concerning this matter, bank collaborated with other parties in establishing customers’ attitude towards e-banking. The purpose is that customers will have the same understanding to the e-banking service. This will help us in promoting and educating our customers to new e-banking products and services.
Could you please tell me about other sorts of innovation—how important are the consumer-facing technological innovations as compared to internal organisational and tech. innovations, new financial products and strategies, etc.?

There is no difference in the perspective of development/innovation between customers-facing technology, internal organisation, new products and services development. In this case, Bank Mandiri proceeds everything with the needs priority.

Did (do) your organisation have any innovation activities to develop new product/process that were abandoned or incomplete?

No, we don’t have any innovation activities that were either abandoned or incomplete.

Did (do) your organisation receive any public financial support for innovation activities from government, authorities, agencies, ministries, etc?

In developing our innovation activities, we did not receive any kind of support from government authorities. However, as a major stockholder, government is continuously supporting every innovation activities as long as it can increase our service excellence and contribute to our earning.

Would you suggest a particularly good practice of financial innovation in your organisation?

Yes, for example online transaction between our branches and headquarter. Bank Mandiri is a relatively new bank and a result of merger from four different banks. Creating such a system is not an easy task because each bank previously has different system. However, after this innovation runs well, we can see the result.

Where do you put your organisation in terms of innovativeness? (top 10%, 20%, below?)

Well, to be honest, we are probably no. 1 or 2 in Indonesia.

Are there important things about your innovation experience being neglected here?

No.

Okay. I think I have no further questions. Thank you for your participation on this interview.

You’re welcome.
Interview Transcript 4

This interview has been conducted with banking official, IT planning and architecture group, from Bank X\textsuperscript{59}, at Tuesday, 23 June 2009, 6.30 AM.

Firstly, as I told you a few days ago, the research aims to finding out more about diffusion process and adoption of banking innovation, especially e-banking. The focus of this research is on driver, barrier, benefit, and dynamics behind the process. Do you have any question before we start the interview?

No. Everything is fine.

When did your organisation start using financial innovation (ATM, Internet Banking, and Mobile Banking)?

We developed our ATM in late 1980s, later on we developed our self-service terminal (SST) in 2005. While for internet banking and mobile banking, we did it in early 2000s.

I have a list of factors that can influence innovation decisions, for example internal factor, market factor, or regulation. Could you please tell me whether each one is an important factor that influences your decision to innovate?

Our main influencing factor is competitor. They developed their features, products, and services so rapidly, which in turn, forced us to develop similar kind of innovation as well. A changing landscape and new channels makes financial services a competitive and complicated sector. The competition in this industry is fierce and the cost of losing customers is quite high.

What was (is) your source of inspiration?

Same as above, our source of inspiration is our competitor. Yes, we have several actions to reveal our customers’ real needs and forecast their behaviour. However, as competition become a bit ‘violent’, we must take into account what our competitor has done. However, sometimes we also consider products and services innovation that has been done by our parent company in another country as well.

What factors constrain the decisions in your organisation and may lead you not to innovate?

Our main constraint is cost. As you already know, product and service development in financial services is usually very costly. This problem forces us to delay our new product/service development into subsequent year. However, as our bank just recently merged with other bank, we now have better capital structure. I hope this won’t inhibit innovation in our organisation anymore.

How does e-banking innovation mainly benefit your organisation?

\textsuperscript{59} One of the top ten largest banks in Indonesia. Name withheld by respondent’s request.
The main advantage of e-banking is fee-based income. We generate most of our fee-based income from ATM transactions. However, I do believe that internet banking is continually improving and I hope that it will generate fee-based income as much as ATM does in the near future.

*Which types of co-operation partner did (do) your organisation use? Where they were (are) located?*

Yes, particularly in system integration and development, also in developing and implementing our marketing campaign.

*How do you organise and manage the use of financial innovation in your organisation? Is there any particular person/division that deals with this in particular?*

We have small cross-departmental group that assigned partcularly to develop and maintain certain product/service innovation.

*What kind of protection that important to your organisation to protect innovation?*

As far as I know, we don’t have some kind of legal protection. Probably we have some confidential agreement, but I’m not really sure about that.

*In your opinion, is it true that Indonesian banking in general is follower and laggard in innovation compared to their peer in western countries, say US or Europe?*

Indeed. In general, banks in Indonesia are still far behind market leader, competitor and other banks in foreign countries. In our banks, some products such as treasury still copies from our parent company’s product in other country.

*So, do you think that we don’t have any kind of financial innovation that completely new?*

Yes. Most innovation is still adopted, or at least, adjusted to the local culture. Perhaps the ‘cover’ is like product alignment or so, however the core is still the same.

*Why this was happened? Is there any regulatory constrain that discourage banks to innovate? Or, do you think that the nature of competition in banking is relatively low?*

It is simple. If we can adopt, why bother to create something new? If there are many things that we can copy, why bother spending much money to innovate? Considering other competitors are far from that perspective, or many opportunities are still available to explore.

What is clear is that Bank Indonesia does not prohibit innovation. After all, every year banks must file report to Bank Indonesia concerning their innovation in *Rencana Kegiatan dan Anggaran Tahunan/RKAT* (Annual Plan and Budget Plan).

*How do you describe innovation in banking compared to other business sectors?*

In my opinion, the main resource of service industry is capital, human resource, and IT. Unfortunately, we are incapable to be a leader of those sectors. We perhaps can be a
leader in service industry after we have lots of smart people and supported with large amount of capital.

In manufacturing and extractive industry (mining, plantation, etc.), we can be a leader because Indonesia is rich with natural resources which can support that industry. But that is completely different with service industry. That is why banking in Indonesia is far behind manufacture or other natural-based industry.

*Can you explain the role of external consultant in driving innovation on your organisation?*

Somehow, we hired consultants because we thought they were more updated with current market condition and really understood what product could be implemented. Consultants were used in some units and each unit will have different consultant which depends on the area of expertise of each unit (e.g. Wyatt Watson for HRM, Accenture for IT, and Oracle for finance). They might play important role which is not only as an advisor, but sometimes also as a system integrator.

*What is the role of foreign consulting firm and foreign banker in your organisation? Do (did) they play an important role in stimulating innovation?*

This could be true. There is a rule of Bank Indonesia that regulates the utilisation of foreign experts and foreign consultants. It explains what and how their responsibility is. However, in general Bank Indonesia still prioritises local experts to fill strategic posts in banks. Foreign experts are usually positioned in certain post based on their area of expertise. However, it does not mean that the role of foreign experts and consultants can be taken for granted.

*Did (do) your organisation have any innovation activities to develop new product/process that were abandoned or incomplete?*

Yes, but not much.

*Did (do) your organisation receive any public financial support for innovation activities from government, authorities, agencies, ministries, etc?*

No public financial support whatsoever.

*What do you expect to see in the future with this current financial innovation (ATM, Internet Banking, and Mobile Banking)?*

I believe that radical changing landscape for the electronic delivery of retail banking services will be very interesting. Paper money and coin will become extinct. As cashless transaction become popular, people uses ATM not to withdraw money but to do routine transactions. More and more people doing internet banking as computer and mobile devices become cheap and affordable. I cannot imagine the mobilisation of money in the near future.

*Could you please tell me about other sorts of innovation—how important are the consumer-facing technological innovations as compared to internal organisational and tech. innovations, new financial products and strategies, etc.?*
In our organisation, every kind of innovation treated equally. Innovation in the consumer-facing technology is just a small part of ‘big innovation system’ in our organisation. For example, recently we’re just conducting innovation in workplace and human resource to increase our productivity. Indeed, everything must be aligned properly in order to support our organisation.

*Where do you put your organisation in terms of innovativeness?*

I suppose our bank is on the top 5 in Indonesia.

*Okay. I think I have no further questions. Thank you for your participation.*

You’re very welcome.
Interview Transcript 5

This interview has been conducted with Abdul Muthalib, Information Technology Group Head of Bank Mega, at Monday, 6 July 2009, 09.45 AM.

First of all, I would like to explain the general overview of this research. Like what I have said before, the research aims to finding out more about diffusion process and adoption of banking innovation, especially e-banking, which includes ATM, internet, and mobile banking. The focus of this research is on driver, barrier, benefit, and dynamics behind the process. Do you have any question before we start the interview?

Okay.

When did your organisation start using financial innovation (ATM, Internet Banking, and Mobile Banking)?

Bank Mega developed ATM for quite a long time ago, around 1990s. Internet banking has been developed in 2001. While Bank Mega Syariah (BMS) has been utilising ATM since 2005 and mobile banking since 2007. Internet Banking in BMS is not developed yet at the moment.

What were (are) important factors that influence your decision to innovate?

The main factor that influences our decision is stakeholder, especially customers. They are our main driver in encouraging us to keep innovate.

What was (is) your source of inspiration?

Customers and competitors.

Which types of co-operation partner did (do) your organisation use? Where they were (are) located?

Yes. The form of cooperation is usually technical development on infrastructure and device.

How do you organise and manage the use of financial innovation in your organisation? Is there any particular person/division that deals with this in particular?

Under my supervision, there are some department such as Department of Application Development and Infrastructure Development. These two departments have been given broader space to develop and cooperate with vendors as long as it benefits Bank Mega.

What kind of protection that important to your organisation to protect innovation?

At the time we release a product or brand, it should be delivered in one package with patent. However, it is realised that the development of product and technology is so fast while patent takes time to process that there is no such a specific method Bank Mega can use to protect both.
What constraint factors that influence a decision in your organisation not to innovate?

As far as I know, there are no significant matters that inhibit innovation.

What difficulties has your organisation encountered in using financial innovation so far? How do you solve them?

In general, the difficulty of developing innovation is the lack of readiness of third party. It can be from legal drafting aspect or other aspects. However, in technical terms, the development is relatively met and fulfilled, and if any, it is not significant obstacle. If indeed there is such an obstacle, usually meeting by each legal team will be called in order to discuss the inhibiting issues.

How financial innovation (ATM, Internet Banking, and Mobile Banking) benefit your organisation?

That innovation is beneficial, especially for increasing fee-based income.

What do you expect to see in the future with this current financial innovation (ATM, Internet Banking, and Mobile Banking)?

In my opinion, in the future, the feature of e-banking will be far better, complicated, but integrated. After all, banks must do anything in order to maintain the customers’ satisfaction. Isn’t it?

Do banks need to collaborate to change laws, regulations, consumer attitudes, retailers, etc? Maybe in training and skills development?

Yes, I think the banks that has joined Perbanas or Asbisindo (Indonesian Bankers Association) really concern and focus to the issues like human resources and training.

Could you please tell me about other sorts of innovation—how important are the consumer-facing technological innovations as compared to internal organisational and tech. innovations, new financial products and strategies, etc.? 

I am pretty sure that in the future, there will be many banks that will innovate to the delivery channel, because it will substitute for customer service in many ways. We have to realise that the change or addition/development will have effect on IT, organisational structure, product, and service of banks. Therefore, innovation in consumer-facing technology must in line with the innovation in the organisational structure, corporate strategy, and resources. Indeed, collaboration and partnership is become the norm for the banking industry, even with our competitor.

Did (do) your organisation have any innovation activities to develop new product/process that were abandoned or incomplete?

Yes. There are some innovations that are cancelled or suspended because the customers’ needs are already passed or it no longer met by the product/process.
Did (do) your organisation receive any public financial support for innovation activities from government, authorities, agencies, ministries, etc?

Probably not.

Would you suggest a particularly good practice of financial innovation in your organisation?

Yes. For example, the use of electronic data capture (EDC) as the transaction media for BMS customers when doing transaction in Bank Mega. Bank Mega and BMS are two separate units although under one ownership. The development of EDC can improve BMS service and can reach the customers through Bank Mega.

Are there important things about your innovation experience being neglected here?

I think it is enough for the moment, I will provide additional information as necessary.

Okay. I think I have no further questions. Thank you for your participation on this interview.

You’re welcome.