



Factors Influence Development of E-Banking in Malaysia

Journal of Internet Banking and Commerce, August 2006, vol. 11, no.2
(<http://www.arraydev.com/commerce/jibc/>)

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Abstract

There are several underlying forces coming together have caused the E-banking development in Malaysia. The development mainly because of new marketing strategy especially to create E-Customer Relationship Management (E-CRM) and to improve banking activities. The other reasons are development of technology, applications and tools, as well as supported by the government.

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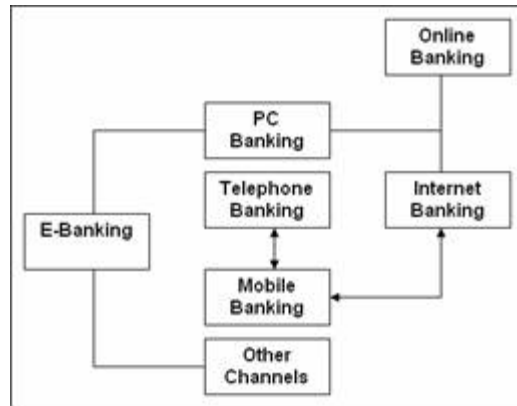
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Introduction

E-banking is the wave of the future. It provides enormous benefits to consumers in terms of ease and cost of transactions, either through Internet, telephone or other electronic delivery channels (Nsouli and

Schaechter, 2002) (see Figure 1).

Figure 1: E-Banking



Source: Islam (2005)

The evolution of the E-banking industry can be traced early 1970s. Banks began to look at E-banking as a means to replace some of their traditional branch functions for two reasons. Firstly, branches were very expensive to set up and maintain due to the large overheads associated with them. Secondly, E-banking products/services like ATM and electronic funds transfer were a source of differentiation for banks that utilised them. Being in a fiercely competitive industry, the ability of banks to differentiate themselves on the basis of price is limited (Singh, Chhatwal, Yahyabhoy and Yeo, 2002).

E-banking development would lead to two classes of surviving banks, which are very large banks and small niche ones (Dewan and Seidmann, 2002). Through the E-banking, smaller banks could compete by offering portals to the services offered by larger banks (Holland and Westwood, 2001). With this development, banks could use E-banking to focus on customer needs in order to gain the strongest competitive advantage (Wind, 2001).

The transformation from traditional, bricks-and-mortar banking to E-banking has been momentous. Not since the advent of the automatic teller machine (ATM) has the retail banking industry witnessed such significant and extensive change. Formally, E-banking comprises various formats or technologies, including telephone (both landline and cell phones) banking, direct bill payment (Electronic Funds Transfer (EFT)), and PC or Internet banking (Power, 2000; Weitzman, 2000; Lassar, Manolis and Lassar, 2005). Chou and Chou (2000) identified five basic services associated with online banking: view account balances and transaction histories; paying bills; transferring funds between accounts; requesting credit card advances; and ordering checks.

E-Banking in Malaysia

All licensed banking institutions in Malaysia are allowed to establish informational Web sites, which is the first stage of business purpose and the basic online business activity, "promotion" (Ho, 1997). Only banking institutions licensed under the Banking and Financial Institutions Act 1989 and the Islamic Banking Act 1983 are allowed to offer Internet Banking services in Malaysia (BankInfo, 2005). For advanced Internet banking services, only domestic banking institutions are allowed to establish communicative or transactional Web sites with effect from June 1, 2000. However, locally incorporated foreign banks are only allowed to incorporate communicative Web sites from Jan 1, 2001 and transactional Web sites from Jan 1, 2002 (Low, 2000). There are 12 banks offering Internet banking facilities while five have introduced mobile banking (Bank Negara Malaysia, 2003).

The introduction of the Inter-Bank GIRO system, an electronic credit transfer system in 2000 had recorded on annual average increase in transactions of 160% in terms of volume and nearly 200% in terms of value between 2003 and 2004. The credit card is also becoming a popular means of payment card, with the total value and volume of increasing annually by 15 and 20 percent respectively. The growing acceptance of Internet banking as a convenient delivery channel for accessing banking services has translated into a significant growth of Internet banking subscribers, which today comprise two thirds of the total Internet subscribers. The latest mode of electronic payments channel is the mobile banking

services that provide convenience to consumers to access a range of payment services such as funds transfers, bill payments and credit card services through mobile phones. In addition, the establishment of an Internet-based multi-bank payment system in Malaysia, the Financial Process Exchange in October 2004 would facilitate online payments for a variety of payments by providing convenience and an efficient channel for businesses and consumers to undertake their payment transactions through the Internet (Bank Negara Malaysia, 2005).

E-Banking Development

There are several underlying forces coming together have caused the E-banking development in Malaysia:

1. New marketing strategy

1.1. E-Customer Relationship Management (E-CRM)

CRM phenomenon in light of the drivers of banking innovation since the 1970s, one might wonder if CRM itself is the innovation or the technology (CRM Today, n.d). The Bank recognised that it needed to adopt a CRM strategy and that it had to move from a service-driven organisation to a more pro-active, sales-driven organisation (IBM, 2004). Research on CRM has increased significantly over the past few years. The study by Ngai (2005) identified 205 CRM articles published between 1992 and 2002 (see Table 1). CRM has power to help bankers quickly and directly improve customer satisfaction. CRM is an added dimension to ensure that what the customer expects is consistent with what the bank is CRM is an approach that is less focused on providing the right services to the customer than attracting customers who are the right fit for what the bank has to offer. Further, the primary value of CRM is its potential as a customer retention tool. People are starting to measure CRM in terms of increased customer satisfaction rather than ROI (CRM Today, n.d).

Table 1: Classification of reviewed literature

| Subject headings | Bibliography |
|-----------------------------------|---|
| CRM | |
| General, concept and study | Abbott (2001); Abbott et al. (2001a, b); Bose (2002); Cox (2000); Daniels (2001); Fletcher (2001); Hart et al. (2002); Kelly (2000); Leventhal (2000); McKim (2002); Nairn (2002); Narayanan and Brem (2002); Paas and Kuijlen (2001); Parvatiyar and Sheth (2001); Peppard (2000); Plakoyiannaki and Tzokas (2002); Rigby et al. (2002); Verhoef and Langerak (2002); West (2001); Xu et al. (2002) |
| Management, planning and strategy | Almquist et al. (2002); Beckett-Camarata et al. (1998); Brotherton (2000); Carmichael (1997); Chang et al. (2002); Crosby (2002); Donbavand (2002); Dowling (2002); Doyle and Georghiou (2001); Hansotia (2002); Hirschowitz (2001); Jain et al. (2002); Kanter (1992); Kendrick and Fletcher (2002); Kracklauer et al. (2001); Ling and Yen (2001); McKim and Hughes (2001); O'Halloran and Wagner (2001); O'Malley (2000); O'Malley and Mitussis (2002); Palmer and Brookes (2002); Peppers et al. (1999); Pompa et al. (2000); Ryals and Knox (2001); Ryals and Payne (2001); Sawhney (2002); Seybold (2001); Slywotzky and Shapiro (1993); Stone et al. (1996); Sutherland (2002); Wilson et al. (2002); Winer (2001); Woodcock and Starkey (2001); Wright et al. (2002); Yu (2001) |
| Performance management | Shaw (1999); Sheth and Sisodia (2001); Starkey and Woodcock (2002); Starkey et al. (2002); Woodcock (2000) |
| Personnel management | Baker (2002); Galbreath and Rogers (1999); Helfert and Vith (1999); Jauhari (2001) |
| Marketing | |
| Channel management | Rheault and Sheridan (2002) |
| Consumer behaviour | Moe and Fader (2001); Ojasalo (2001); Watkins and Liu (1996) |

| | |
|---|--|
| Customer loyalty | Coner and Gungor (2002); Reinartz and Kumar (2002) |
| Customer retention | Aspinall et al. (2001); Chattopadhyay (2001); Lemon et al. (2002); Ultsch (2002) |
| Customer value | Calciu and Salerno (2002); LiBrizzi (2001); Panda (2002); Srivastava et al. (1999); Verhoef and Donkers (2001) |
| Pricing and profitability | Anderson (2002); Hopkinson and Lum (2002); Hutt (2000); Koslowsky (2001); Ryals (2002) |
| Privacy | Cannon (2002) |
| Product | Forza and Salvador (2002); Ryder (2000); Tollin (2002); Wind (2001) |
| Segmentation, targeting, and positioning | Dibb (2001a, b); Dorrington and Goodwin (2002); Giltner and Ciolli (2000); Hansotia and Rukstales (2002); Hymas (2001); Lerer (2002b); Soper (2002) |
| Trust | Bayon et al. (2002); Kimery and McCord (2002); Schoenbachler and Gordon (2002) |
| Sales | |
| Account management | Arnold et al. (2001); Birkinshaw et al. (2001); McNab (2002); Ojasalo (2002); Wong (1998); Woodburn (2002) |
| Cross selling/buying | Jarrar and Neely (2002); Verhoef et al. (2001) |
| Sales force automation | Speier and Venkatesh (2002); Widmier et al. (2002) |
| Sales management | Dorsch et al. (2001); Ingram et al. (2002); Robinson et al. (2002) |
| Service and support | |
| Call centre | Feinberg et al. (2002a); Meltzer (2001); Pontes and Kelly (2000); Seddon (2000) |
| Customer satisfaction | Khalifa and Liu (2002); Torcy (2002); Yelkur (2000) |
| Field service | Agnihotri et al. (2002) |
| Quality management | Jonson (1999); Li et al. (2002a, b); Sinha (2001) |
| Self service | Bitner et al. (2002) |
| Social and non-profit | Buttle and Boldrini (2001); Pang and Norris (2002) |
| IT and IS | |
| Data, information, and technology management | Foss et al. (2002); Groves (2002); Jukic et al. (2002a, b); Karimi et al. (2001) |
| Data mining | Baker and Baker (1998); Danna and Gandy (2002); Drew et al. (2001); Furness (2001); Ha et al. (2002); Hassanein (2002); Koh and Chan (2002); Lejeune (2001); Mena and Pettit (2001); Min et al. (2002); Nemati and Barko (2002); Nitsche (2002b); Rygielski et al. (2002a, b); Yuan and Chen (2002) |
| Data warehouse | Cooper et al. (2000); Robinson and Chappellear (2002) |
| E-Commerce | Bapna et al. (2001); Bhattacharjee (2001); Bradshaw and Brash (2001); Ferguson (2000); Jarach (2002); Kapoulas et al. (2002); Lerer (2002a); Nielsen (2002); Romano (2002); Tan et al. (2002) |
| E-CRM | Ellis-Chadwick et al. (2002); Fairhurst (2001); Feinberg and Kadam (2002); Feinberg et al. (2002b); Kotorov (2002); Romano and Fjermestad (2001); Taylor and Hunter (2002) |
| Internet | Bauer et al. (2002); Courtheoux (2000); McGowan et al. (2001); Olsen et al. (2001) |
| Knowledge management | Blosch (2000); Fahey et al. (2001); Gamble et al. (2001); Garcia-Murillo and Annabi (2002); Gibbert et al. (2002); Massey et al. (2001); Morik et al. (2002); Raeside and Walker (2001); Roscoe (2001); Rowley (2002a, b); Shaw et al. (2001) |
| Optimisation | Fink and Kobsa (2000); Fink et al. (2002) |
| Software, tools, systems (DSS, ES, IS, ERP, etc.) | Barlow (2001); Chen et al. (2002); Choy et al. (2002); Corner and Hinton (2002); Crosby and Johnson (2001); Fano and Gershman (2002); Gefen and Ridings (2002); Hamm and Hof (2000); Kohli et al. (2001); Mirani et al. (2001); Nitsche (2002a); Rao (2000); Shoemaker (2001); Silverman et al. (2001); Stamoulis et al. |

1.2. Improving Banking Activities

Majority of banks is planning to introduce ICT for integration of banking services and new finance services, which will play a vital role in bringing efficiency in the financial sector (Raihan, 2001). The most commonly factors are ease of use, transaction security, convenience and speediness (see Table 2) (Wan, Luk and Chow, 2005).

The rapid pace of advancement in ICT networking has offered a wide range of delivering channels in retail banking. Banking institutions need to exploit the opportunities that arise from these developments and changes to remain competitive. The successful financial institutions in the future will be those that are able to leverage most from the information and communications technology revolution. Increasingly, consumers are also demanding more efficient banking services and are becoming more discerning of the power that the technology brings. The winners will be those financial institutions that are able to harness on the capability of ICT in making strategic decisions in terms of enabling better alignment of business, enhancing organisational capacity and capability, risk management and building better customer relationship. Attention at the highest management level is therefore vital to ensure the formulation of the most appropriate ICT strategies for banks to remain competitive (Bank Negara Malaysia, 2003).

Table 2: Summary of Research Findings on Psychological Factors Associated with Banking Channel Adoption

| Factors | Gerrard and Cunningham (2003) | Liao and Cheung (2002) | Lockett and Litter (1997) | Mattila et al. (2003) | Mols et al. (1999) | Moutinho and Smith (2000) | Rotchanakitumnuai and Speece (2003) | Sathye (1999) | Wang et al. (2003) |
|--|---|-----------------------------------|----------------------------|---|---------------------|---------------------------|-------------------------------------|----------------------------|-----------------------|
| Ease of use | Complexity, PC proficiency | Expectations of user-friendliness | Complexity | Perceived difficulty in using computers | | Ease of banking | | Lack of awareness about IB | Perceived ease of use |
| Transaction security | Confidentiality | Expectations of security | Risk of service | | | | Security | Security concerns | Perceived credibility |
| Transaction accuracy | | Expectations of accuracy | | | | | | | |
| Speediness | | Expectations of network speed | | | Less waiting time | | | | |
| Convenience | Convenience, accessibility, compatibility | Expectations of convenience | | | Spatial convenience | Convenience | | | |
| Time utility | | | 24-hour-a-day availability | | | | | | |
| Provision of different personal services | | | | | | | | | |
| Social desirability | Social desirability | | | | | | | | Perceived usefulness |
| Usefulness | | | | | | | | | |
| Economic benefits | Economic benefits | | | | | | | | |
| User Involvement | | Expectations of user involvement | | | | | | | |

2. Development of Technology, Applications and Tools

Technology continues to make a dramatic and profound impact in service industry and radically shapes how services are delivered (Bitner et al., 2000). The primary motivation for the increasing role of technology in service organisations has been to reduce costs and eliminate uncertainties (Kelly, 1989) as well as being used to standardise services by reducing the heterogeneity prevalent in the typical employee/customer encounter (Quinn, 1996; Durkin,

2004).

For example, Bumiputra Commerce Bank (BCB) had engaged Cyber Village for a project to transform their existing Internet Banking system, with the project codenamed "Transformation of Internet Banking System" (TIBS). The objectives of TIBS were to transform BCB's existing Internet banking system to offer improved user experiences, increase technical flexibility and enhance its Internet banking operations efficiency for both consumer as well as business banking. TIBS sought to successfully deliver an enterprise-class Internet Banking platform that could provide a superior online user experience whilst leveraging on a cost-effective, flexible, scalable and proven technology platform. The project is leveraging on the IBM Websphere platform and DB2 database. Cyber Village is the first local e-business software company which has successfully implemented a fully operational enterprise-class Malaysian designed and developed Internet Banking system for a Malaysian bank, leveraging on a cost-effective, flexible, scalable and proven technology platform. Featured modules include:

- Detailed Account Enquiry Modules
- Fund Transfer, Bill Payment, Standing Instruction Modules
- Detailed Audit Trails
- Secure Messaging Modules
- Mobile Banking Modules
- Payment Gateway
- Powerful backend maintenance and administration modules
- User Friendly Support Centre

After the Lynx has been used at the early time, the Web first became widely available to the public in 1993 with the dissemination of the first Web browser called Mosaic. After that, the introduction of Netscape in 1994, Internet Explorer in 1995 and Opera in 1996 has increased number of Internet users. The development of graphical and user friendly Web browsers has continued to this day helps the developer to add with creative and innovative Web site design based on their requirement especially for business purposes.

In terms of Web site features, consumers will take into consideration the accessibility of the Web site, loading speed, navigation process, online direction, updated information and availability of alternative access such as telephone number and physical outlet address. These Web site characteristics are related to technical performance and sometimes depend on Internet service providers and server connection (Tih and Ennis, 2006).

In today's competitive environment, marketers are looking for new and innovative methods to build a powerful Web site. Web applications are used to implement Webmail, online retail sales, online auctions, wikis, discussion boards, weblogs, MMORPGs, video logging and perform many other functions.

A significant advantage of building Web applications to support standard browser features is that it should perform as specified regardless of the operating system or OS version installed on a given client. Rather than creating clients for Windows, Mac OS X, GNU/Linux and other operating systems, the application can be written once and deployed almost anywhere. However, inconsistent implementations of the HTML, CSS, DOM and other browser specifications can cause problems in Web application development and support. The ability of users to customise many of the display settings of their browser such as selecting different font sizes, colours and typefaces or disabling scripting support can interfere with consistent implementation of a Web application (Wikipedia, 2006).

Most of the Web browsers support for Flash or Java-based applications. While many web applications are written directly in PHP or mod_perl. There are many Web application frameworks, which automate the process by allowing the programmer to define a higher-level description of the program. The use of Web application frameworks can often reduce the number of errors in a program, both by making the code more simple, and by allowing one team to concentrate just on the framework. In applications, which are exposed to constant hacking attempts on the Internet, security-related problems caused by

errors in the program are a big issue. Java remains one of the most common programming languages for writing Web applications. This is specially true for web based enterprise applications. J2EE provides several useful components (JavaServer Pages, servlets, client-side applets, Enterprise Java Beans, JDBC and several Web service technologies) for writing enterprise Web applications (Wikipedia, 2006).

Information security is today a rather sophisticated and complex issue. No longer can it be a subset of the MIS department or even part of the operational purview. For example, few of the leading Malaysian banks have established a team of security experts, both physical and info security to regulate and manage the organisation's security. This is supplemented with collaboration with third-party information security service providers who offer more than the mandatory penetration testing. These experts work in partnership with the in-house security team to design, develop and manage the security infrastructure for the bank. The interesting aspect is that in line with the evolving security needs of the bank, the security infrastructure and system also evolve, being modified and updated to stay relevant in almost real time. The security infrastructure involves the monitoring services, detection systems, preventive measures and security hardware, but most importantly the human systems that work within. More often than not, the only way to compromise a well-protected and secure organisation is through human error (See, 2003).

3. Supports from the Government

Two of the MSC Flagship Applications, which are E-business and multipurpose card hopefully can improve the banking industry especially in E-banking. The E-business cluster aims to shape an electronic business environment competitive with the major economic powers. This cluster has an enormous potential market that could be one of the driving forces for future economic growth. It is transforming the way in which business was conducted and it enables businesses to become more adaptive and responsive. The E-business aims to provide more efficient and better quality services to the community, and encourage the business and community to accept electronic business as an integral part of their daily lives (MSC, 2006a). For the payment multipurpose card, the main objective is to have a near zero fraud with the complete migration from magnetic stripe to chip based Bankcard. 13.4 million Bankcards are EMV compliant. 4,590 (99.2%) ATMs also upgraded to accept ATM application in MyKad. ATM application in MyKad can be activated at the following 5 Banking institutions (481 branches): Bumiputra-Commerce Bank, Maybank, Public Bank, Bank Islam and Citibank (MSC, 2006b).

Bank Negara Malaysia's minimum guidelines on the Provision of Internet Banking Services, which was issued in May 2000, requires banking institutions to have face-to-face interaction with customers prior to the opening of accounts or the extension of credit. Banking institutions are also required to establish appropriate measures to identify customers reached over third party websites and the customer verification process as stringent as that for face-to-face customers. In providing Internet banking services, banking institutions are also required to implement monitoring and reporting mechanisms to identify potential money laundering activities. This enables the Central Bank to ensure that the banking industry, while keeping abreast with developments in ICT that is ICT would maintain the integrity of the financial system and prevent it from being abused by the money launderers (Bank Negara Malaysia, 2001).

The banking system policy has evolved from financial sector restructuring during the late 1990s to institutional development and capacity building, and the development of supporting infrastructure to enhance efficiency and the strengthening of prudential regulation to enhance resilience and preserve stability. In terms of the development of the financial infrastructure, efforts were intensified towards evolving a more diversified financial infrastructure to facilitate the economic transformation into a more diversified economic structure. This has involved the development of a more diversified financial structure anchored by a more efficient and resilient banking system, to support economic transformation and growth. The strategies to achieve this vision are outlined in the Financial Sector Masterplan launched in March 2001. Positive results have been achieved on several fronts of E-banking (Bank Negara Malaysia, 2004):

- Domestic banking institutions have also embraced a higher level of technology and improved business processes.
- New delivery channels through innovative technology-based mechanisms such as Internet and mobile banking have enhanced the delivery of products and services as well as widened access to banking services.

- The enhancement to the legal infrastructure including enactment of the Payment Systems Act 2003 will serve to strengthen Bank Negara Malaysia's payment system oversight and to provide the legal framework to ensure that payment systems are protected from disruptions and its consequent effects on financial stability.

The Government had announced in the 2006 Budget its intent to increase the acceptance of electronic means of payment with the Government and to promote the use of E-payments nationwide. This should provide a catalyst for the adoption of E-payments on a national scale, as most individuals and businesses have payment transactions with the Government. Key to making this a success is the need to review the business and operating practices and address any impediments that may hinder the use of e-payments. These practices range from the inability to store and collect bank account numbers, acknowledging electronic payment and receipt notices, instructing payments electronically, and many more that may be identified during the discussions at this forum. All corporations and institutions that are present at this forum should consider undertaking a business process reengineering in your own organisation to fully use the E-payment channels that are being offered by the service providers and the financial institutions (Bank Negara Malaysia, 2005).

Conclusion

Banking platforms need to cope with continuously changing business environments and a continuous flood of new requirements, while staying sufficiently agile. Banking platform renewal requires thorough preparation based on a business foundation, including a description of what functionality the business side can expect (Xcom AG, 2006).

Two crucial factors face the financial services industry as it enters the third Millennium. First, consumers continue to demand individualised goods and services, and to demand them faster than ever. Second, the world is undergoing a "Knowledge Revolution" whose consequences will dwarf even those of the industrial revolution. These two trends converge in the new digital media that will allow everyone to interact and transact with their banks from virtually anywhere. The means and devices available to banks to conduct these transactions will be just as varied. People will choose whatever means is most convenient for any occasion. That could mean face-to-face at a branch, over the telephone, using a self-service device such as an ATM, or through a personal computer or television at home. Business, especially banking will continue to be people-led if increasingly technology-enabled. But one emerging benefit of the new revolution will be the recreation of the intimacy of small-town banking that existed when banks and businesses knew each other personally. These new E-communities will not be based on geography, but on need and interest (O'Connell, 2000).

E-banking is offered by many banking institutions due to pressures from competitions (Yang, 1997). Banks will likely lose their competitiveness if they delay their actions in offering transactions based services on the Internet because customers are very comfortable in using computers as well as remote banking services. The low costs of computer and communication devices will encourage customers to move in to E-banking much faster than they did in the case of ATMs. If banks can't meet these customer demands quickly, they will lose a substantial part of their business in the next 5 to 10 years. Traditional banks have to move into other markets quickly. As cyberbanks move in to the investment market and merchant market in addition to retail banking, traditional banks will lose their competitive edge if they allow these cyberbanks to become leaders in Internet banking. In the end, to be successful, banks have to drive Internet banking instead of being pushed into it by others (Yan and Paradi, 1998). To add further convenience to the customers, many banking institutions are working together to form an integrated system. On the other hand, this has not been readily accepted by its users due to the concerns raised by various groups, especially in the areas of security and privacy. In order to reduce the potential vulnerabilities regarding to the security, many vendors have developed various solutions in both software-based and hardware-based systems. In order for E-banking to continue to grow, the security and the privacy aspects need to be improved. With the security and privacy issues resolved, the future of E-banking can be very prosperous. The future of electronic banking will be a system where users are able to interact with their banks "worry-free" and banks are operated under one common standard (Yang, 1997).

With the rapid growth of information communication and technology, especially in Internet based services, with supports from the government, there has been increased interest in E-banking service.

Finally, the future is not in information technology or technology that only facilitates transactions but in relationship technology (O'Connell, 2000).

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