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## **New issues and challenges facing e-banking in rural areas: an empirical study**

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**Abstract:** This paper describes an empirical study of investigating recent trend and development of the application of e-banking (banking through internet) in rural areas and its economic impact on local financial institutions. The data used in this research are collected through a web-based questionnaire survey. The research objective is to investigate how those smaller and community banks located in rural areas have attempted to catch up with their counterparts in larger cities in terms of the application of e-banking, focusing on emerging issues and challenges. The results are discussed with managerial implications along with suggestions for future research.

**Keywords:** e-banking; internet banking; e-business; rural area; local and community banks; empirical study.

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## 1 Introduction

E-business has been continuously growing as a new industry during the last decade and today is widely understood as business conducted through the internet, not only including buying and selling products, but further extended for also serving customers and collaborating with business partners (Van Hoeck, 2001). The banking industry has followed this trend in recent years, and sometimes called *e-banking* referring to all banking transactions completing through internet applications. Some key issues addressed in the recent literature about the e-banking include: customer acceptance and satisfaction, privacy concerns, profitability, operational risks, and competition from non-banking institutions (Boss *et al.*, 2000). Smaller community banks, among others, are more interested in the application of e-banking to gain certain competitive edges over their larger counterparts. In addition to previous electronic banking delivery systems – Automated Teller Machines (ATMs) and telephone transaction processing centres, online banking provides banks a new and more efficient electronic delivery tool (Costanzo, 2000). While ATMs were first introduced in early 1980s and initially an attempt to reduce operating costs, telephone call centres were developed in the 1990s to handle simple transactions and provide added customer services from a remote location. E-banking has been viewed as an upgrading from previous electronic delivery systems to open new business opportunities for the banking industry (Ebling, 2001).

A more recent e-banking development is wireless internet applications of banking – sometimes called *m-banking* (mobile banking). With the combination of two most recent technological advancement – internet and mobile phone, a new service (mobile data service) is thus enabled and the first such wireless internet commercial transaction was performed by the banking industry (Barnes and Corbitt, 2003). It is believed that m-banking will provide another new channel for banking services, especially for certain remote areas where online internet is still unavailable. Strategic implications and customer perception of m-banking services are explored (Laukkanen and Lauronen, 2005) with a focus on the consumer value creation and a better understanding about the customer-perceived value of m-banking services. For instance, mobile internet service has been quite popular in Japan (over 60 millions users in 2003) especially for those single individual consumers. As such, it is not surprising to see the increased interest in m-banking among Japanese young consumers (Scornavacca and Barnes, 2004).

There are several major challenges and issues facing the e-banking industry today. First, and perhaps most important is the security concern (Feinman *et al.*, 1999; Financial Services Security Lab Background, 2001). Customers are certainly concerned of giving their bank account number online or paying an invoice through internet. Another challenge facing e-banking industry and the e-business in general is the quality of delivery service – including both delivery speed (*i.e.*, short advance time required in ordering) and delivery reliability (*i.e.*, delivery of items/services on time) (Furst *et al.*, 2000), which caused many e-business failures in the earlier dot.com era. Limited online payment options have resulted in many customers to drop out in the last stage of the purchasing process due to dissatisfaction and inconvenience (Furash, 1994). Finally, the issue of customer unfamiliarity with the internet, which is prominent among senior citizens, has recently caught some attention, because these customers believe that they are left at a disadvantageous position and become very reluctant in doing business online (Johnson, 1999). Based on the early e-banking experience, it has been predicted that to be

successful in long term, the operations of an e-business must compete differently from those traditional business counterparts. That is, the strategic positioning decision of an e-banking operation must establish its own unique competitive advantages over its traditional business competitors and sustain its customers on a regular basis (Klinkerman, 2000; 2001). Currently there are two different approaches in the e-banking industry: a separate (from its traditional office) internet e-bank (*i.e.*, virtual bank) with all transactions being transacted online, or to add an online banking section to the services already being offered by its major bank office (Hackett, 2000; Hughes, 2003; Sweeney and Morrison, 2004). Both approaches have advantages and issues to be addressed in practice (Daniel and Story, 1997; Beckier *et al.*, 2000; Gulatti and Garino, 2000).

It has been well reported that the banks leading the current wave of e-banking application are those large (or super larger) national banks with most of their headquarters are located in larger cities and urban areas (Harris, 2000). And most published e-banking research works are primarily about the e-banking applications of those larger banks. In comparison, the issues of e-banking applications for those smaller and community banks located in rural and remote areas have not been fully explored in the published research. Especially there are special or unique challenges facing those local smaller and community banks in terms of their e-banking applications – how to provide easy and accessible e-banking services to their local customers while having adequate operational funding to provide those services. Because different from those larger city banks which normally have no actual budget restrictions in their e-banking service development and are able to have their own high level in-house IT professionals, these smaller local community banks are often in a position of struggling for financial resources on the creation of banks' websites and maintenance on one hand and lack of necessary high level in-house IT professionals at another hand. It is obvious that under the different financial and human resources conditions, the stages of e-banking application and development are varying for different banks across the land. In summary, the lack of finance resource and weak in technical expertise have been cited currently as two major obstacles in developing and maintaining e-banking services for many local smaller community banks located in remote and rural cities or counties. As such, research effort, especially an empirical study on the development of e-banking application for those local smaller community banks is apparently in need, and is the primary motivation of this research.

## 2 Literature review

Banking has never been more important to our society than it is today. The advance of communication and computer technology and the availability of the internet have made it possible that one can do most banking transactions from a remote location even without stepping into a physical financial structure – *i.e.*, the emerging of e-banking (Boyes and Stone, 2003). E-banking has been viewed as a revolutionary progress in the banking industry. As predicted by Microsoft's Bill Gates – *Banks are dinosaurs and will be replaced by microcomputers*. Foreseeing the threat and the challenge from the Mr. Gates' comments, as an industry, the banks are formulating strategic plans to fight back in winning their customers (Healy, 1999). Their first target is the new technology – including all new telecommunication and computer technology. The industry believes that by adopting new technology, the banks will be able to improve customer service

level and tie their customers closer to the bank. American banks had launched their e-banking services among the few first in the international banking field starting as early as 1992 (American Banker, 2000). Through the competition, banks quickly realised that there are a momentous number of customers like *e-banking* – to do banking electronically. As a result, many banks, based on their existing 24-hour telephone banking systems, have developed and implemented several important earlier e-banking applications so that their customers are able to pay bills, transfer money among accounts, check account history, download statement information, and computerise their checkbooks online all at easy and around the clock (Graven, 2000).

Facing extremely intensive competition from non-banking sector, the banking industry has adopted a more aggressive approach in the development of new e-banking services. For instance, some large banks have started to install advanced software to process all consumer loan applications online, a new paperless e-loan process. And interestingly, the signatures will be created from images collected by special electronic signatures (e-signature), which has been available and legal since 2000. In UK, banks now view e-banking from new distribution channel before to new business models in which e-banking service is considered together with banks' strategic planning, business process, and product/service package offering (Li, 2002; Brown *et al.*, 2004). Empirical studies from the consumer side of e-banking have been reported recently, such as one focusing on the quality of customers on the utilisation of current e-banking services (Hitt and Frei, 2002), and another recent one examining the customer attitudes towards e-banking and concluding that online banking marketing will gain importance at a faster rate in the coming years (Kaynak and Harcar, 2005). Other new e-banking services have targeted mortgage lending, consumer lending, and small business loan products. As an integral part of the e-business, the e-banking industry has been growing at a rapid pace, to help banks cut costs, increase revenue, and become more convenient for customers (Halperin, 2001). A recent research even investigated the impact of e-banking on building inter-firm relationships within 200 Australian banks and showed that an effective e-banking may enhance inter-firm relationships through improved traditional communications (Rao, 2004). Due to different motivational factors, however, banks, larger and small or located urban or suburban, have placed different priorities and investments in their e-banking efforts. While larger and national banks are currently leading the way in the e-banking forefront, most small and local community banks are reported way behind in this effort – due to the fact that those smaller community banks were in general lack in both financial and technological resources (O'Connell, 2000).

It has been suggested that for smaller community banks, the addition of e-banking services can increase their capacity to offer more banking products and reduce their dependence on core deposits. Those e-banking options also generate a higher proportion of their income from nontraditional activities comparing to banks without e-banking operations (Stamoulis, 2000). In addition, the e-banking option will in fact as an effective way to reduce the costs of operations for the financial institutions. But in practice, larger banks located in a centralised urban area tend to have the greatest incentive to adopt e-banking services, while in comparison, smaller community banks tend to have a high initial technological cost in developing e-banking services (Treadwell, 2001). For instance, a larger city bank (in Boston) had spent over \$3 millions on the effort to offer the following e-banking services: customer pay bills, transfer funds and check account balances online, along with marketing campaign including print work, radio spots,

out-of-home executions, direct mail, online advertising and in-branch merchandising (Flass, 2000). Looking forward, most small banks are motivated to develop e-banking services for potential future cost savings and gaining a competitive edge in the competition (Timmons, 2000). Under the pressure of competition, many banks have been expanding their range of e-banking services, such as online cash management services, online insurance offerings, and e-billing service. There is also a gap in perceived benefits from e-banking services between larger banks and smaller banks. Many small banks do not have a plan to offer e-banking services because they still have questions about if the benefit from e-banking services would outweigh the added expenses associated with offering e-banking services.

Currently, it is believed that a combination of a low percentage of customers using e-banking services on a consistent basis and a relatively low start-up cost in developing e-banking services – will make the impact of e-banking (positive or negative) quite limited on the bottom line of most financial institutions (Marenzi *et al.*, 2001). On another hand, e-banking services could be highly demanded and desirable to accommodate the sudden, rapid growth that has occurred in other information-intensive industries such as travel and securities brokerage. Some new e-banking services have gained a growing popularity such as e-payments and statement aggregation involving e-mail statements, e-mail alerts, online loan decisions, fraud protection, and inter-bank funds transfer capabilities (Stoneman, 2001). The e-banking sector has been growing to reach a competitive level, and has become a serious competitor to traditional banks. With the advantages of quick and easy application process, less technical glitches, more funding options, and low minimum opening deposit requirement, traditional banks have to compete more relying on their conventional face-to-face services, first-name calling friendly environment, and trust and secure feeling of transacting business with a person in a financial institution (Hirst, 2000).

There are several important decisions a bank must make in the development of e-banking services. Top of its priority is to address the bank's privacy policy and procedures – which will be scrutinised by the related governmental regulatory bodies. Second on the priority list is about e-banking disclosure policies to fully define the bank's responsibilities and liabilities and also those of its customers regarding the e-banking service. Next decision is related to the design of the package of e-banking services to be offered to its customers. Those e-banking services could be ranging from a standard package, or a more complex service offerings (including bond purchases, wire transfers, and e-payments), and even a whole package (including tax payments, cash orders, bill payment, direct payment, new account enrolments, and commercial cash management). Finally, the development of e-banking service has encouraged the adoption of a decentralised approach to give banks more needed flexibility to distribute online access to a much larger number of employees and potential customers. The decentralisation approach is motivated by the fact that a decentralised system could respond to customers' e-requests in a more timely fashion. In fact, the most criticised aspect of the current e-banking service is the slow response to customers' e-requests (Sathye, 1999; Szymanski and Hise, 2000; Beckett, 2000). Customers do not like to be ignored. Under today's highly competitive market, banks must respond to customers' requests in their e-banking services more promptly and forcefully (Hewson and Coles, 2001; June and Cai, 2001; Black *et al.*, 2001; Karjaluoto *et al.*, 2002).

While e-banking has been a fast-growing industry among all types of e-business, it has argued that somehow its positive impact was overestimated in some claims and its limit was underestimated more often (Wolfe, 2004). With the statistics of about 80% of all banking transactions are currently still conducted at bank branches, while only 13% are performed through the internet and another 12% via the phone. But the same study predicts that the e-banking services will be very likely to dominate consumer choice in the near future (Wolfe, 2004). Risk in the banking industry has always existed, but providing e-banking services actually has increased or modified some traditional risks associated with banking activities, in particular strategic, operational, legal and reputation risks, thereby influencing the overall risk profile of banking (Duran, 2001). As a result, the Basel Committee established the Basel Guidelines consisting out of 14 principles for banks to manage the risk of e-banking (Rehm, 2003). It has been recognised that to make e-banking a success, it must be not through it being a resource of income, but rather for its money saving ability and a port of interaction with customers (Wade, 2003). One of the essential ingredients for a successful e-banking operation is therefore simplicity and user-friendliness in the financial planning and management process (Hamisah, 2003). Many new e-banking initiatives have aimed to become more customer focused while improving e-banking service quality (Knights and McCabe, 1997). In this regard, most smaller and rural community banks do not anticipate a market leading strategy, but rather an inward looking and focusing on supply side strategy (De Moubray, 1991; Shemwell and Yavas, 1998; Durkin and Bennet, 1999).

In summary, the effort of developing and maintaining e-banking services for many local smaller community banks located in remote and rural areas is currently lag behind their counterparts in larger city and urban areas. As such, the primary motivation of this research is to empirically investigate the recent development of e-banking application for those local smaller community banks. In next section, the e-banking operations of two local community banks participated in this research are described in detail.

### **3 E-banking operations of two local banks**

#### *3.1 E-banking at the Bank of Gray, Georgia*

The Bank of Gray is located in Gray, Georgia. The bank is the second oldest financial institution in the community – with a total population of approximately 26 000. The bank has been the community leader in regard to utilise the internet for its customers. For instance, the bank was the first one to advertise its home page on the internet, and then signed up local merchants to join them in putting together internet shopping services. The internet has been a great source of advertisement for banks to help their local community merchants as well as to promote their own e-banking services. The bank is recognised as the leader in promoting e-business across a wide range of industries. One key e-banking service currently offered by the banks is that new customers now can apply for opening a new bank account online – 24 hours a day electronically with necessary e-signatures. This e-banking service has been able to free up more personnel to attend to other duties and more emerging service requests that require face-to-face attentions. The new account information will be eventually uploaded electronically to the host mainframe computer and then downloaded for verification and conformation. The customer has an option to retain paper copies for their personal records, while the bank is no longer retaining hard copies to reduce its operating costs.

The Bank of Gray started its e-banking development by setting up an informational website to gain an internet presence and examined the e-banking programmes of other leading institutions. Based upon industry experiences, the bank then addressed the issue of privacy of customer information to ensure strict privacy protection of customers. The bank refrains from revealing customer account information to third parties unless:

- 1 the information is necessary to complete a transaction initiated by the customer
- 2 the release is required by law
- 3 the customer requested that the information be released.

The bank has decided to employ a wide selection service strategy with regard to its e-banking operations. Towards this end, the bank has adopted automation for many of its financial services, such as automated teller machines, electronic funds transfer systems, MICR coding on negotiable instruments, optical scanners, and computerised bank statements. Currently, the bank (like most small local banks) is only able to offer three basic e-banking services: balance inquiry, e-billing payment, and e-transfer between different accounts. In contrast, many larger banks tend to offer a premium e-banking service package – consisting of all three online services above plus other advanced online services including: online credit applications, new account online setup, online brokerage services, e-billing, e-insurance package, cash management, and fiduciary services.

The Bank of Gray currently has a total of 3000 e-banking customers (a town with a total population of 5000 and 20 000 in the surrounding area). The bank has learned that by helping customers researching loan rates and applying for loan with other lenders, the bank could maintain their primary relationship with these satisfied customers. In addition, the bank has also realised the importance to have a better online loan application service in the competition. In this regard, the bank decides to focus on staying in tune with the new technological developments. A good example is a growing popularity of new e-banking services such as e-payments and statement aggregation – that has been recognised as a critical e-banking feature in the future. The bank has decided to start a value-added account aggregation service soon to stay on the cutting edge of e-banking technology.

### 3.2 *E-banking at the Milledgeville Century Bank & Trust, Georgia*

The Milledgeville Century Bank & Trust (CB&T) is a privately owned bank located in Milledgeville, Georgia. Its major services offered are various types of checking accounts, savings accounts, personal and commercial lending, credit cards, and a full-service Trust and Investment Department. It serves primarily the Milledgeville and Lake Sinclair area, but has customers across Central Georgia. The company's main competitive advantage is its relatively small size and personal atmosphere. The bank currently is basically taking a 'follower strategy' in the market and playing 'catch-up' in the e-banking development. The bank first established an e-banking task force that studied the market as well as their competitors. After determining the basic needs for their e-banking system, other than developing in-house, the bank outsourced its website design for a best online solution to an outside company – known as *Digital Insight*. That is, the e-banking system of CB&T was designed, created, and operated from the outside. In comparison to an in-house developed e-banking system, the outsourced approach empowers financial institutions to provide best e-banking solutions to their retail and commercial customers

via more a cost-effective, outsourced service. More specifically, for CB&T bank, an outside service bureau in fact operates and maintains its e-banking system from outside locations, handles all facets of the system, and responds to client requests to fix any running errors that may occur. This approach allowed CB&T to concentrate on their core competencies in their daily operations while at the same time moving into the new e-banking era smoothly.

CB&T currently only offer some basic e-banking services to customers:

- Service information online – the bank placed the information and rates about all of their services online.
- Online account access – the bank allows both business and personal customers to access their accounts online. Also, customers are able to download account information directly to their Quicken (or other Microsoft Money financial) software so that they can incorporate the information in their budgeting and money-management processes – which has been credited by many of its business customers for more efficient and cost-effective services.
- E-payment service – for a small monthly fee, allows customers to set-up automatic payments to be drafted out of their CB&T accounts at agreed upon days of the month. Using it as a competitive edge, this service is offered free to employees, senior customers, and customers with the VIP Golden Web account.
- Other online banking services – such as online application for credit cards, loans, and online transactions for buying CDs or dealing with IRA accounts.

The e-banking system also brings new issues and challenges, such the imbalance between the capacity and workload. For instance, CB&T currently has about 750 customers who signed up for the e-banking services with about 1200 total accounts. While the online services save customers time and effort, the bank discovered that offering e-banking services is very labour intensive on the administrative end. That is, though the inputs from traditional teller services are cut in a big way, the transactions must still be processed right along from the teller stations. Another challenge is about how to keep its traditional high quality services into its new e-banking system. Being in the service industry forces the bank to compete using higher quality and greater levels of customer service. The quality of bank services is highly dependent on the training and actions of each employee, due to the fact that most banking services offered from bank to bank are very similar, with only the customer service and employees differentiating them. As knowledgeable employees with accurate transaction skills are the key to the success of the bank, CB&T has worked closely with its outsourced online service provider to provide high quality e-banking services.

Currently, providing e-banking services has not been viewed as a really high priority to the management of CB&T, as the bank believes that its e-banking now is costing more than savings, so far has not significantly contributed to the banks success in the marketplace. On another hand, while the bank has been satisfied with its current e-banking services, suggestions and recommendations have been made to improve and streamline the system:

- 1 The bank has asked for its main page to be updated more timely and formatted in a manner of more user friendly.
- 2 A more persuasive promotion of the e-banking should be conducted more regularly.
- 3 A company-wide training and customer service for e-banking initiatives should be implemented.
- 4 The bank should integrate more services into e-banking operations and search the areas where e-banking operations could further cut its daily operating cost.
- 5 The bank should provide more useful links on its e-banking website to its business partners.
- 6 The large 'dead space' of its current website should be used to add more eye-catching pictures to make it more appealing to consumers surfing the net.
- 7 Finally, the bank should consider to take over its website from its current online service provider and running it 'in-house', so that the bank could have total control of its website and be able to make necessary changes more quickly and effectively.

#### **4 A survey research and result analysis**

The primary data for this research are collected through a web-based survey along with some on-site interviews. To validate the survey questions, the first two early drafts were sent and reviewed by the selected local bank officials – who are in charge of their e-banking operations. Based on the feedback, the survey questionnaire was revised both in wording and choices accordingly.

As the targeted participating banks are those small and local community banks, an internet search was first conducted to identify those banks that are located in relative small cities and counties with a population less than 50 000. The geographical areas focused include the middle Georgia and surrounding states. To ensure a large sample size, about 120 small and local banks are identified and their websites and e-mail contact information are obtained. After first inquiry e-mail letter asking for their participation, the second e-mail letter with the online survey link and the instruction was sent out to those with a positive response. The survey consists of four sections:

- 1 demographic information
- 2 questions about the e-banking website
- 3 e-banking services currently provided
- 4 the future direction of the e-banking industry.

The first section is intended for collecting information about the location and size of the bank to ensure that the banks surveyed fit our selection criteria. Two basic questions are asked, one about the banks' total assets and another about the ratio of customers currently using the e-banking service provided by the bank in relation to the total customers the bank has. Next section is designed to evaluate the banks' e-banking website with six selected questions. The first three questions are intended to collect the information about the diffusions of the website offerings the bank currently provides for its customers, the

interconnectedness of e-banking offerings with other already established communications channels to the customer, the usefulness of promoting the e-banking services as an ongoing stimulant for customers, and the awareness of their customers for their e-banking service offerings. The result from these questions is dedicated to identify existing inefficiencies in the current e-banking services for potential improvements. Another question of this section is to determine the primary source of banks' web design. Followed with one relates experience of the length of those current e-banking websites, with the purpose to get an idea of how long and how much experience those banks have had gained in doing so. The last question is to ask the banks' own evaluations about the user-friendliness of their e-banking websites, through the answers to this question are more of a subjective judgment (or even biased). To compare the types of current e-banking services provided by the banks participated in this research, the questions in the next section ask the banks to list their current e-banking services. Two additional questions in this section are intended to collect the information about banks' current e-banking promotional effort and the assistance provided by the banks to their customers in using e-banking services.

Regarding the actual or perceived benefits from providing e-banking services, the next section of questions are designed to collect the information about the participating banks' judgment concerning the impact of e-banking services on the enhancement of banks' competitive positioning, the increased customer satisfaction, the reduction in banks' operating costs, the need for further training and promotion of e-banking services, the security concerns of customers, and perhaps more importantly for those small local and community banks, the potential growth of e-banking users among rural residents. The last section of the questionnaire is focusing on the beliefs of the future directions of e-banking services by those participating small local and community banks. Specifically, the questions are asked about the difficulties and challenge those banks facing in dealing with their current e-banking operations, as well as their expectations about the future of e-banking industry as a whole.

The survey was conducted from June to December of 2005. Among 120-targeted banks, only 30 completed the survey with a valid result. This paper presents some important preliminary results of this research. First, the summary of banks demographic information is shown in Table 1. There are two questions in this section; the first one is about the total assets of the bank – which is used to measure the size of the participating banks. As shown in Table 1, all surveyed banks can either be categorised as *small* (50%) with less than \$100 million in total asset, or *relative small* with a total asset over \$100 million (50%). That is, comparing to their large city counterparts (most of them have a total assets over \$500 million or more), all surveyed banks are those local small community banks, of which this research is interested. Another question is asking the proportion of current e-banking users in relation to their total customers for each bank, to estimate the status of current e-banking popularity among surveyed banks. Not surprisingly, the majority of those small local community banks (about 57%) have a low e-banking customer rate of less than 30%, and only a few banks (about 7%) have a 60% or higher of their current customers using their e-banking services. While a third (36%) has only 30% to 60% of their customers using e-banking services and none has a proportion over 80%. While this result is not unexpected, it is a clear indication that there is a huge potential for those small and local community banks to improve their e-banking operations in the near future.

**Table 1** Demographic information

<i>Questions</i>	<i>Responses</i>	<i>Survey results (%)</i>
What are the total assets of your bank?	Less than \$20 million	0
	Between \$20 and \$30 million	0
	Between \$50 and \$99 million	50
	More than \$100 million	50
Based on your estimate, how many of your customers have been using e-banking services?	11% to 30%	57
	31% to 60%	36
	61% to 80 %	7.0
	Over 80%	0

Table 2 presents some interesting results of current e-banking websites. When asked about the awareness of their e-banking services among their customers, an overwhelming majority (93%) of surveyed banks have a positive response. Looking back at the results in Table 1, it is easily to conclude that the low percentages of current e-banking customers for those participating local community banks is not a result of unawareness about the available e-banking services, but rather the lack of effective promotion efforts by those banks. Another indicator about this is shown by that one-third of the surveyed banks has not displayed their website information on their customers' monthly statement. Additionally, in terms of designing their e-banking websites, a large majority (72%) of participating banks had outsourced their e-banking website design to outside IT professionals, only one-fifth (21%) had their e-banking websites designed by in-house IT professionals (and another few – 7% responded with others). It has been argued that having the e-banking website designed by an in-house IT team can help the banks to gain the capacity of upgrading and maintaining their e-banking services on a timely fashion, and in comparison the banks that depending on outside IT professionals for their e-banking website design may have to be much slow in responding any emerging customer requests. In terms of their e-banking operations development, it is quite obvious that the e-banking operation is still in its *infant* stage for most of those small local community banks, over a quarter (27%) starting their online banking services less than a year, about 60% within two years, and only one-fifth (20%) have started their e-banking services over three years or longer. It can be expected, therefore, that starting with a limited available e-banking service options, those small and local community banks now have learned important practical lessons through their experiences and ready for further exploration in this direction.

Knowing that the answers to this question quite subjective, the question about the user friendliness of the banks' e-banking websites is intended to measure the perception of those banks about the importance of their e-banking web design. As expected, 87% responded with the belief that their customers viewing their online websites friendly, with 13% answered that this information is not available. The last question in this section is to check on average, how many e-banking services are offered free of charge and which services are charged to banks' customers. It is surprising to see that while all surveyed banks (100%) providing online transfers free, but just over the half (54%) offering online payment option and online tax return filing assistance (*e.g.*, Quicken or MS money) without charge, and only 7% currently allowing free online wire transfers. While there is

no information available about – how the related costs had impacted those banks decision to charge certain fees for the different e-banking services, a few banks (7%) did offer all of their e-banking services totally free to their customers (Table 2). A further research about this issue – the relationships among the potential e-banking users, the relative degree of e-banking service fees, and the competitive edge of those banks providing their e-banking services without a (or a very low) fee, should provide more managerial insights for the banks, especially those small and local community banks.

**Table 2** Information about current e-banking website

<i>Questions</i>	<i>Responses</i>	<i>Survey results (%)</i>
Do you believe that the majority of your customers are aware of the existence of an e-banking website?	Yes	93
	No	7.0
Is the website of your bank reported on the bank's monthly statement to customers?	Yes	67
	No	33
Who is the primary designer of your bank's website?	In-house IT professional	21
	Outside IT professional	72
	Help from local community	0
	Help from government	0
	Others	7.0
How long has the current website been established since the last overall design update?	Less than 1 year	27
	Between 1–2 years	33
	Between 2–3 years	20
	3 or more years	20
Is your bank's website viewed as user friendly by your customers overall (if information available)?	Yes, totally	20
	Majority	67
	Minority	0
	Not sure	13
	No, not at all	0
Which e-banking service is free of charge at your bank?	Bill payment	54
	Online transfers	100
	Quicken/Microsoft money	54
	Wire transfers	7
	All of the above	7

The current available e-banking services provided by the surveyed banks are listed in Table 3. It can be seen that those basic online services are now available by almost all survey participants, such as online account inquiry (100%), online bill payment (93%), online check order option (73%), and internet deposit account (64%). Some relative newer e-banking options, however, are only available by a few banks surveyed, such as online mortgage application (27%), online small business loans (20%), online trust funds (13%), online investment brokerage service (13%), and online Travellers Check ordering (13%). Certain popular new e-banking services provided by many large city and urban

area banks, including: online money order purchasing, e-signature, online insurance and financing options, and online purchasing of CDs and IRAs, are not available at all in the current e-banking service packages provided by those surveyed banks. What can be learned here are twofold:

- 1 It should be expected that for those small and local community banks, their early e-banking development should focus on those basic banking services to have a good start and gain necessary experiences for further expansion on those advanced e-banking options.
- 2 There is a huge room for future improvement in their e-banking operations for those small and local community banks to attain new competitive edges in the market by developing those new advanced e-banking options into their online banking strategy.

**Table 3** E-banking services currently provided

<i>Questions</i>	<i>Responses</i>	<i>Survey results (%)</i>
Does your bank offer any of the following services?	Online inquiry and transfers	100
	Online bill-pay	93
	Online mortgage application	27
	Online small business loans	20
	Online trust funds	13
	Online investment and options management	13
	Online deposit accounts	64
Does your bank currently offer any of the following new services?	Online check order	73
	Online order of travellers checks	13
	Online money order	0
	E-signature	0
What kind of help or assistance is offered to your e-banking customers?	Brochures	54
	Training	20
	Online banking demo	60
	Others (e.g., employee assistance, personal service over the telephone, e-mailed instructions, website 'help' capabilities)	13

In order to investigate the impact of the current e-banking services on bank's operational performance and the related policies or approaches adopted by the participating banks, specific questions are designed in the survey to collect the related data. As shown in Table 4, the first question is related to the assistance offered by those surveyed banks to their customers in their e-banking operations. It can be seen that over 54% of the banks have provided e-banking brochures, and 60% making e-banking demo available on their websites. But only 20% have prepared necessary e-banking training sessions to their customers. Other listed assistance includes: personal help in bank or over phone, e-mailed instructions, and 'Help' option placed on their websites. Similarly, it can also be seen from Table 4 that most of surveyed banks (83%) believe, and hopefully will implement, more customer training/education programmes to further promoting their e-banking services. It should strongly suggest to those small and local community banks that for many of their customers (especially those senior citizens lived in a remote location),

certain assistance might be a necessary for them to be able to enjoy the benefits and convenience from using e-banking services. A very encouraging sign can be highlighted here – when asked if those banks believe that the new e-banking services will enhance their competitive position in the market, all surveyed banks returned with a stunning positive response (with 46% of ‘Strongly agree’ and other 54% of ‘Agree’). Similar results are shown with regard to the belief that the addition of e-banking services has increased customers’ satisfaction to certain degree (with 14% of ‘Strongly Agree’ and other 86% of ‘Agree’). That is, there is no argument among participating banks for the most important benefits from adding new e-banking services – more satisfied customers and a better position in the market competition. For the impact of e-banking services on specific operational performance criteria, a majority of surveyed banks (80%) agree that the addition of new e-banking service has reduced their daily operating cost, but another 20% disagree. A further research investigating this issue about ‘how’ and ‘why’ is in need to bring some light and insight for those small and local community banks. For a key concern by all internet related business (e-business) – customer personal information security, an overwhelming majority (92%) has agreed that this issue has been improved greatly and no longer a real threat to the e-banking industry (or e-business in general). A presumption made for this research is that those senior citizens or rural residents living in a remote location should represent a critical growth potential for the e-banking services of those surveyed small and local community banks. While a small majority (60%) of those banks believes so, however, a significant proportion (40%) has a different view – which certainly generates a quite surprise and a warrant for further research. When asked about new approach in promoting their e-banking services, a third (34%) of the surveyed banks have plans to target new customers, about two-thirds (66%) plan to promote their e-banking on their customer monthly statement, and a small numbers (27%) will mail brochures to their non e-banking users. Finally, when asked about using some most recent new technology or promotional effort to increase their current e-banking services, a significant gap between those small and local community banks and their large city and urban area counterparts is demonstrated here. While almost half (47%) of the surveyed banks have answered ‘none’, about a third (33%) answered with ‘Others’ but none giving specifics, and none among those banks has ever had a concept or a plan for the newest m-banking (*i.e.*, wireless internet banking), or utilising public internet capacity to promote their e-banking services.

Four key questions about the future direction of their e-banking operations are asked in the survey and the results are presented in Table 5. For instance, when asked for the major challenges and difficulties for their current e-banking operations, many surveyed banks (29%) still argued with the lack of in-house IT professionals for the delays and slow responses from outside IT technological support – when those small banks outsourced the development of their website design and e-banking service operations. In an internet era, customers should be very unhappy about the slow response to their e-request and expect a more timely result. There are also similar responses to the need for more employee training in IT technology (29%), more innovative design of e-banking services (29%), increased extra workload due to the task of processing all those online requests (21%), and the lack of customer interest (21%). Those areas certainly demand more detailed exploration and investigation for the continuing future research. But for a critical issue by which many e-banking customers have complained about – the timely updating of banks’ e-banking website, the response received in this research is not

optimistic at all, only a few banks (15%) answered that it updates on a daily basis, while bi-weekly and monthly updating each acclaim the same 8%, and a majority (69%) of surveyed banks answered with the 'As Needed' option. That is, there are banks (16% in this research) that would not keep their e-banking websites updated until the end of every other week or the end of each month. As a result, it should not be surprised to hear customers' complaints about the useless and slowness for their e-banking experiences. Finally, for the future direction of the e-banking industry over a foreseeable future (next ten years), a majority of surveyed banks (65%) believe that traditional banking services will still dominate over e-banking services, but all participating banks (100%) indicated that they have placed their e-banking into their banks' future strategic planning.

**Table 4** Operational impact of e-banking services

<i>Questions</i>	<i>Responses</i>	<i>Survey results (%)</i>
Does your bank believe that e-banking services will enhance your competitive position in the market?	Strongly agree	46
	Agree	54
	Disagree	0
	Strongly disagree	0
Has your e-banking services increased the degree of customer satisfaction?	Strongly agree	14
	Agree	86
	Disagree	0
	Strongly disagree	0
Does your bank believe your e-banking services have helped to reduce your banks daily operating cost?	Strongly agree	7
	Agree	73
	Disagree	20
	Strongly disagree	0
Does your bank believe more customer training/customer education is needed in promoting e-banking services?	Strongly agree	13
	Agree	80
	Disagree	7
	Strongly disagree	0
Does your bank believe that the customers personal information security is better now than it was before?	Strongly agree	22
	Agree	70
	Disagree	8
	Strongly disagree	0
Does your bank believe that senior citizens or rural residents represent recognisable growth potential for e-banking services?	Strongly agree	7
	Agree	53
	Disagree	40
	Strongly disagree	0
Has your bank adopted (or plans to adopt) any new approach that had increased your e-banking users?	Promotion with new customers	34
	On every monthly statement	66
	Mail out brochures to customers that do not use e-banking	27
	Other (please specify)	0
Has your bank adopted (or plans to adopt) any new technique or promotional effort that had increased your e-banking users?	Cellphone internet access	0
	Service outlets in public areas <i>e.g.</i> , library, super market	0
	Other (please specify)	33
	None of the above	47

**Table 5** Future directions of e-banking

<i>Questions</i>	<i>Responses</i>	<i>Survey results (%)</i>
What major challenges and difficulties has your bank faced when dealing with e-banking?	Lack of in-house IT professionals	29
	Lack of interest from customers	21
	Extra workload from processing online banking services	21
	Need for employment training in IT technology	29
	The innovative nature of e-banking	29
	Others (expenses, customers' computer skill, extra workload, user friendliness, user passwords updates)	14
In which direction does your bank believe it will shift to (next ten years)?	Traditional banking will still dominate ( <i>e.g.</i> , more than 50%)	65
	E-banking will dominate (greater than 50%)	35
How frequently does your bank update your services and websites?	Daily	15
	Weekly	0
	Bi-weekly	8
	Monthly	8
	As needed	69
	None of the above	0
Has your bank established e-banking into your banks future strategic planning?	Strongly agree	22
	Agree	78
	Disagree	0
	Strongly disagree	0

## 5 Conclusions and future research

The banking industry has been a leader in the e-business world in recent years. While the large city and urban area banks have been leading the way in the recent application and development of *e-banking*, many small and local community banks are catching up in this trend and becoming more interested in the e-banking services to gain competitive edges in the marketplace. This paper describes an empirical study about those small and local community banks mostly located in smaller cities and townships or less populated rural counties and their efforts in developing and operating their e-banking services. The successes and struggles of two specific such small local banks are described in detail in this paper to provide managerial insights and serve as comparative examples in evaluating the performance of e-banking operations for those small and local community banks.

A survey was conducted to collect updated information about the recent development of the e-banking operations for those small and local community banks. Some preliminary results are presented through Tables 1 to 5 along with managerial discussions

and suggestions for future research. For example, the survey result shows that those small and local community banks have currently a much lower percentage of e-banking customers – a clear indication that there is a huge potential to improve their e-banking operations in the future. It is easily argued that such a lower percentages of e-banking customers is not a result of unawareness about the available e-banking services, but rather the lack of effective promotion efforts by those participating local community banks. This research also reveals that the e-banking operation is still in its *infant* stage for most of those small and local community banks, and further research about the relationships among the potential e-banking users, the relative charge of e-banking service fees, and the competitive edge from providing the e-banking services without a fee is in demand and necessary to gain more insights. In addition, this research strongly suggest to those small and local community banks that for many of their customers (especially those senior citizens lived in a remote location), certain assistance may be a necessity for them to be able to enjoy the benefits and convenience from using e-banking services. The results of this research conform the perception that the addition of new e-banking service will reduce banks' operating cost and increase the degree of customer satisfaction, but those small and local community banks should speed up their effort in using some recent new technologies (*e.g.*, m-banking) and promotional effort to increase their e-banking services. Finally, for future research, a larger and more comprehensive small and local community bank sample should be used to further collect the information about any newest trends and development in their e-banking operations.

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