

THE IT INFRASTRUCTURE AND E-BANKING FACILITIES IN SAUDI BANKING SYSTEM ENVIRONMENT

Mohammed Naif Alotaibi 

Ph.D Scholar, Durham University Business School, Durham, United Kingdom

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College of Admins and Financial Sciences, Taif University Business School, Taif, Saudi Arabia

muhamednaef@gmail.com

Mehmet Asutay

Durham University Business School, Durham, United Kingdom

mehmet.asutay@durham.ac.uk

Abstract

The Saudi banking system played a major role in the expansion of the Saudi economy, which has grown to be one of the 20 largest economies in the world G20. This paper provides an overview of Saudi banking facilities and infrastructure of IT applications and government policy in supporting the banking system situation in Saudi banks which improves e-banking services environment. This paper also introduces a brief about E-Government and security issues which are important factors that have infused customers' to use e-banking services in Saudi Arabia. The main finding of the study is that the Saudi banks have introduced an e-banking service, with an efficiency and reliability that is compatible with international systems.

Keywords: Saudi Arabia, E-Banking Services, IT Services, E-Government

INTRODUCTION

People have been using banks to assist with the financing of their trade, business dealing, and other matters relating to saving and borrowing for centuries. However, the delay in transferring transactions has tended to seriously undermine the trust of the customers, which has prompted banks to search for alternatives. With the introduction of sophisticated communication technologies, companies across the globe have expanded the reach of their businesses through the use of IT services. Thus banks worldwide have taken advantage of the new technologies to

facilitate interactions with their customers. This includes the introduction of internet banking technology, which has benefited customers by speeding up their financial transactions (Alwabel, 2005). Saudi Arabia, with its wealth created through oil exploitation, is a financially rich country with well-developed financial services and infrastructure. The country has been very successful in transferring and adopting technology including in the financial sectors. Furthermore, Elseoud (2014) focused on national economic growth from 2001- 2013 and found that there is a need to increase investment in the infrastructure, to have more users of the internet, and to offer more credit cards to the users in Saudi Arabia.

Therefore this paper presents an overview of Saudi Arabia in order that the research can be contextualised. In addition, an overview of the historical developments in Saudi Arabian financial and banking services is also provided, as it represents a pivotal part of the research. Finally, the paper describes the prevalence of IT applications and government policy in supporting the banking system environment and IT services in order to understand the Saudi Arabian e-commerce and e-banking environment.

AN OVERVIEW OF SAUDI'S SOCIO-ECONOMIC CHARACTERISTICS

Table 1: A Summary of Saudi Arabia's Socio-Economic Characteristics

Capital	Riyadh
Population	According to July 2010, est, there are 28.7 million people in the Kingdom, including 8.4 million foreign residents, with 1.8% population growth rate.
Area	2,250,000 square kilometres.
Type of Government	Kingdom with Council of Ministers.
Legal System	Islamic Law (Shari'ah).
Language	Arabic (Official), and English in some of the companies.
Religion	Islam is the main religion, with other religions permitted for foreigners.
Education	Literacy Rate: 86.13% of the total population in Saudi Arabia (2009 est.).
Currency	The currency of the Kingdom is Saudi Riyal which is gold-plated, convertible and divided into 100 Halalas. The exchange rate is 3.75 Saudi Riyals per 1 U.S. Dollar (pegged since 1986).
GDP	In 2010, est; the annual growth rate is 3.8% and per capita GDP, \$24,200.
Natural resources	Petroleum, natural gas, gold, uranium, bauxite, coal, iron, phosphate, tungsten, zinc, silver, and copper.
Industry	Petroleum, petrochemicals, cement, fertilizer, and light industry.
Trade	According to estimated figures, Saudi exported \$253 billion of oil and imported goods and services worth of \$99 billion. This included manufactured goods, transportation equipment, clothing and textiles, processed food products. The Kingdoms deals with many countries including China, France, Germany, India, Japan, Singapore, South Korea, Taiwan, U.K., and U.S.

Sources: www.cdsi.gov.sa/, www.citc.gov.sa, and Statistical Yearbook (2010)

The main economic source of the country is oil, followed by religious tourism. Currently, Saudi Arabia has one-quarter of the world's oil reserves and consequently is the world's largest oil producer and exporter. It also has the world's largest petrochemical industry. The wealth generated from oil export since the first oil shock in 1973 resulted in huge levels of public investment in infrastructure with the aim of boosting development and economic growth, including. The oil wealth means that Saudi Arabia is one of the largest economies in the Middle East (www.cdsi.gov.sa/). Saudi Arabia is a member of many international cultural, political and economic organisations (see Table 2).

Table 2: Saudi Membership of Major International Organisations

The Gulf Cooperation Council (GCC) since 1981.
The Organization of Petroleum Exporting Countries (OPEC).
The Organization of Arab Petroleum Exporting Countries (OAPEC).
The World Trade Organisation (WTO) since 2005.
The Group of 20 (G20).
The International Monetary Fund with 3% share.
The World Bank with 3% share.
The Islamic Development Bank with 23.6% share.
The Arab Monetary Fund with 15% share.

Sources: www.cdsi.gov.sa/, www.worldbank.org/, <http://mci.gov.sa/> and Statistical Yearbook (2010).

THE SAUDI BANKING ENVIRONMENT

In the Saudi context, there are two types of banks, conventional and Islamic. The business community can work with either or both types of banks. Saudi Arabian Monetary Agency (SAMA) is the authority that regulates the banks and introduces new laws. The Saudi Arabian financial system is well-developed through its human resources and extensive and sophisticated infrastructure, as well as the enormous liquidity available in the country (E-Banking Rules, 2010).

Saudi Arabian Monetary Agency (SAMA): A Short Historical Background

SAMA is the Central Bank of Saudi Arabia; and is an autonomous body and independent body. In simple terms, SAMA implements the laws and standards for all the banks and provides the necessary regulatory environment. In addition, SAMA supports the banking system in order that both customers and banks are well protected.

The first monetary system in Saudi Arabia was approved in 1928 under the name 'Hijaz and Najd Monetary System'. The Saudi Arabian Riyal was initially issued as an equivalent of the

widely circulated silver Ottoman Riyal in terms of size, weight and standard. From 1927; the Ottoman Riyal was replaced by the Saudi Riyal. However, in 1935 the government decided to issue a new silver Riyal carrying the label 'the Kingdom of Saudi Arabia' mimicking the silver Indian Rupee in terms of size, weight and standard (Ali, 2001). SAMA, which is the second oldest central bank in the Arab world, commenced its activities in the city of Jeddah on 4 October 1952. These duties include (www.sama.gov.sa/):

- (i) Issuing national currency (Saudi Riyal);
- (ii) Undertaking the duties of a central bank;
- (iii) Controlling banks;
- (iv) Managing foreign currency reserves;
- (v) Planning monetary policies to the effect of stabilising prices of commodities and foreign exchange;
- (vi) Encouraging the development of monetary system and ensuring its security; and foreign exchange;
- (vii) Supervising insurance companies.

In order to make life easier for the pilgrims, SAMA replaced the heavy silver coins with what were known as pilgrimage receipts. These were launched on 25th July 1953 with the value of 10 Riyals. Around 5 million receipts were issued with labels in Arabic as well as in Persian, English, Urdu, Turkish, and Malaya. The experiment was successful, with the receipts accepted by the pilgrimage population as well as winning the trust of both businessmen and local citizens (Ali, 2001). Table 3 presents the most important historic events in the development of SAMA.

Table 3: SAMA's Main Events

Date and Year	The event
22 Oct 1952	The first gold coins were issued in Saudi Arabia.
1956	Under the authority of Saudi Arab Monetary Corporation, SAMA issued its first coins featuring one-piaster, two-piaster and four-piaster.
16 Jul 1957	The second monetary system was issued, together with the monetary control system.
15 Nov 1957	From 1955 the Kingdom faced a severe financial crisis and as a precaution, the corporation amended its monetary policy. This gave rise to the corporation as an independent entity.
15 Dec 1957	Followed the crises, the authority issued the third version of monetary system
1958	The authority agreed to issue the Saudi golden Guinea carrying the label "King Saud".
31 Dec 1959	Under the orders of the corporation, the fourth (current) monetary system was issued and implemented. Banks were permitted to print the banknotes.

14 Jun 1961	The corporation permitted to print formal banknotes featuring one, five, ten, fifty and hundred riyals.
11 Jun 1966	The corporation introduced a system of bank control.
1980	The First ATMs in Saudi banks
1984	Many changes introduced by the corporation, such as the daily activities of the share market and registering of Saudi shares. The main aim of the company was clearing transactions associated with shares.
Apr 1990	The corporation agreed to introduce IT systems in the banking system. The Saudi payment network (SPAN) was established by SAMA. In addition, electronic banking was introduced to the traders and customers.
15 May 1997	The Saudi System for fast money transfers known as "SARIEA" started to operate.
1 Jul 2004	Supervision of the stock exchange was given to the Financial Market Corporation instead of SAMA.
3 Oct 2004	The system of payment "SADAD" started operating.
2004	SAMA launches e-Trust Center supporting the banking technology services.
19 Mar 2007	The Saudi stock company was established under the name "the Saudi Stock Exchange"
2014	MADA services for banking services started

Sources: www.sama.gov.sa/ and Ali, (2001)

The Saudi Stock Exchange (*Tadawul*)

As part of the financial development in the country, the Saudi Stock Exchange (*Tadawul*) company commenced its activities in the mid-1930s. The Saudi Auto Company was the first joint-stock company in Saudi Arabia; and by 1975 14 joint-stock companies were established. Thereafter, rapid economic growth coupled with the partial nationalization of foreign banks in the 1970s resulted in the establishment of a huge number of joint-stock companies and banks (www.tadawul.com.sa).

The Saudi financial market operated informally until the early 1980s, when the government formalised the establishment of an organized market with all the required systems in place. Thus, in 1984 a Ministerial Committee drawn from the Ministry of Finance and National Economy, the Ministry of Trade and the Saudi Arabian Monetary Corporation was formed with the aim of organising and developing the market. The Monetary Corporation was the government body entrusted with organising and controlling the market until the establishment of the Financial Market Authority on 31 July 2003. Finally, on 19 March 2007 a Saudi stock company was established under the name 'the Saudi Stock Exchange' (*Tadawul*). It should be noted that the Saudi Stock Exchange is the main body, which officially deals with the issuing, selling and buying of shares. Thousands of shareholders use e-commerce to trade millions of dollars of business every day (www.tadawul.com.sa) and is the largest sector of e-commerce in the country. The Saudi stock exchange performs efficiently despite a crash a decade ago. As an

indication of this growth, it should be noted that the daily total average transaction in Saudi stock exchange are SAR4.4bn (http://www.aleqt.com/2012/03/12/article_635545.html).

SAUDI BANKS

In addition to domestic banks, there are several foreign banks, which operate in Saudi Arabia. This paper, however, only focuses on Saudi Arabian domestic banks, as they have much greater networks of branches than the foreign bank (SAMA Annual Report, 2011). The data and information of Saudi banks were collected through the banks' websites, Bankscope website, banks' brochures, SAMA annual reports, SAMA website and one-to-one interviews with the IT managers of the concerned banks.

Saudi Conventional Banks

Saudi Arabia has eight conventional banks:

- (i) Riyadh Bank: This is one of the leading banks in the financial market, which has introduced a website called 'RiyadNet', which has proven to be highly efficient and attractive to customers. Riyadh Bank has branches 318 including branches in London, Houston and Singapore, with 2,542 ATMs and 10,713 point of sales (POS). (<http://www.riyadbank.com/>, Bankscope website and www.sama.gov.sa/).
- (ii) Arab National Bank (ANB): The ANB was established in 1979, and is one of the leading banks in Saudi Arabia and the Middle East. ANB, through 78 Tele-money centres, is the second service provider. ANB has 203 branches including an office in United Kingdom, with 1,200 ATM and 11,000 POS (<http://www.anb.com.sa/>, Bankscope website and www.sama.gov.sa/).
- (iii) National Commercial Bank (NCB): The NCB was the first financial institution in Saudi Arabia when established in 1953. It is one of the Arab world's largest financial institutions, with head office in Jeddah. It provides several banking products and services and e-banking services such as online trading, electronic payment, phone banking. The bank owns 64.68% of TurkiyeFinans Islamic Bank (TFKB) in Turkey. It should also be noted that the NCB is the largest provider of foreign exchange in the Kingdom. It has 329 branches within Saudi Arabia, and more than 23,000 POS as well as 2,252 ATMs (<http://www.alahli.com>, Bankscope website and www.sama.gov.sa/).
- (iv) Samba Financial Group: Samba is one of the largest banks in the Middle East and offers banking services through more than 80 branches, 512 ATMs and 5,381 POS. During early 1980s, Samba Financial Group took over the branches of Citibank which were first opened in 1955 and 1966 respectively. The bank took the advantage of a decision made

by the government during 1970s, that foreign banks could sell their majority shares to Saudi nationals. (www.samba.com, Bankscope website and www.sama.gov.sa/).

- (v) Saudi British Bank: The Saudi British Bank was established in January 1978 with its head office in Riyadh to take over the operation of the British Bank in the Middle East. The bank, which formally commenced activities in July 1978, provides various banking services through a network of 80 branches and Internet and telephone banking services. It has 510 ATMs and 7,069 POS (<http://www.sabb.com>, Bankscope website and www.sama.gov.sa/).
- (vi) Banque Saudi Fransi: The bank was established in June 1977 as a Saudi-French joint venture. The bank is an important provider of comprehensive financial services in Saudi Arabia, including online-banking and call-centre services. The bank operates 83 branches, and has 576 ATMs and 8,634 POS (<http://www.alfransi.com.sa/>, Bankscope website and www.sama.gov.sa/).
- (vii) Saudi Hollandi Bank: It was founded in 1926 as the Netherlands Trading Society, the first bank in Saudi Arabia. It was originally established in Jeddah to serve the pilgrims from Indonesia. It provides a wide array of banking services, including e-banking, telephone banking, and wire or e-transfers. The bank has 1,417 employees, 44 branches, 265 ATMs and 7,190 POS (www.shb.com.sa/, Bankscope website and www.sama.gov.sa/).
- (viii) Saudi Investment Bank (SAIB): SAIB was established in 1976, but became functional in March 1977. The shareholders are J.P. Morgan Chase, and Mizuho Corporate Bank (formerly the Industrial Bank of Japan), along with Saudi public and private institutions as well as Saudi nationals. SAIB is particularly strong in the area of providing assistance for exports and increasing revenues for the government. It also targets individuals in arranging their investments in mortgages, and other credit activities, but under *Shari'ah*. SAIB has 45 branches, 324 ATMs and 154 POS (www.saib.com.sa/, Bankscope website and www.sama.gov.sa/).

Islamic Finance and Banking in Saudi Arabia

Saudi Arabia is the biggest market for Islamic finance in terms of size, and is also home to the biggest concentration of Islamic funds. Moreover, the largest multinational Islamic bank in the world is located in Saudi Arabia, namely the Islamic Development Bank in Jeddah and nearly all other banks operating in Saudi Arabia provide Islamic banking and financial products (Iqbal, 2011). In addition, Saudi Arabia has two big players in the Islamic banking: Al Rajhi Banking and Investment Corporation, and Bank Al Jazira (Khan and Bhatti, 2008).

Despite the government's responsibility to ensure the implementation of *Shari'ah* in the country, it was only in 1983, that Islamic banking commenced in Saudi Arabia with the Al-Rajhi group starting the first Islamic commercial bank. With its continuous growth, by 2000 Al-Rajhi had become the largest Islamic bank with total assets worth \$10bn (Wilson, 2000).

Saudi Arabia has major four Islamic banks out of its twelve domestic banks:

- (i) Bank Albilad: This bank is a Saudi joint stock, and was established in 2004 from the merger of eight Money Exchange Companies, with an initial capital of SAR3bn. The bank offers e-banking services, and has 102 branches across the country, with 829 ATMs and well over 900 POS. The bank has a strong department dealing with *Shari'ah* compliancy (<http://www.bankalbilad.com>, Bankscope website and www.sama.gov.sa/).
- (ii) Alinma Bank: It is a Saudi joint stock company established in 2007 with headquarters in Riyadh, and is the newest Islamic bank. Alinma was established with share capital of SAR15bn. At the moment, it has 55 branches with 1,000 ATMs (www.alinma.com, Bankscope website and www.sama.gov.sa/)
- (iii) Bank Aljazira (BAJ): It is one of the leading Islamic financial institutions in Saudi Arabia, which opened its first branch in 1975. BAJ took over the branches of the National Bank of Pakistan. BAJ is regarded as a leading *Shari'ah* compliant institution. This followed the 1998 strategic decision by the BAJ's Board of Directors to change the bank into a *Shari'ah*-compliant entity. By 2002 all the bank's branches were transformed into Islamic banking. BAJ introduced Internet banking, including mobile transfers and provides services to thousands of customers on line. Moreover, BAJ was the first banking institution in Saudi Arabia to introduce *takafulta'awuni* (TT) in 2002 as a full-fledged *Shari'ah*-compliant alternative solution for the traditional life insurance. This approach helped BAJ to increase the trust and confidence of its customers. BAJ has 66 branches, 308 ATMs and total capital of SAR3bn (<http://www.baj.com.sa/>, Bankscope website and www.sama.gov.sa/).
- (iv) Al Rajhi Bank: Al Rajhi Bank is the largest Islamic bank in the world (The Banker, various issues), and has more than 8,400 employees. The bank was founded in 1957, and is committed to work under *Shari'ah*. The bank is involved in trading, and is an independent organisation under the name of 'Al Rajhi Trading and Exchange Corporation' in 1978. It was in 1988 that the bank was established as a Saudi share holding company. It commands great respect in applying Islamic principles in its activities. The bank has more than 500 branches, and more than 3,600 ATMs and

over 28,000 POS (www.alrajhibank.com.sa, Bankscope website and www.sama.gov.sa/).

THE PROVISION OF IT SERVICES IN SAUDI ARABIA

The government of Saudi Arabia has played a significant role in introducing IT into the Kingdom (The National 9th Plan, 2010). All public offices in the Kingdom were the first beneficiaries of the IT system, which helped the public solve their issues and save time. The National Policy on Science and Technology in the Kingdom supports the expansion and development of IT technology and closely monitors the IT services in the country.

Due to the efforts of the National Policy, a framework exists in Saudi Arabia within which the banks are obliged to work. The policy links to the national plans and is fully acknowledged by the government (KACST, 2011). The 9th Development Plan (2009-2014) focuses on the prospect of the “transformation into an information-technology-based society and a digital economy to increase production and provide services of telecommunication and information technology to all sections of the society all over the country, and in effect establish a strong industrial base to become one of the major sources of national income” (The National 9th Plan, 2010).

The plan focuses on the execution and completion of the programme featuring the National Plan for Telecommunication and Information Technology. The plan also aims to implement unrestricted services and opens the door for competition in the area of Information Technology and Telecommunication (ITC) in order that those services are available in all parts of the country through the promotion of broadband services. Furthermore, the plan aims at completing the infrastructure for the government’s electronic transactions, by augmenting its services as well as promoting those services at all levels. The plan also focuses on projects to establish a knowledge economy. Most importantly the projects include Wadi Al-Riyadh for Technology, the University of King Abdullah for Science and Knowledge, Information Technology and Telecommunication Garden, and the City of Economic Knowledge in Al-Medina. According to the government by 2024 the Saudi economy will have made significant strides towards its ambitious goal to become a knowledge-based economy (The National 9th Plan, 2010).

ASBAR Centre (2004) highlights several factors that are responsible for the public’s willingness to use online services in Saudi Arabia. The study was based on responses from 2,160 males and females. The results show that 51.2% of citizens who were utilising the Internet services lived in the Eastern region which consequently had the highest users of the technology. In addition, it was found that 56.7% of government officials and 58.5% of the private

sector were the beneficiaries of the internet. The major age group represented was 25-34 years. The data also showed that majority of users had access to internet from their homes. It can be seen that 82% males and 91% females were using internet, and internet cafes were found to be providing services to 53.3% citizens across the country. However, it is important to note that the reason behind the increased trend in internet use was directly related to levels of the users. This also justifies the government's commitment to educating to their citizens.

The National Plan for Telecommunication and IT

The National Plan for Telecommunication and IT was approved in 2007. According to the 9th National Plan (2010), the scheme aims at closing the gap between Saudi Arabia and other states in terms of digital technology. The scheme also incorporates programmes featuring the implementation of IT in areas such as e-trade, e-government, e-education etc. The main objectives of the scheme are as follows:

- (i) Improving the performance of the technology and telecommunication sector to include all government services, the social and health services;
- (ii) Establish a reliable telecommunication and information sector up to international standards, capable of attracting investment;
- (iii) Provide a chance for all social sectors to benefit effectively from the telecommunication and information technology services;
- (iv) Provide a trained human cadre from both genders in all areas of information technology.

E-Government in Saudi Arabia

In 2006, the first stage of the e-education programme was launched through the National Centre for Electronic and Distance Learning. Then, in 2008 the government launched the e-health programme that aims at providing the health service electronically (the National Centre for Electronic Learning). In a major move to support the technology sector in the country, the government issued instructions that all government departments and organisations should allocate senior jobs for IT from within its ranks (Yesser Annual Report, 2009). Al-Maliki (2014) highlights that Saudi Arabia has played a leading role in the Middle East in terms of providing effective e-government services and encouraging their adoption during the past five years. However, the vast majority of Saudis still visit government departments in order to obtain information instead of using the government websites. Furthermore, the global average for the usage of government portals is about 30%.

The global ranking shows that the implementation of Saudi e-government has progressed smoothly, as it moved from being ranked 70 in 2008 to 58 in 2010 (Al-Nauim, 2011).

This clearly shows the commitment of the government to its e-government programme. Al-Nauim (2011) agrees that this was due to the fact that technology needs to be delivered to the end users. Al-Solbi and Al-Harbi (2008) indicates that the existence and application of regulations can bridge any gaps in the assessment of e-government. In their research, they found that internet was the most important barrier to implementing e-readiness. According to the UN E-Government Survey (2014) Saudi Arabia ranked 36 of 193 countries in e-government development and one of the best 20 countries in the world in providing e-services.

Given the benefits to the national economy, the Saudi Arabian government is committed to transform its transactions into e-transactions. Furthermore, the Saudi government is considering a plan to provide e-services with the help of the Ministry of Telecommunication and Information Technology. This implies that in order to achieve information society cooperation is of paramount importance, and that government departments should join together to achieve the end goal. In this regard the Ministry of Telecommunication and Information Technology established the programme of government e-transactions in 2006 in partnership with the Ministry of Finance and the Authority for Telecommunication and Information Technology. The programme encourages the implementation of government e-transactions. It aims to keep centralisation to a minimum regarding these types of transactions and provides the minimum coordination possible between government bodies. The aims of the programme are (www.yesser.gov.sa/, 2015):

- (i) Improving the performance and productivity of the public sector;
- (ii) Providing easy and better service to individuals and the business sector;
- (iii) Increasing investment revenues; and
- (iv) Providing accurate information at the right time as required.

In support of the system, a national portal was created acting as an electronic gate through which citizens, visitors and companies would be able to use the e-government service from anywhere in the country, with the required efficiency and speed. The gate makes it possible to access the e-service either through integration with other government organisations or through electronic links between those organisations and the associated services and the gate. Furthermore, the gate constitutes an important information conduit for news propagation and other activities associated with e-services and the government bodies that provide those services. Thus, (www.saudi.gov.sa, 2015):

- (i) It is a central channel of Saudi Arabia news and events;
- (ii) It provides a guide for government bodies;

- (iii) It provides a great number of system links, regulations, laws, and Saudi plans and initiatives;
- (iv) It provides a special section featuring information on Saudi Arabia.

In maintaining the working of e-government, the intermediary systems feature an integrated structure of systems and programmes used for e-transactions 'Yesser'. The programme primarily provides a common infrastructure to facilitate government e-services in order to perform the required level of integration. It works as an integral intermediary system, which provides a number of common services for the different government bodies, such as user identification, protecting information, e-payment and notification, and exchange of information between different government bodies in order that this information can boost government e-services in a secure, prompt and accurate manner (Yesser Annual Report 2009).

E- SERVICES IN SAUDI BANKS

According to the SAMA website, all Saudi banks have websites and all of them provide e-services to their clients (SAMA, 2015). The number of POS in Saudi Arabia in the first half of 2011 was 84,473, a significant rise from 1,274 in 1993. In addition, the numbers of ATMs have increased to 11,300 in the same period (SAMA Annual Report, 2011). Table 4 shows the characteristics of Saudi banks, including information on branches, online-banking, call-centre ATMs, POS and capital.

Table 4: The Characteristics of E-Services in Saudi banks within Saudi Arabia

Bank	Branches	Online-Banking	Call-centre	ATM	POS	Capital (SARbn)
Al-Bilad	102	✓	✓	829	925	4
Al-Inma	55	✓	✓	1000	N.A	15
Al-Jazira	66	✓	✓	308	N.A	4
Al-Rajhi	500	✓	✓	3600	28000	16.250
Al-Riyad	318	✓	✓	2542	10713	30
Arab National	203	✓	✓	1200	11000	10
NCB	329	✓	✓	2252	23000	20
Samba	68	✓	✓	512	5381	12
Saudi British	80	✓	✓	510	7069	10
Saudi Fransi	83	✓	✓	576	8634	12.05
Saudi Hollandi	44	✓	✓	265	7190	4.76
Saudi Investment	45	✓	✓	324	154	6

Source: www.cdsi.gov.sa/, Bankscope website, www.sama.gov.sa and SAMA annual report, 2013.

In order to protect clients from electronic deception associated with e-banking, and to encourage banks to offer e-banking facilities, SAMA issued the 'Electronic Banking Rules'. As a precautionary measure the rules regulate e-banking activities, as well as provide advice for banks in relation to risk control with regard to e-banking in order to ensure the protection of clients by raising awareness and protection of privacy and by providing the minimum level of security possible (E-Banking Rules, 2010).

According to the Capital Market Authority Annual Report (2010) in 2010 around 91% of clients have used the internet to buy shares in new or existing companies as compared to 8.1% who used the traditional method by visiting branches (www.sama.gov.sa; Accessed 27/04/2012). Moreover, the Saudi Fransi Capital Company (2012) points out that around 82.26% of Saudi clients used the e-channels banking to buy shares in Najran Cement Company while the remainder used a different approach, namely in person (www.fransi-tadawul.com; Accessed 28/4/2012).

SAMA supports the e-commerce banking environments, the purpose of which is to promote the use of e-finance by all customers. SAMA helps e-commerce through three systems: the Saudi System for Fast Money Transfers (SARIE), the Saudi Network for Payments (SPAN), and the Saudi System of Payments (SADAD). It is worth mentioning that SAMA has also introduced e-trust centre, which provides a safety system for dealing with the banks through sources such as internet. It should be noted that e-banking services is the most important pillar of e-commerce, because without e-payment which is enabled through e-banking services the growth in e-commerce could not have been achieved (Al Saud and Abdallah, 2004).

In short, SAMA has been in control of advanced banking systems of payments for over 20 years by linking all banks in the kingdom including their ATMS and other relevant bodies through a single network in a secured and effective manner based on the following networks:

- (i) The Saudi System for Fast Money Transfers (SARIE);
- (ii) The Saudi Network for Payments (SPAN);
- (iii) The Saudi System of Payments (SADAD).

The Saudi System for Fast Money Transfers (SARIE)

The Saudi Arabian System for Fast Money Transfers (SARIE), which has been operating since 14 May 1997, is one of the most sophisticated systems in terms of credit clearing. The system concludes a decade of major achievements in the country with regard to the banking business.

SARIE, which has been designed in accordance with the concept of total simultaneous clearing, is considered a revolutionary invention in e-banking and commercial transactions in the

country. It constitutes the infrastructure for a number of advanced systems of payment and credit clearance. These systems include automatic clearance houses (ACH), systems for automatic clearance of cheques, and Saudi Network for Payments (SPAN) which links all cash machines and transfers money electronically at the sale centres (EFTPOS). It also facilitates the clearance of foreign exchange (TADAWL). The technological step coupled with the modern banking service associated with SARIE in relation to the banking sector in Saudi Arabia is considered as a landmark achievement in the history of payment systems in the country (www.sama.gov.sa). The main objectives of SARIE are (<http://www.sarie.gov.sa/>):

- (i) Automatic transfers of money with the assurance that they reach clients promptly;
- (ii) Provide state of the art banking products and services to clients;
- (iii) Minimise the risk of transferring funds between banks;
- (iv) Minimise the cost of banking services;
- (v) Improve financial performance through organising payments in relation to the banking sector;
- (vi) Pave the way for future developments such as e-trade in terms of procedure and technology.

The Saudi Network for Payments (SPAN)

In April 1990, the Saudi Arabian Network for Payments (SPAN), which was established by SAMA, links ATMS and POS. This technology processes financial transactions by card users to the card issuers. SPAN also provides services outside the Kingdom via networks such as GCC Net Member Switches.

The Saudi banks are obliged to issue ATM cards compatible to the network, and these cards are issued free of cost to the customers. The purpose of this has been to encourage the customers to use the system. This technology has eased the banks dependence on notes as means of transactions. SAMA reports that this has made a significant impact on increasing banks' deposits. Due to this facility, the number of bank customers has been increasing. According to 2008 data, the transactions through SPAN were SAR459m (<http://www.sama.gov.sa/>).

The Saudi System of Payments (SADAD)

SADAD is one of SAMA's systems which feature a central arrangement for undertaking all billings and payments in Saudi Arabia through electronic means. The main purpose of the process is to make the payment of bills and other payments faster and easier through the banking channels available in the country (branches of banks, cash machines, internet banking,

telephone banking). Before the system of e-payment, the payment of bills in Saudi Arabia placed a heavy burden on banks, as it was slow and impractical. For this reason, SAMA made it an obligation for all banks to accept payment of bills by individuals no matter if the individual is a client of that particular bank or not. Thus, it is not necessary that the person who pays the bill is a client of the bank. Previously, banks used to cover part of their costs by keeping the payments for a period ranging from 7 to 30 days (<http://www.sama.gov.sa/>).

A study made by SAMA on the payment of bills in Saudi Arabia concluded that between 60% and 70% were paid in cash at the banks. However, the huge number of bills issued in the country has become a liability to banks regarding the high costs in terms of reception desks, processing, IT, and matching the bills. This does not include the costs associated with loss of time that consumers have to wait in branches before they are able to pay their bills.

As local banks provide payment services to companies such as Saudi Telecommunications Company (STC) and the Electricity Company through direct links to their systems, government and non-government organizations have tended to make use of such arrangements. As a result of the above, the need emerged for a competent and fair central system, which lives up to the challenge of providing a strong base for future developments. Accordingly, SAMA took the initiative to introduce a technical solution that was easier for all parties. In order to do so the multiple links of the old system were replaced by a single link joining the banks to the companies concerned.

Thus, SADAD mediates between the two sides and in effect ensures financial arrangements, as well as the distribution of costs and profits. For this reason SADAD has the advantage over the current systems in terms of services, as it provides a mechanism for paying different bills to various parties, and also provides a mechanism for giving direct information on payment. This system has encouraged clients to use electronic channels as those channels provide a wider option for payments (<http://www.sadad.com>).

SECURITY AND THE E-TRUST CENTRE IN E-COMMERCE

Security is one of four factors that have infused on online banking in Saudi Arabia (Sohail and Sheikh, 2008). SAMA is the supervisory body for e-banking services and provides guidance to banks on security in e-banking services, and for that reason it published in 2010 a new set of rules, 'E-Banking Rules', governing e-banking services in Saudi Arabia (E-Banking Rules, 2010). To maintain the standards in the provision of services and customers' confidence, SAMA, in consultation with the Saudi banks, introduced the E-Trust Centre. The purpose of this facility is to help satisfy customers, as there were some confusion between the banks and customers. SAMA brought the customers and banks closer together. In simple terms, customers

need protection for their transactions, while banks need customers. SAMA bridged the gap through the use of the internet. Online applications have boosted the business-to-business (B2B) environment globally, but the marketplace has already gone to the next stage, which is business-to-consumer (B2C). Basically, SAMA's objective is to utilize internet technology to enable efficient payments systems. The banks developed infrastructures in compliance with SAMA's instructions. The E-Trust Centre will also establish the following facilities in order that the public in the Kingdom can use technology with confidence:

- (i) To ensure security in the information systems,
- (ii) To ensure e-commerce is helpful for the public,
- (iii) To ensure secure communication as well as e-mail.

In addition, the E-Trust Centre introduced the 'identrust' scheme through which the Saudi banks can have compatibility and deployment (SAMA, e-Trust Centre, 2010).

CONCLUSION

This paper outlines the banking environment and the IT infrastructure in Saudi Arabia. IT is globally acknowledged as an important factor for economic growth. Thus, the Saudi government has recognised its role in the local environment. Saudi companies, which have been playing a leading role in IT development, have taken advantage by setting up their businesses through e-commerce. The government made the banks responsible to help customers who deal with bigger transactions. The Saudi government's role is very clear as it has created and supported the practices of e-service in order that Saudi businesses could take advantage of the technology. In addition, SAMA, the financial authority in Saudi Arabia, has introduced important changes that have encouraged the Saudi banks, both Islamic and commercial, to introduce e-banking services into their operations.

SAMA has made it possible for customer transactions to be secure by creating security codes so that transactions cannot be hacked. Overall, it appears that the Saudi banks have introduced an e-banking service, with an efficiency and reliability that is compatible with international systems. For example, on a daily basis customers access the stock exchange to buy and selling their shares through the Internet. However, the acclaimed successes need to be verified through independent research which this study aims to conduct.

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