E-Government Initiative in Pakistan: Implementation of E-Billing Program for Utility Organizations

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Abstract- This paper is concerned with an e-billing initiative undertaken in NADRA. Traditional e-billing allows consumer to pay utility bills through the Internet. Since the Internet penetration in Pakistan is low which does not allow utility companies to collect their bills through the net. Therefore, NADRA designed a different strategy to address the issue. The company appointed franchisees who own Internet connection at commercial outlets; open an account with NADRA and prepay some money. The franchisees collect bills from consumers and charge commission at their outlets spread all over the country. NADRA deducts billing amount from each franchisee out of its prepaid deposit of each transaction. The information is sent to utility companies that a particular bill has been collected. The initiative is a success within the socio-technical environment of the country.

Keywords- E-billing; E-commerce; E-government; the Internet; E-service Marketing

I. INTRODUCTION

Information technology changed the way organization used to work in the first wave of diffusion of technology. It changed the business processes dramatically and cost effectively. The second wave brought common people under the shade of technology where end users not only communicate freely about various aspects of social and personal life but also do business. For example an IT literate person checks his mail online daily, pays his utility bills and transfers money while enjoying the virtual world. A study reveals that 40% of law firms worldwide are using e-billing bandwagon which cuts their cost by 7%-33% to create and send invoices through post [1].

E-billing experiments are not limited to economically advanced countries but developing nations are also on the way to utilize modern technology to facilitate their citizen. For instance, National Database and Registration Authority (NADRA) in Pakistan, an emerging economy, embarked on an e-billing initiative through franchise mechanism. The purpose of this paper is to describe it. It may be helpful for other developing countries to strengthen the efforts of creating paperless economies through similar initiatives. Such programmes also enhance the e-governance and creation of e-government environment.

II. LITERATURE REVIEW

Utility companies are expanding their online services through allowing customers to pay bills online in various corners of the world. A number of utilities allowed its customers to pay their bills online in US and Europe. The customers simply create an account in order to view bills and account history. They can receive bills via e-mail when they sign up for e-mail alerts and other services. Signing up needs an account number first and last name and e-mail address.

The city of Nampa’s treasurer said “it was a much requested service” [2]. Southeast utility went one step further in this regard; customers of the company can get answers to their question and talk with a virtual representative with the click of a mouse, the virtual rap (VR) responds about meter reading, bill payment alternatives and related topics. Detroit Edison asked consumers to report power outage and know restoration times. They can arrange new installation, start and stop a service. The company offers three options for payment: Visa, MasterCard and deduction from bank accounts. Half a million customers were using online serving of both companies (sharing almost equally) at the end of 2006 [3]. Utility companies are also developing consolidating billing concept where organization sends e-bills from one source and in the similar format. They claim many benefits of such initiatives: immediate billing, very little administration and no postage cost. The utility company sends “individually targeted promotional material directly to customers, wherever they are” [4]. It returns cash to the firms quicker and reduces float time i.e. outgoing bills and incoming payments [1]. The number of electronic payment transactions reached to 44.5 billion compared to 36.7 billion checks in the United States [5].

III. E-BILLING

National Database and Registration Authority (NADRA) in Pakistan has introduced an e-billing program to enhance e-government initiative in the country. It is know as ‘e-sahulat’ mean electronic facility. NADRA is primarily responsible to issue national identity cards to every adult of the country and keep a record of every citizen. It is a high-tech organization with infrastructure within and outside Pakistan. The International Branches are operating in embassies and consulates abroad.
The trigger for the program emerged from many dimensions. The government of Pakistan is very keen to facilitate people through innovative application of information technology: the e-government is the instrument to take benefit of it. The infrastructure has been installed in the form of NADRA offices and Kiosks. The NIC cards have been issued to most of the adults that may be used for implementing e-billing system. Utility bills used to be received by banks and post offices. People were experiencing long queues in extreme weather; most of them had to spare many hours to pay bills. Thus it was a time-consuming and pains-taking exercise. And NADRA needed a commercial project to finance its ever-increasing cost of maintaining existing infrastructure and expanding it in far and wide areas.

The programme is a nation-wide collaboration among financial institutions, utility companies, NADRA and consumers. Twenty-eight companies are the partners from telecommunication, natural gas, electricity and water sectors (See Table 1).

**TABLE 1 PARTNERS IN E-BILLING SYSTEM**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Name of the Organizations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecom</td>
<td>Pakistan Telecommunication Company Limited</td>
</tr>
<tr>
<td>Natural gas</td>
<td>Sui Northern Gas Pipe Lines Ltd (SNGPL)</td>
</tr>
<tr>
<td>Electricity</td>
<td>Sui Southern Gas Company Ltd (SSGC)</td>
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<tr>
<td>Electricity</td>
<td>Karachi Electric Supply Company (KESC)</td>
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<td>Electricity</td>
<td>WAPDA Distribution Companies</td>
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<td>Electricity</td>
<td>Islamabad Electric Supply Company (IESCO)</td>
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<tr>
<td>Electricity</td>
<td>Lahore Electric Supply Company (LESCO)</td>
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<tr>
<td>Electricity</td>
<td>Peshawar Electric Supply Company (PESCO)</td>
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<tr>
<td>Electricity</td>
<td>Hyderabad Electric Supply Company (HESCO)</td>
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<td>Electricity</td>
<td>Electric Supply Company (FESCO)</td>
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<tr>
<td>Electricity</td>
<td>Gujranwala Electric &amp; Power Company (GEPCO)</td>
</tr>
<tr>
<td>Electricity</td>
<td>Multan Electric &amp; Power Company (MEPCO)</td>
</tr>
<tr>
<td>Electricity</td>
<td>Quetta Electric Supply Company (JESCO)</td>
</tr>
</tbody>
</table>

E-billing offers collection of utility bills, dispensing pin codes for scratch cards (mobile phones and calling cards) and online verification of computer-based National Identity Cards (NICs).

E-billing is also a source of significant revenue for NADRA. The partners are paying Rs.5 for utility/post paid bills per transaction, Rs.10 for online verification, 3% of face value of mobile phone and wireless local loop (WLL) cards, and 8% of face value of the Internet cords. The facility is being used by more than 10 million customers.

The program offers a range of benefits for the consumers and partner companies. All utility bills can be paid at a single point at any time, ease of payment, no queries, respectful way of payment, available in far and wide areas, reduced reconciliation cost of user companies and the partner organization collect bills from remote areas quickly and efficiently. Additional facilities are available for users such as purchasing of mobile phone scratch cards, long distance calling cards, and the Internet cards.

**IV. MECHANISM OF E-BILLING**

NADRA has introduced the concept of KIOSK in 2006 based on the Biometric Identification and Online Verification (BOV) through Computerized National Identification Cards (CNIC). The objective was to provide/offre multiple applications of CNICs 24/7 including payment of utility bills and other electronic transactions through KIOSK mechanism. The partner companies collect their outstanding charges quickly and efficiently from geographically remote areas.

It involves NADRA, the partner utility companies and the customers. NADRA provides e-sahulat counters, an Electronic Point of Sale Outlet (e-POSU); the utility companies offer energy and telecom services on credit, and the consumers/customer utilize the services of both NADRA and utility companies.

The franchisees deposit cash in NADRA office or designated banks in their prepaid accounts. They can recharge/replenish their accounts in NADRA Swift Registration Centres (SRC), NADRA Kiosk machines, and designated branches of United Bank Limited (UBL), Habib Bank Limited (HBL), Bank Al- Habib and Allied Bank Limited (ABL). The franchisee continuous to pay bills until his balance runs out or he recharges his account.

The payment of bills process starts with deposit of cash at an e-sahulat counter; the cashier checks/verifies the details of the customer from e-sahulat server; if the details match the information provided by the customers, the customer receives a green signal to go ahead. However, the customer can buy scratch cards for the Internet and long-distance calling cords without verification. If a customer pays utility bills, the billings details are updated in the partner companies system through NADRA server.

It is a collaboration between utility companies and NADRA who share customer details such as name, account number and amount payable. The NADRA server receives updated information monthly that shows the amount of bill payable. NADRA
server updates information when the bill is paid, the beneficiary company is informed.

On the other end, a franchisee opens his account with an e-sahulat counter or NADRA office and deposits any amount of money he deems appropriate for future transactions. The franchisee opens his office anywhere in the country and started to collect bills from customer/consumers. He receives actual amount of the bill or face value of the bill, and deducts his discount. The NADRA system charges the franchisee the discounted amount. For example, franchisee ‘A’ opens his account with NADRA of Rs.1000; the franchisee collects a bill of Rs.200 from the customer. The NADRA e-sahulat charges franchisee ‘A’ Rs.190, thus the franchisee automatically receives discount of Rs.10. Thus the franchisee deducts its discount on the spot rather than wait for any other procedure. NADRA server updates the billing amount of utility company concerned (See Figure 1 for details).

![Procedural relationship among key participants](image)

The above procedure needs some hardware and software requirements. The hardware requirements includes: P-IV system, Token printer and a WLL/Dialup DSL/ISDN Internet connection. It also requires E-sahulat software.

The program is an innovative application of a facility which was designed for registration of each citizen of the country for planning and management of national resources. The utility companies are getting paid from multiple collection points comparatively cost effectively. The NADRA has commercialized a non-commercial product which earns reasonable revenue without substantial investment. It also enhances government’s efforts to facilitate citizen of the country through e-government initiative. It creates transparency and ease of use.

V. FURTHER IMPROVEMENTS AND RECOMMENDATIONS

The Urdu version of the application should be completely in the language so that less educated customers can understand it. The names of the partners companies are in abbreviated form; some users cannot understand them, and they must be fully explained in elaborated form. An SMS (short message) can be sent through “e-sahulat” system for the confirmation of the receipt. A re-print of bill payment can be issued in order to improve the confidence of users about the system.

The stakeholders of the system are located all over the country; there is no centralized reporting and complaint mechanism for them; such a system is required for effective and efficient operation. A web-based system is viable to address the issue.

Since online branches of banks are not available in rural areas, recharging of franchisee account takes up seventy-two hours which slows down the entire operation. A faster mechanism is required to fill the gap. For instance, a procedure can be introduced similarly to the “easy load” system of telecom organizations.

A large segment of public is unaware about “e-sahulat” facility due to limited marketing efforts by NADRA and partner companies. Many potential customers are not computer literate and do not meet minimum educational qualification requirement (i.e. matriculation). Therefore, more marketing efforts are required to facilitate users; they also need training in computer skills.

Some unauthorized franchisees are operating who are over charging customers and involved in other unethical activities which must be controlled to protect customers.

Finally, some additional facilities can be introduced on the part of NADRA by using the existing infrastructure. For example reservation of airline and railway seats, transferring money, acceptance of ID cards as debit cards at utility stores, KIOSK etc. It can benefit more than ten million registered customers of “e-sahulat” and 7.8 million holders of ID cards.

VI. DISCUSSION AND CONCLUSION

NADRA jumped on the e-billing bandwagon in 2006 in order to facilitate citizens of the country and generate additional funds for itself. The approach of the company is a little bit different from many companies of advanced countries. For instance,
Nampa city develops a website and allows utility customers to create an account. They can view current bills and account history on the website, and bills can also be sent by e-mail. Customers can pay them online (IBR staff, 2008). Detroit Edison Company offers many additional facilities as mentioned above (Lane, 2007). Such an approach is applicable in those countries where the usage of the Internet is high. For example, the above instances have been referred from the United States where the Internet penetration is 74 percent.

Since the Internet penetration in Pakistan is 10 percent where U.S. approach may not be successful [6]. Given that NADRA introduced a different approach to address the issue. The company has created a B2B2C channel. NADRA offered franchisees to open an account with e-sahulat counters, a NADRA owned facility, and operate their offices wherever they want to do so in the country. The franchisees collect utility bills from the customer and send discounted amount to e-sahulat counters or e-sahulat charges discounted amount to the franchisees. And the e-sahulat sends billing information to NADRA server; from where adjustments are made to the accounts of concerned utility companies. It is a unique approach under the circumstances in that non-IT literate customer takes benefit of information technology through a franchise mechanism. The system provides a commercial opportunity to both NADRA and franchisees thus thousands of jobs have been created with the implementation of the system. NADRA generates additional resources with its IT infrastructure. It coincides with the recent trend in IT industry that IT should function as “generator of revenue” [7]. E-sahulat counters are a new source of revenue for NADRA. It can be used to introduce additional services, for example, ID cards can be used for airline booking, railway reservation and money transfer.

REFERENCES