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A CONCEPTUAL FRAMEWORK FOR MULTIPURPOSE BILL PAYMENT SYSTEM- APPRAISING MEMBER CUSTOMERS' NEED

Anup Kumar Ghosh, PhD*

Somnath Sinha**

Aditi Paul***

Abstract

Paying bill is no more a nightmare for the people in recent days with the advent of technology. E-payment system has introduced multiple facilities of paying bills to the members. Now the members can pay their bills online by using the internet, if the facility available. They can also pay the same through net banking services. But according to a recent survey, only 6% Indians use Internet and out of these internet users only 42% people have the knowledge to make payment through electronic system. Hence it can be easily concluded that in our country majority of the members are out of this comfort zone to utilize these facilities due to different limitations. So there is a need for a system which can serve a member to pay multiple bills sitting in their houses instead of surfing the internet or walking a distance to a physical location. The proposed system is a multipurpose bill payment system that behaves as a payment cart. The responsibility will be taken by an organization (preferably sister concern of an existing bank or RBI registered NBFC) which is supposed to have tie-ups with the sectors where payment has to be done. The people can avail the facilities only by registering themselves with this serving organization and with receipt

* Professor, School of Management, Disha Technical Campus, Raipur, India.

** Asstt. Professor, Management Institute of Durgapur, Rajbandh, West Bengal, India.

*** Asstt. Professor, Management Institute of Durgapur, Rajbandh, West Bengal, India.

of a membership card. The transaction process will be this membership card (smart card) based. Employee from the organization will visit the member periodically along with their portable handhold machine. The members can pay multiple bills (e.g. electric bill, telephone bill, taxes, LIC premiums, loan EMI etc.) by only swapping their membership card. Concerned payment may be done by cash or by any acceptable debit card. After the payment being done the member will be given a receipt as an authentication by the service organization. This study describes the whole concept through a flow diagram and in the concluding section narrated the challenges that the system may face in introduction. Proper planning of this concept according to this flow diagram may be a good entrepreneurial proposition to serve the countrymen in large.

Key word: *Bill-payment Hazard, Online Payment, Multiple Bill Payment System(MBPS), Flow diagram, Smartcard.*

Introduction

India is a country of 120 Bn and 65% of its population lives in rural area. The people used to live in urban area got the benefit of different banks and non-banking financial institutions and different IT based communication facilities. But for this huge number rural population, the facilities are meager. For development of the country, it is highly needed to provide better services at the doorsteps of larger number of member customers with ease and affordability.

The rural people used to avoid coming down to cities for many reasons, but the most vital are the pollution, language problem and difference in standard of living. As a result, either they used to avoid different kind of facilities or they may be the defaulter in paying bills, taxes, premiums etc.

Payment of Bills, premiums or taxes etc through physical mode at the respective counters is a hectic task for the people who are accustomed with the complexity & boredom associated with the process at every month. To reduce this complexity several techniques have been introduced by different organizations to enhance consumer's satisfaction or delight. Online or e-payment system is such a facility that serves a consumer to pay his /her bill sitting in their houses, instead of walking a distance to the concerned counter, by surfing internet. Such online bill payment

systems, used so far, are mostly for payment of electric bills / telephone bills etc. But as mentioned earlier a small segment of Indian populace can have the access to use this e-payment system. From this backdrop this study has identified a solution for those Indian rural masses to pay their monthly bills, taxes, premiums and also utilize the system for different other benefits like ticket purchasing etc without having any knowledge and access of internet. This conceptual paper utilized different available services and put them into a box to serve the member customers for their ease of payment.

Review of Literature

In recent years variety of electronic payment systems have been introduced to simplify the payment. Traditional methods dominating the Indian payments market have been cheques and cash. Cash is the most popular modes of payment especially when it comes to retail transactions because it gives the member customer a sense of completion once the amount is paid in cash. However, if we look at the flip-side, it poses a security- risk for the member customer if he is carrying too large an amount of cash. So, it is here that cheques make things simpler from security point of view. When it comes to a question of bill payments and fund transfers the second most commonly used method of payment is cheques (Cotteleer et. al.,2007) .

The Reserve Bank of India is doing its best to encourage alternative methods of payments which will bring security and efficiency to the payments system and make the whole process easier for banks. Herein comes to a paperless payment system facilitating E-transactions. E-payments in India have been growing at a fast rate of 60% over the last 3 years. With the development of smart card technology an integrated circuit chip consisting of a memory and processing components can now be embedded onto a plastic card that allows multipurpose applications, including use of the card to pay for a variety of goods and services provided by the third parties (Rajan,2008). All these methods especially e-pay methods using cards are nowadays the different ways of bill payment. Few years back, Oriental Bank of Commerce also had launched India's first prepaid card with MasterCard which was open-loop since member customer could acquire the card with limited KYC (or Know Your Member customer) and also withdraw money from ATM. Recently most of the banks have launched various formats of prepaid cards like Gift card and Travel card. Travel Cards are primarily targeting member customers who travel abroad and

instead of carrying Travelers' Cheques Travel Cards are promoted for its ease and convenience and reduction in risk for these member customers (Konreddy, 2012). It is already known that India is one of the fastest growing countries in the plastic money segment. India's card market has been recording a growth rate of 30% in the last 5 years (Allen,2003). The average bank cost of an electronic payment is one-third to one half that of its paper-based equivalent or cash (Humphrey et al., 2006). Additional effects also exist and are of concern to central banks since the replacement of cash by electronic payments can alter the monetary aggregates (Duca and VanHoose 2004), reduce government revenues (Humphrey, Kaloudis, and Owre 2004), and make tax evasion and illegal transactions more difficult to hide. Most of the time business organizations pay explicit cost for payment services. But this is the choice of the members which specific payment method they adopt. Billers have satisfied the needs of many member customers by enabling them to receive and pay bills online at their point of preference and members have embraced online bill payment as a way to pay bills quickly and painlessly (Con Edison E-bill Study). The main objective of this application is to help member customers to receive, view and pay all the bills from one personalized, secure website there by eliminating the need of paper bills (Konreddy, Venkata Sri Vatsav Reddy 2009). In 1997, Modular corp launched the world's first Multipurpose Smart card, Id~MaS concept for personalization, payment, security access, medical data, visitors' log and immigration system. The concept proposal for Id~MaS, proving it to be efficient, secure and accurate, resulted in Malaysia's decision to create a Government Multipurpose card (GMPc) and a Payment Multipurpose card (PMPc) for its citizens. Moreover nowadays all banks and mobile network service provider are giving the facilities of bill payment through ecommerce. The government is also thinking of making the bill payment system easier and to make it available to all. Akshaya is such a project driven by Kerala government to provide such type of facilities. Akshaya has rolled out many e-services through the e-centre. The e-centers act as decentralized information hubs and service delivery points offering various services. E-payment platform covers utility bills like KSEB, KWA, BSNL, University fees etc. E-Filing of tax returns by traders of Kerala for Sales Tax Department has also been introduced recently. Booking the Indian Railway ticket through Akshaya centre is another feature. Basic approach is to bring all collections dispersed among a large number of people to a common platform of Akshaya e-pay facility. The system has been constantly strengthened by adding more and more services. The project is implemented by Kerala State IT Mission with the technical support from Centre for

Development of Imaging Technology, banking support from State Bank of India and using the network of Akshaya. Akshaya gives training to entrepreneurs who are interested in setting up the e-pay platform in their e-centers. Paying electricity bills from a remote village in the state of West Bengal, without having to travel miles to pay on time, is a reality today. This has been achieved through the Srei-Sahaj-WBSEDCL partnership. The Srei-Sahaj Portal provides functionality to VLE and the WBSEDCL stakeholder to login and accomplish a number of tasks without any difficulty. Paying of WBSEDCL bill has never been easier or more transparent; a greater consciousness regarding the proper and legal use of electricity is thus being generated among the rural poor. To manage and pay bill in a hassle-free way different online service provider are also there. Bill junction is one of such site where one can pay his/her bills. Bill junction gives the flexibility and convenience to pay the bills online or through SMS. Bill Junction has tied up with most of the utility Service Providers like electricity, telephone, cell phone, insurance, credit card, municipal taxes etc. This online bill payment service is presently available in many cities in India. The bill payment system is really customaries and easier by the Eastern Power Distribution Company of Andhra Pradesh Limited (APEPDCL) in Visakhapatnam. To improve the Member customers Convenience, ATP (Any time payment) Machines are installed at 4 places in Visakhapatnam. It also provides Door-step services. If the member customers do not have the time or convenience to visit the member customer facilitation centers, they can avail the door-step service at a nominal charge. A messenger will be dispatched to member customer premises to collect the fee and documents and issue a receipt for the same. All these projects are the motivating factors to make bill payment system which can serve our all utility bill payments as well as bank payments.

In this paper a conceptual system has been elaborated to ease out the problems of payment of bills, taxes, premiums and other service utilities connected with payment transactions for the urban as well as rural people from their own dwelling.

Concept

The identified system will be multipurpose problem solver to individual. Nowadays any person has to face many problems while paying the taxes, electric bills, telephone bills or any loan

payment which is time killing as well as harassing. Especially in the rural area where most of the people have to come to the city for their bill payment. Here we consider a system that will serve the multipurpose action. The responsibility will be taken by one organization, let its name is MBPS .With this concept one of the employees from the organization(MBPS) will visit the member area wise in every month or as per demand. The organization (MBPS) should have tie-up with the other organizations for which the payment will be collected. When any member wants to be the member of the organization (MBPS), he will be given with one identity card and an account will be opened in the own database of the organization(MBPS) based upon his/her personal details and with a token membership fee. The member customer details e.g. pan no, electric bill no, telephone bill no or loan details etc. will be kept in the database. It is the duty of the organization(MBPS) to check and verify the present status of the member customer from the relevant authorities e.g. last electric bill, telephone bill etc and then only the registration procedure will be completed. Databases are initially set up with the present readings. If all the information furnished by the applicant is found true then the membership of the member customer will be accepted for registration and after some days a smart card will be issued and will be sent to the mailing address of the member customer else the said member customer may collect his/her smart membership card from the office premises within working days (state transition process shown in diagram 6). The account, which is opened, will behave like a savings bank account. The organization (MBPS) may be a sister concern of any recognized bank or it can make a tie-up with any other bank for monetary transactions. The card given to the member customer can be treated as ATM cum debit card and the said member customer can see the last few transactions through the information kiosk. The organization(MBPS) can open some ATM counter (Kiosk) in some places of the city/villages where it has branches having sufficient number of members. When any employee of the serving organization visits to the member, he will ask for the payment (State transition shown in Diagram 7). The payment details of the member can be seen by the employee using net facilities i.e. whether the member has any LIC/loan/tax premium for that month. For the future payment advance reminder can also be sent to the member from the server by using the mobile network. Agent from the organization can also generate the bill by seeing the meter reading for the cases like electric connection on spot while visiting the member. For telephone bill, LIC premium, loan installment the details will be available in the personal account of the member. For telephone bill the organization can collect the data member wise from the telephone

office/s and accordingly it is updated into the database so that telephone bill can be generated month wise. If it is a prepaid connection then it will be easier for the organization(MBPS) to handle the data. In such a case the organization will act as a recharge agency and against payment, talk value will be given to the member instantly. The money will be collected from the members either by cash / cheque or by any debit card, if there is insufficient money available at the membership smart card. The balance to the account can be checked by swapping the card in any ATM vending machine. Spot swapping facilities will also be provided to the members by the visiting agents. Money can directly be transferred to the said account also by the members through net banking. For any monetary transaction done by agent of (MBPS) , a printed slip will be given to the member specifying the agent's code. While visiting the member the agent will brief him / her about all the payments of that month and enquire the advice about which payments he/she is willing to pay. That is possible by putting a tick marks against different payment options after swapping his/her membership cards in the agent's handhold machine. Later it is the duty of the organization(MBPS) to dispatch all the payments for telephone bill, LIC premium or loan from the account according to the date. After all the payment being done a mobile alert can be sent to the members. The agent need not to carry much more things, one laptops with net facilities (or a tab), handhold card swapping machine, through which money is to be transferred, is sufficient. These handhold machines required to work under wireless condition. The member can see the transaction details through internet by using her/his login id and password which is given at the time of enrollment of the membership. If the member is out of station then it is also possible to transfer money to the specific account by login into its webpage. In that case he/she can do the same role what an agent does i.e. putting the tick marks over the payment options and submit. After giving all the payments if there is any balance a considerable amount of interest can also be given to the members. The concept in totality is to collect wholesome money from the member against all the payments in every month, depositing the same to a specific account (unique member's Id) and later dispatching it to the respective organisation's servers with whom MBPS has completed their tie-up. Later on the branch manager can send an email to the respective authorities by showing the details against which fund is transferred. The acknowledgement from the respective authorities can be produced as a receipt to the member also. In case of tax calculation it will automatically done by the software according to the income of the member and accordingly it is to be deducted from the member's account on installment basis provided the

member has submitted an income declaration in advance to MBPS. At the end of the year report will be given to the member and return will be filed online automatically. LIC premium or loan premium can also be given in same manner. Other value added system may be added subsequently depending on the tie-ups and demand of the members.

Data flow diagrams

The detailed data flow diagram of the concept has been shown in Diagram 1. The agent , may be employee of this organisation (MBPS), will approach the member customer at his doorstep about his willingness to pay any bill or require any service from his organisation. He may also inform the member customer about the upcoming payment lists of the said member customer. If the member customer agrees to pay or asks for any other services, the agent will ask for two things. First is the member customer database cum identity card(C_1) provided by the organisation and cash/ debit card(C_2) for payment. On recipt of the member customer's identity card (C_1), the agent will process the member database in his handhold machine and generate bill query against appropriate options. After generating the bill the agent will inform the same to the member customer and ask for his payment mode. The member customer may choose different option for the same and depending upon his option, payment process will be different. If the member customer chooses payment by cash, the agent will supply him a special envelope. On the cover the agent will put the member customer's bill no., transaction number denomination details and signature of the member customer. The envelope would have self sealing arrangement. Once it will be sealed it can not be openned untill it is being torned . The envelope must carry an unique Id (Barcode). The agent will swape the barcode and enter the amount received. The system will generate a receipt (R1) in the language that the member customer can read. In the second option, the member customer may pay it by debit card system and on receipt of the payment transaction from the bank the system will generate a similar type of receipt (R1). On the other hand the member customer may also deposit cash in the organisation's nearby office/ kiosk/netbaking to charge his Identity card (C_1). During payment he may transfer the said amount as stored against his card(C_1) . The agent at the end may ask the date of his next visit as the member customer prefers and enter said date in the database (C_1).

The transaction procedure with different companies has been shown in Diagram 2 ,3,4,and 5.The company (MBPS) will make an online dediacted system with the companies(Org) whose bills will be collected from the member customers by MBPS. In every 7 days , MBPS will update the data in the main server of (Org)s which will generate bill details, payment status etc. In turn the Org main server will generate a demand note about the amount the MBPS has collected from the member customers and the charge MBPS will claim from Org for the same. On receiving the said note MBPS will transfer the net amount to Org through online payment system after deducting their handling charge. They will also send a demand note to the Org claiming their handling charge. On realisation of the amount Org will issue a receipt/ chalan detailing the member customers's name, bill no., amount received etc. and will update their account so that MBPS will also update their own system's database for future collection.

Critical challenges

- The implementation of the system is based on internet. Most rural areas where majority of the Indian used to reside, still not having the speedy access of internet. More than that, there are frequent connectivity failure in telephone lines, low bandwidth particularly in case of internet and frequent power interruption. All these are hurdle for successful implementation of the concept.
- The organization(MBPS) will act as an agency like system. To make the system visualize the organization requires lot of manpower who are trained in the field of computer and willing to work in the rural areas. The agent must be faithful to the organization in terms of keeping the personal information and bearing the liquid money also (sometimes they have to collect cash also).Monitoring are also needed for illegal alteration of the payment data.
- For the general people side they have the tendency to resist a new payment mechanism due to the lack of awareness about the benefits of new technologies. They have the tendency to be content with the existing structures. They have the fear of risk.
- Lot of money is required initially to operate such type of organization, particularly to maintain the trained employee in proper ways. The organization has to collect the money from the member as a service charge. In rural areas the concept is new one which may be a blockage for this new concept.

- In this concept, We have thought for making the organization(MBPS) attached/ connected with different other organizations like electricity, telephone, LIC, different banks, income tax department. It will be a big challenge for the organization(MBPS), if small, to impress upon all the authorities so that they can permit this serving organization to access their database.
- In few cases, the organization(MBPS) may demand money from the authorities also e.g. from electricity department because they will collect the bills directly from the people and give it to the department which is nowadays done by the department itself. Naturally electricity department show their interests but for tax department they may not show their interests. The organization has to take its own interests to submit the taxes for the member by taking a service charge from the member only. Similarly for loan collection the organization may have to bear the loan risk while collecting the loan payment from the member.
- We are also thinking of using some kiosk for collection of money zone wise. Here the member can check their bills, can see their transactions details through smart card. The member can deposit money there also by cash/ cheque directly. Here the problem is the ignorance of a large section of member to use the card properly. They really need training for that. Deposit through machine is still not accepted by all as in counter where human intervention is there.

Recommendations

- There is a need for adequate funding in development of infrastructure related to information technology and mobile technology. This could be planned in any form that may be acceptable and convenient for government.
- E-payment is still new series of sensitization; meetings should be arranged at all levels. The banks and other stake holders must be educated and informed of the need to consolidate efforts to make e-payment successful.
- Workshop, seminar, demonstration are required to make the people aware of the new system which can solve their day to day problems related to bill payments.

- The payment machine should make voice interactive and operated by native language so that rural people who are not familiar with the payment machine can operate it easily. Obviously that will increase the project cost.
- Regarding the service charge payable by the member the organization may take a minimum amount against the opening of his/her account. No interest will be paid against that minimum balance. Then the member can avail all type of bill payment facilities without giving any service charge.
- The organization can behave like corporate agent where it can share its commission with the member and it will be another way to attract the member to take their membership.

Conclusion

- ✓ The system may be a one stop solution for the people who are unable to pay bill properly. The main aspire of the concept is to serve the people from rural India as well as generating a large number of employments. At a glance let us see the benefits of the concept
- ✓ No headache for payment of any bill from member customer side. Electric bill, telephone bill, loan payment, tax pay, LIC everything will be done through one organization. The bill will be given in time with authentication.
- ✓ Money will be taken from home in the form cash/cheque/cards. No need to go to anywhere or to waste time to pay the bills. Generating money receipt on spot confronts security also.
- ✓ Deposit of money is also possible through kiosk. Here it is also possible to get the transaction details.
- ✓ Reminder of payment in advance through mobile.
- ✓ Smart card can be used as debit card also.
- ✓ Interest will be given against the excess amount in member's account.
- ✓ If the member is out of station he/she can pay through internet also.
- ✓ If there is money in the account then bill will be automatically paid with intimation to member.

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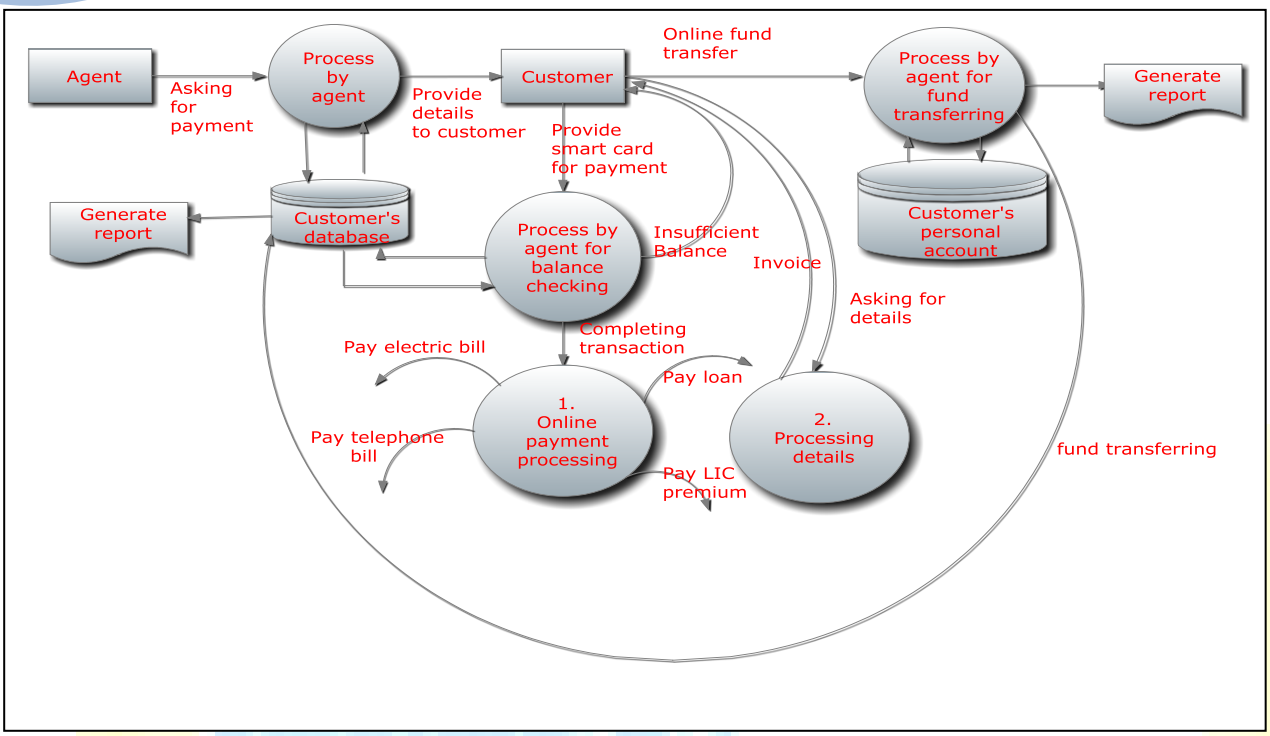

Diagram 1: Showing the Conceptual Model of Multipurpose Bill Payment System

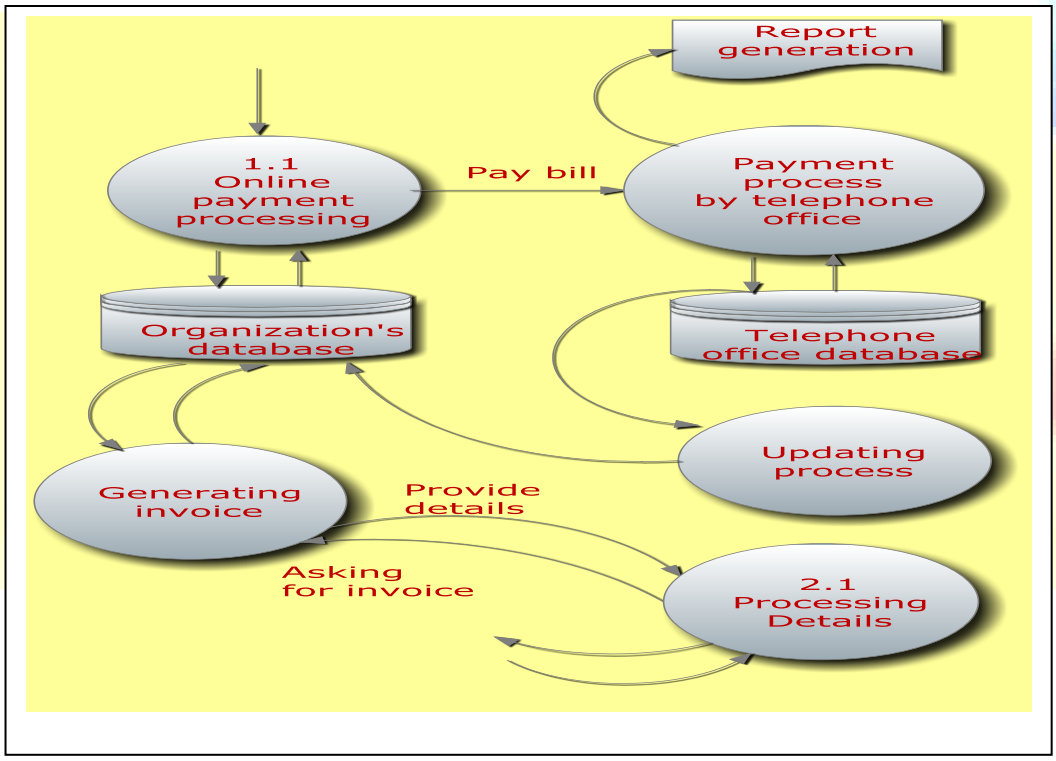

Diagram 2: Showing the Linkage between MBPS and Telephone bill payment system

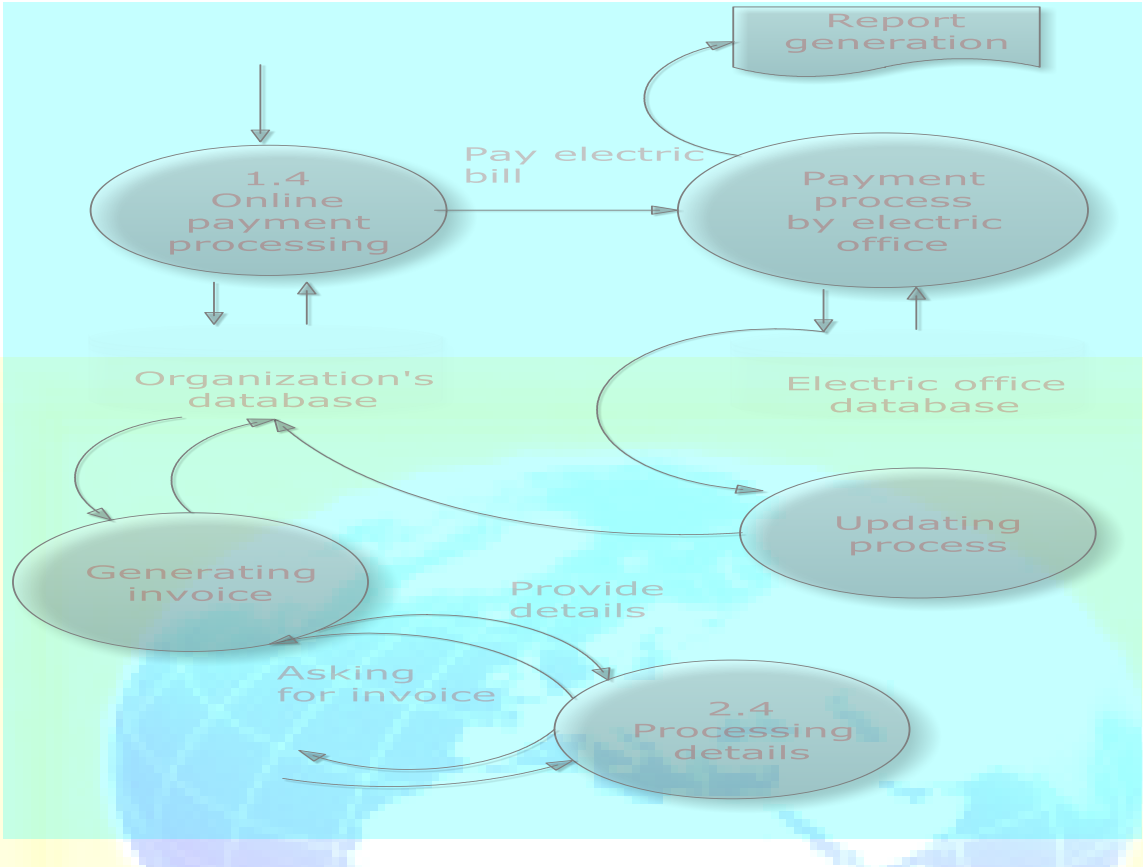

Diagram 3: Showing the Linkage between MBPS and Electricity bill payment system

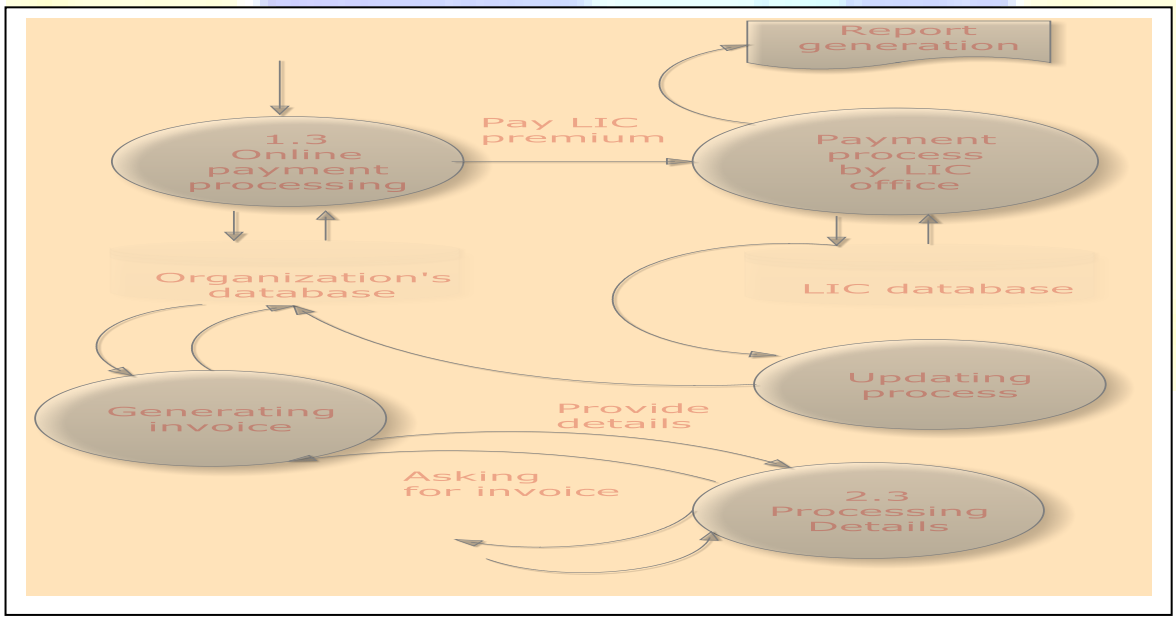

Diagram 4: Showing the Linkage between MBPS and LIC premium payment system

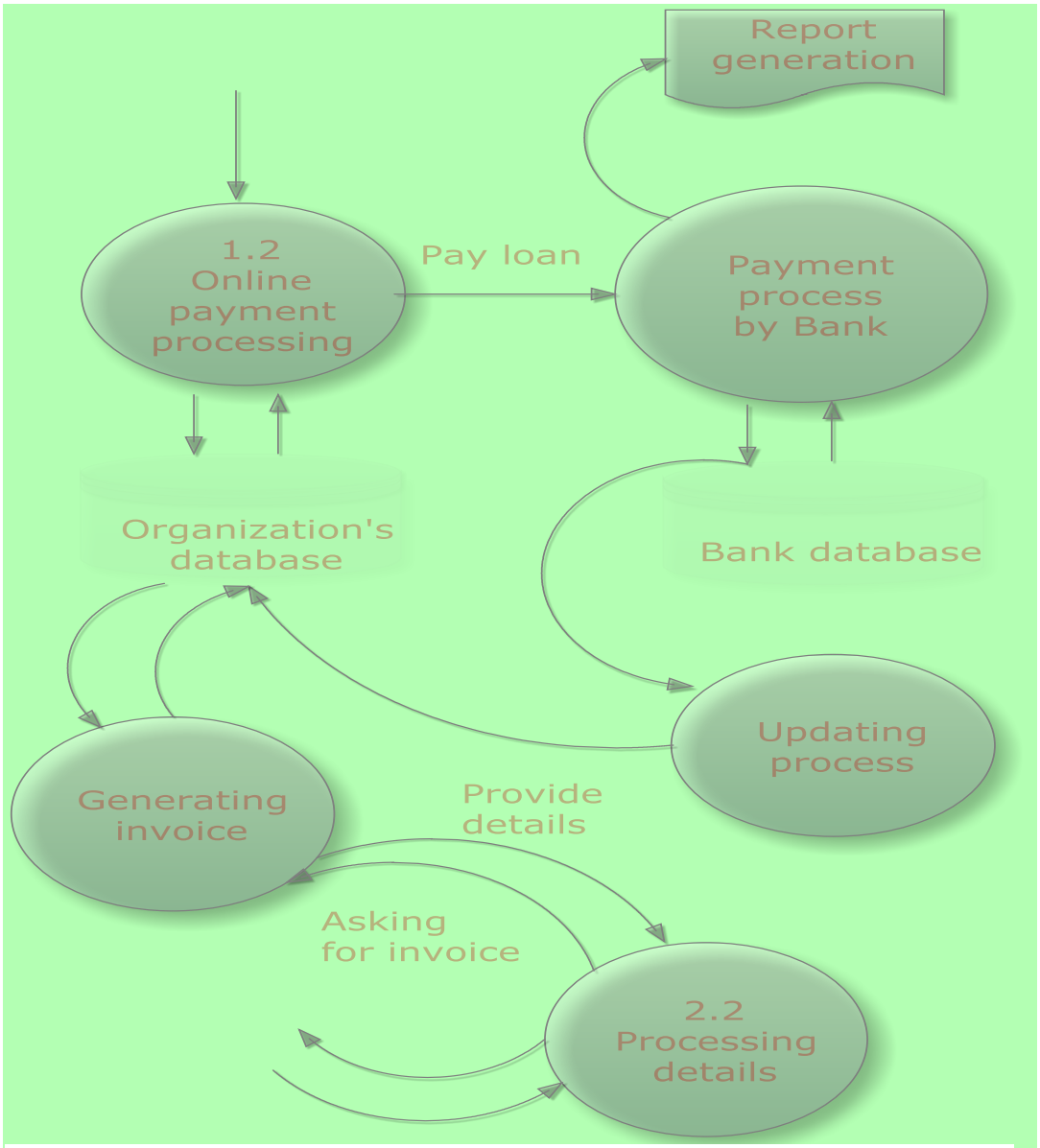

Diagram 5: Showing the Linkage between MBPS and loan payment system

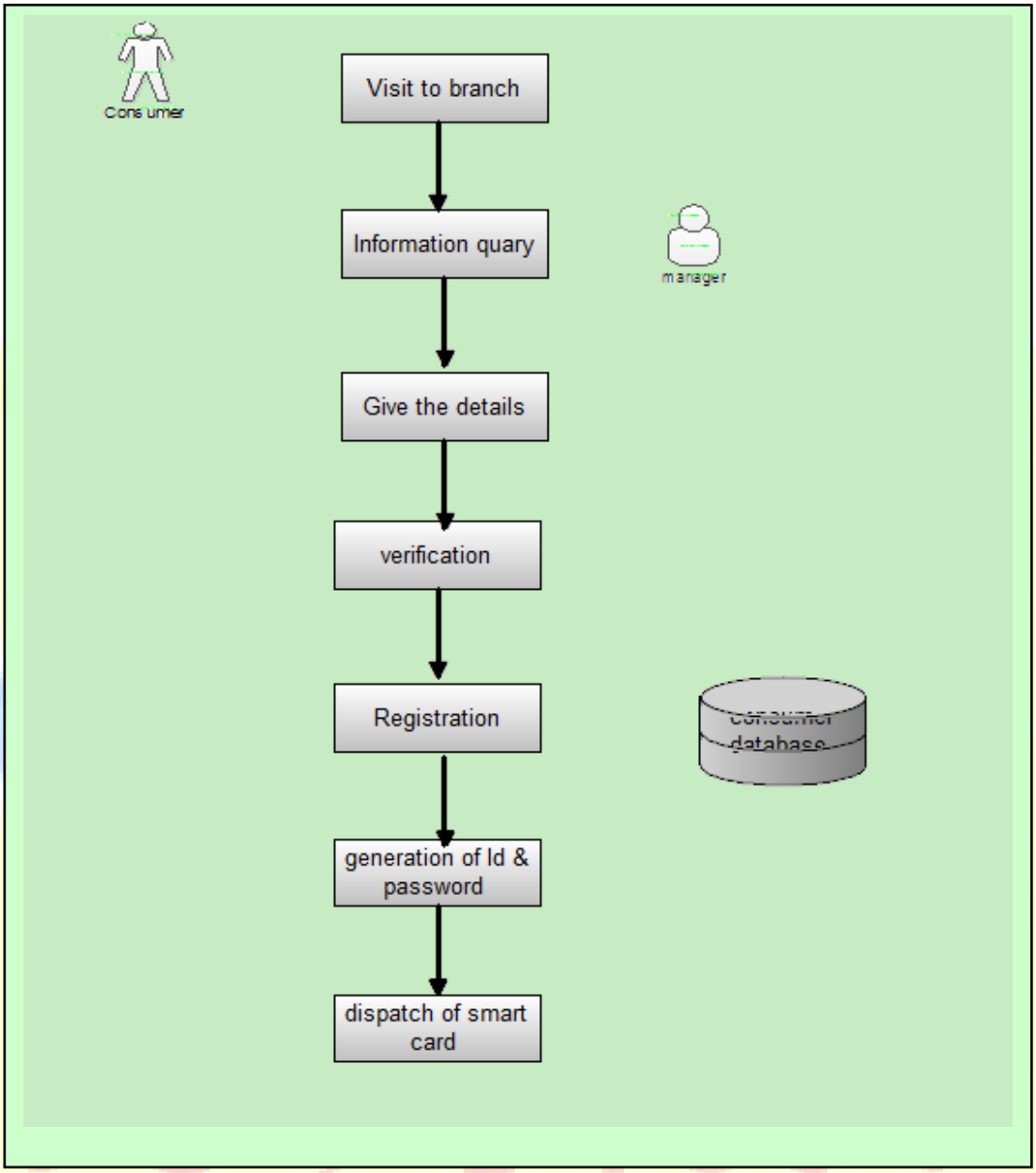

Diagram 6: Showing Member's registration procedure:

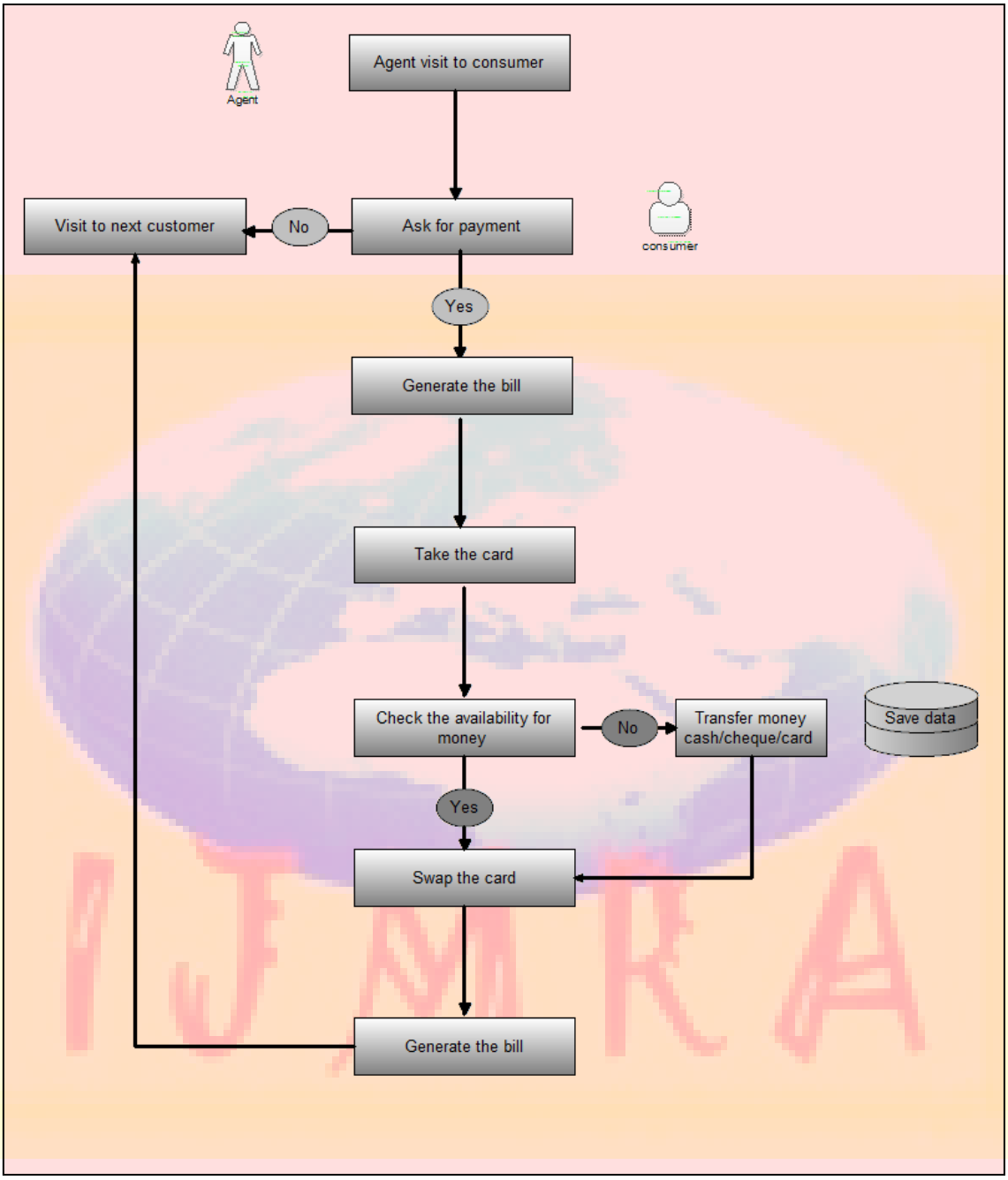

Diagram 7: showing payment procedure at member's house