



E-Commerce and Online Payment in the Modern Era

Momin Mukherjee

Dept. of Management & Humanities

National Institute of Technology, Arunachal Pradesh, India

Sahadev Roy

Dept. of Electronics & Communication Engineering

National Institute of Technology, Arunachal Pradesh, India

Abstract— *Face-to-face exchange of goods between the two sides conducted before the beginning of recorded history. Always there are some security problems in traditional payment system. After that electronics payments system brought out a huge revolution. Though modern technology digital documents can be copied perfectly, duplicate signature of anybody is possible. Name of the Buyer's can be linked with each payment, to eliminate the secrecy of money. Without proper and high-quality security system somehow e-commerce will not work anymore. On the other hand a very well designed electronics payment system can provides high label security then the traditional payment. In this article we discussed about the different process, benefits, and security related issue of electronic payment system.*

Keywords—*E-commerce, Electronic Data Interchange, Generic Framework of E-commerce, Online Payment System, Software Protocol, Value Added Network.*

I. INTRODUCTION

E-commerce i.e. Electronic Commerce is the cutting edge for today's commerce. Definition of e-commerce with some words is impossible. It is a vast process using internet. It not only the shopping using internet rather It includes all types transactions, business-to-business connections electronically. All types of selling and buying process can be held using e-commerce system. The path of e-commerce are e-mail, fax WWW etc. It is an electronics communication system [1] of sharing information among the business partners to the detection of trade objectives. It is a one kind of current trade method which is used by merchants, consumers etc. to cut the service costs, improving the value of goods and services and increasing the speed of service delivery by help of high speed computer networks[2]. It helps very rapidly in the trading process via computer networks. Main function of e-commerce is handing out of information. Now a day's e-commerce is used in all areas from product design to customer service. Basically e-commerce is the one kind of business process to interact with customer quickly such as online advertising, online payment, and online customer services, order tracking, product exchange etc[3]. Also it can reduce carrying cost and order related solutions, service charges, and costs in managing orders [4]. It enables to interconnect with a long-range of suppliers, distributors and trading partners also in rural areas [5]. Basically, e-commerce means do business as usual but across the internet.

IT (Information technology) system has a remarkable outcome on production process. Businesses are producing huge funds in e-commerce purpose but they are tough short of to appraise the achievement of their e-commerce arrangement. The Information Systems Success Model of DeLone & McLean can be modified to the extent challenge of the innovative e-commerce system [6]. This study examine about the customer dependability in an online business-to-consumer (B2C) context. Internet has an amazing outcome on developing of trading process [7].

Here in this paper we discuss about the E-commerce concerned in searching and obtaining manuscript on the Internet. If we go through a survey the collected data shows that both acquaintance through an Internet seller and its procedure and expectation in the retailer prejudiced the respondents' purpose to find out about books. Furthermore, the information shows that whereas knowledge certainly makes confidence, it is principally people's character to belief that artificial their faith in the merchant. Suggestions for investigate and practice are discuss. Also various studies are discussed about m-commerce (mobile commerce) technologies.

II. THE BENEFITS OF E-COMMERCE

A limited company can advertise their product on their website as they advertise in newspaper, television etc. There are mainly two ways to advertise the products. First create a web-site which consist some pages where all description about the company are gives (for ex. who are you, where are you, how can they contact with you, what you want to do etc.). Another one is company can provide an on-line catalogue of the product when customer search for a product they can able to show the catalogue, cost, features of the product without going on the shop. Some major benefits of the E-commerce system [6] are described below:

- E-commerce is a modern business system.
- It can be used any time and any place from the world i.e. global market immediately [7].
- Dedicated transaction workers required.
- It is electronically buying or selling system.
- Need only a internet connection, PC and knowledge to operate.
- Information can be share with the partners in just moments.

Several numbers of benefits of Electronic Commerce system it has the profits for the corporation. It can open new markets; it can facilitate the companies to reach out to consumers. It can make these all process very easier and faster. Some regular important parts for business practices, Such as invoicing, ordering, and customer support, is appearing very quickly. Also network-based structure can decrease the paperwork concerned in business-to-business, business to customer, customer to business transactions. Company can improve meeting point on customer’s needs through the e-commerce process. Customers’ complements, feedbacks their satisfaction etc are reach to company easily.

III. GENERIC FRAMEWORK AND PAYMENTS OF E-COMMERCE

Generic Framework of E-commerce is a basic part of Electronic commerce process. It is required to define and examine the elements of e-commerce. The role of the e-commerce in manufacturing, retailing and servicing is examined and a common framework is proposed to describe the components of EC [8] and their role in different areas of an organization. Trust is a vital thing in e-commerce. In a transaction customer trust and control is very important, usually it can be written as Party Trust + Control Trust = Transaction Trust [9].

Instead of different types of traditional payment method like cheques or cash, we can now use many types of cashless transactions, simple known as e-payment. In this e-Payment method, persons can pay for goods and services via the Internet without the use of cash. Some major objectives of E-payment system are: safety, convenience, and transparency, time and cost savings of transactions. The payment arrangement of a country plays a vital function in its financial system, since it is the facilitate channel for the flow of economic assets [10].

The financial system is increasingly dependent on the Internet for communication and data transfer. Hence, attacks on the Internet can affect the financial system. All sorts of entities—not just financial institutions—transfer money electronically. The Internet’s World Wide Web (WWW) has developed into the main driver of modern E-commerce system [11]. The whole E-commerce process carried out with the application of information technologies concentrated on EDI (electronic data interchange) in excess of proprietary value-added system, is quickly affecting to the Internet. A rough sketch of online transaction process is in the Fig.1.

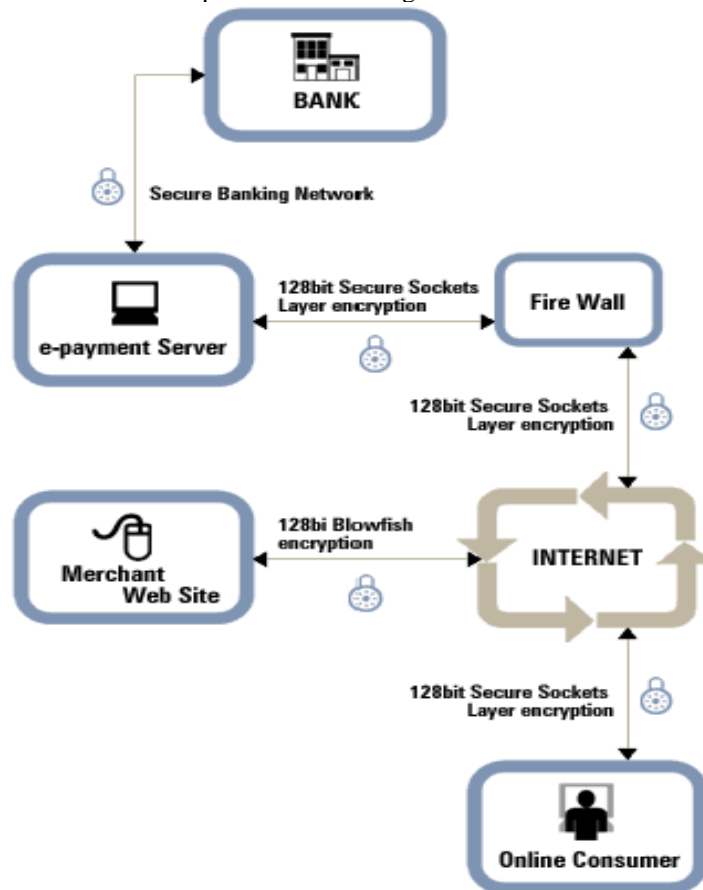


Fig. 1 A sample online transaction process.

Traditional reporting points may be circumvented, making regulation more difficult mainly,

- The credit card system
- Credit card fraud
- Electronic transfers by entities not traditionally regarded as financial institutions

Different types of electronic payment systems are the followings:

- Credit Card
- Debit/ATM card

- Smart Card
- Net Banking
- Paypal
- Mobile Wallet or e-Wallet
- Electronic Checks
- PaymentWall Method
- Google Wallet

A. Credit Card

At the present age most customers have credit cards. Merchants have the accounts and equipment. Credit cards are widely accepted in regions. It is large corporations ensure payment. The Credit Card System have some important features are discuss below,

- One key advantage of the credit card system is its charge-back procedures for dispute resolution.
- This provides effective, efficient dispute resolution for participants in the credit card system.
- Alternatives to the credit card system will need some dispute resolution procedures.
- The legal framework that regulates credit card transaction is currently, the main form of payment in business to consumer (B2C) transactions in e-commerce is by credit card.
- It provides good consumer protection facilitates the worldwide use of credit cards.

B. Debit/ATM Card

This is the most common method of online transaction. A huge number of people used this process for quick and easy payments. Day-by-day use of Dedit/AMT card spread rapidly. When customer wants to buy something from online or shopping mall they just give the details of their card (like pin no./cvv etc) to the service provider and the organization will handle the remaining payment method. So, it becomes very simple and easy process.

C. Smart Card

It is a plastic card with a local physical system for storing financial (and other) information. Smart cards may be both credit and debit cards .It improved with the microprocessors which is able to hold more data than the usual magnetic stripe. There a chip which is capable to store near about 80 times more data compared to a usual magnetic stripe.

- Smart cards can use:
 - Embedded computer chip
 - Magnetic strip

D. Net Banking

Now a day's net banking is a most common, useful e-payment system. Also it is more secure than the credit or debit card transactions. Here the process is just login in personal bank account via username and login password. During the payment process it will be redirected to the bank's site. For confirmation it sends an OTP (One Time Password) to the uses personal contact number or ask for the pin no. Therefore, for the two times verification it becomes more secure than other e-payment process and for that reasons it is also a very popular process.

E. Paymentwall method and Paypal

Payment-wall method is also an integrated technique for pay for e-commerce through online. It is an intermediary server for payment of goods and services of online purchases. It is a US based online transaction process. Its mediary company is located in San Jose, California. Paypal is generally used for buying eBay products through online.

F. Mobile Wallet and E-Wallet

In this method, first money from bank is transferred to this wallet, than this wallet ex: Paytm, Oxigen etc can be used as source to transfer money directly into providers account. Airtel money also uses the same method for mobile wallet as it first needed to deposit money into Airtel account than can directly use this money for online transactions. Google Wallet uses Gmail for making online payments/ transactions.

G. Electronic Checks

Recently Transaction/ payments like phone bills; electric bills etc are done by electronic checks system. Here for payments draws funds from uses checking account.

H. Futures of Online Payment Systems

Different future of online payment systems are given below, .

- Must conform to consumer preferences – or change them.
- Payment system MUST build large base of merchants and customers
- Electronic money is easier to track
 - Privacy issues
 - Taxation issues
 - Legal & Policing issues

- Credit Cards – 65%
- Checking Account Withdrawal – 13%
- Electronic Cash – 13%
- ATM/ Debit card – 8%
- Offline
- Cash Payments – 55%
- Check Payments – 29%
- Credit Cards – 15%

IV. USEFULNESS OF ELECTRONIC DATA INTERCHANGE

Electronic Data interchange i.e. EDI means exchange of documents/information in computer to computer between the business partners via electronic format [13]. Now a day's generally it is used in Business to business electronic commerce technology.

Costs and effort for trading partner conversion are become easier and business processes can become more efficient. Customer-supplier relationships may change more trust and collaboration [14]. Market structure changes Companies speak precisely the same language, same codes in same places, proprietary codes --> to standards (X12, EDIFACT, X400). Another advantage is that different computers can communicate with one another. E-business is easy business enterprise capital in large quantity. It basically concentrate on new market trends and world economy, new improved company policy, new and modified models and heavily growth potential. Like many financially unsound companies are tried to improve their profit by using online marketing. Most of the organization again refocuses property increases by modifying production speed and service quality.

Entry a strategy into the digital economy and type of business is more likely to succeed on the Web is a five-step evaluation process. Example Brick and Mortar companies adapt to the Web as an example. They plunge into the Web immediately and they proceed successfully. Brick & Mortar companies are most likely to gain from the web by substantial reductions in transaction costs, online stock trading and applying various tickets on the Net.

Web Venture Potential Costs Initial investments:

- Smart cards can use:
 - (i) Web site construction.
 - (ii) Integration with current systems.
 - (iii) Marketing.
 - (iv) Content, if relevant.
- Price transparency.
- Cannibalization of existing products or services.

Cost of waiting, losing the first mover advantage. Crucial if the first mover can benefit from network externalities and/or high switching costs. Detrimental if first mover enjoys brand-name recognition will be more difficult to capture market share. More dangerous in areas where the industry is concentrated and other firms can "crowd the market". Each trade in the network requires its individual on-site EDI translator to work. The translator are use own computers which are linked to each other by using dedicated leased lines or modems.

Trading partners may be use dissimilar protocols which can make direct inter connection, these options may be difficult to implement initially. Organization may be using the different services of a VAN or value-added network [15]. The value-added network may provide different supportive communications equipment or hardware and related software. Sometimes, ability and expatriation required to receive, save or store and forward electronic mail and messages to carry EDI transaction.

The VAN frequently provisions the software which is needed to join to its value added services. End users may support only one kind of communications protocol which is also essential. The VAN sometimes records various activities which are pre program already. In an audit log, it may provide an automatic record of all transactions details of a specific period. The value-added network can supply the simply transformation between the different transaction sets [16]. It also performs compliance checks automatically to ensure the deal set is in the particular EDI configure. Most VANs require an enrollment fee, a monthly maintenance fee, and a transaction fee.

VANs can be unwieldy and luxurious for company with trade associates via special VANs. Some time inter-VAN transfers not always produce a clear assessment trail. It is the replacement of the highly high speed data line or expensive leased lines or internet using any low-cost dial-up connections. Relatively Small companies may get back selling to large consumers based on the demanded of EDI capability of their various suppliers or by the advance supply chain managements.

Different concerns about the various security related issues and adequate audit logs may carry on being a foremost barrier. To avail various advantage of the open architecture systems the new ASC X12 protocol and the association take charge or as an important task modify this architecture suitable for all level of customer. By converting the ASC X12 and the EDI data components, elements and various transactions model or structures is based on XML one-to-one mapping. For developing the XML data structure various element ASC X12 transaction sets. The S/MIME protocol which is required to enables at least e-mail applications to confirm the transmission and obtained receipt of EDI delivery acknowledgement messages. The products map for Web EDI related transactions may require sending in multiple formats for different target devices for various legacies EDI applications.

XML and OBI gathering the requirements of app-to-app or may be human-to-application interfaces like merchant and e payments. GEIS's Trade Web is basically entry-level forms which are based on different services where different consumers may send and received generally four basic type EDI credentials by the net using any Web browser by providing a rental charge. Generally, PO or purchase order, its acknowledgement, retail invoice, and status are the GEIS's Trading Process of EDI-based forms. Financial EDI (FEDI) or trading partner's bank may send FEDI transfers.

Companies may choose different kind of extra feature from the VAN to add more security for FEDI based transaction.

Some benefits of EDI are listed below:

- (i) Direct process and require less reengineering,
- (ii) Only be realized with all trading partners are on EDI,
- (iii) Revolutionize the way business is done,
- (iv) Trading partners not knowing benefits of each other,
- (v) Less hardware costs,
- (vi) Interfacing translator, software costs minimization,
- (vii) No need for software modifications and
- (viii) Less network (VAN) service charges.

V. CONCLUSION

Although there are many facilities on e-commerce system but above all it can't able to give 100% security to the customer. There are lots of security systems to keep attention. According to the merchants' online transaction are safer than use money directly. Actually, for vendors it is less dangerous, if the store meet with any type of accident like looted or burned etc. Since experts argues that the transactions using e-commerce is safer than ordinary card buying, but it is difficult is in getting customers to believe.

REFERENCES

- [1] J. H. Wu and T.-L. Hisa, "Developing e-business dynamic capabilities: an analysis of e-commerce innovation from i-, m-, to u-commerce," *Journal of Organizational Computing and Electronic Commerce*, vol. 18, p. 95–111, 2008.
- [2] E. R. M. William and H. DeLone, "Measuring e-Commerce Success: Applying the DeLone & McLean Information Systems Success Model," *International Journal of Electronic Commerce*, vol. 9, no. 1, pp. 31-47, 2004.
- [3] S. S. Srinivasan, R. Andersona and K. Ponnabolub, "Customer loyalty in e-commerce: an exploration of its antecedents and consequences," *Journal of Retailing*, vol. 78, no. 1, p. 41–50, 2002.
- [4] M. Mukherjee, "Business process analysis methodology," *International Journal of Advanced Engineering and Management*, vol. 2, no. 5, pp. 113-117, 2017.
- [5] D. Gefen, "E-commerce: the role of familiarity and trust," *Omega*, vol. 28, no. 6, p. 725–737, 2000.
- [6] E. Ngaia and A. Gunasekarab, "A review for mobile commerce research and applications," *Decision Support Systems*, vol. 43, no. 1, p. 3–15, February 2007.
- [7] M. Mukherjee and S. Roy, "Application of ICT in Good Governance," *International Journal of Advanced Research in Computer Science and Software Engineering*, vol. 6, no. 3, pp. 276-279, March 2016.
- [8] L. C. & F. Bélanger, "The utilization of e-government services: citizen trust, innovation and acceptance factors," *Info Systems*, vol. 15, pp. 5-25, 2005.
- [9] S. Roy and M. Mukherjee, "Feasibility studies and important aspect of project management," *International Journal of Advanced Engineering and Management*, vol. 2, no. 4, pp. 98-100, 2017.
- [10] A. Gunasekarana, H. Marrib, R. McGaughey and M. Nebhwanib, "E-commerce and its impact on operations management," *International Journal of Production Economics*, vol. 75, no. 1–2, p. 185–197, 10 January 2002.
- [11] Y. H. Tan and W. Thoen, "Toward a Generic Model of Trust for Electronic Commerce," *International Journal of Electronic Commerce*, vol. 5, no. 2, p. 61–74, 2001.
- [12] R. Gholami, A. Ogun, E. Koh and J. Lim, "Factors Affecting e-payment Adoption in nigeria," *Journal of Electronic Commerce in Organizations*, vol. 8, no. 4, pp. 51-67, 2010.
- [13] Z. Vladimir, "Electronic Commerce: Structures and Issues," *International Journal of Electronic Commerce*, vol. 1, no. 1, pp. 3-23, 1996.
- [14] C. Minder, D. Zhang, and L. Zhou. "Empowering collaborative commerce with Web services enabled business process management systems." *Decision Support Systems*, vol. 43, no. 2, pp. 530-546, 2007.
- [15] Van Der Vorst, Jack GAJ, et al. "DAVINC3I: Towards Collaborative Responsive Logistics Networks in Floriculture." *Logistics and Supply Chain Innovation*. Springer International Publishing, 2016. 37-53.
- [16] Turban, Efraim, et al. "Innovative EC Systems: From E-Government to E-Learning, Knowledge Management, E-Health, and C2C Commerce." *Introduction to Electronic Commerce and Social Commerce*. Springer International Publishing, 2017. 137-163.