



Application of E-commerce and A.I. in the Growth and Development of Indian Industrial Economy

^{*1}Dr. S Srinivasa Padmakar and ²Dr. M Akilanayaki

^{*1}Retired and Visiting Professor, Department of Commerce, Regional Study Centre, Khairatabad, Dr. B.R. Ambedkar Open University, Jubilee Hills, Hyderabad, Telangana, India.

²Assistant Professor, Department of Commerce, NGM College, Pollachi, Coimbatore, Tamil Nadu, India.

Abstract

Adoption of information technology, Computerization, Automation, Artificial intelligence and Machine learning is the present trend of industrial and financial sector for the survival and sustainability of growth and development in the manufacturing, quality control, administration and accounts & finance departments. Further, the 'E-Commerce' is the application of I.C.T Tools and techniques for the marketing of products and services to reach the consumers points for their ultimate consumption through the supply chain management system. Business organizations today adopting technology practices for achieving the uniform quality products and services for gaining the customer satisfaction and for achieving the sustainable growth and development in industrial and marketing fields. Traditional, conventional business and trade practices is now outdated. Manual manufacturing and industrial operations are not advisable and not possible today in changing competitive marketing environment. Changing business environment in the Volatile, Uncertain, Complex and Ambiguous (VUCA) creating more challenges, problems and put the industrial sector in the deep financial and market crisis. This paper mainly focuses on the adoption of Information technology, A.I., E-Commerce. L.P.G Policy, industrial sector and financial sector reforms, to overcome the financial crisis and market complexities to pave the way for the growth of country GDP and sustainable growth and development of Indian industrial economy.

Further, also studied in this paper the innovative fair-trade practices, establishment of customer care centres, maintenance of customer data and their profile, follow up the customer grievances, inconveniences of the products and services. Resolving their problems using with the support of technology.

The Industrial, banking, marketing and finance related organisation's works were observed primarily through personal approach and on interview methods. Secondary data also been collected through various publications, websites, for the related data analysis while drafting this paper.

Keywords: Customer care, customer redressal mechanism, adoption of technology, e-Commerce, Artificial intelligence, V.U.C.A.

Introduction

Industrial Sector Reforms, Process of L.P.G, Adoption of Emerging Technologies

The world is at present running with technology. After the industrial revolution, modern mechanisation taken place replacing manual, conventional manufacturing methods. Consequent on the Liberalisation, Privatization and Globalization (L.P.G-Concept), industrial sector reforms, and the introduction of New Industrial Policy 1991, major changes happened in industrial activities like adoption of technology, like computerisation and automation, monitoring the manufacturing process. Licensing and permission process for the establishment of industries were relaxed with flexible terms and conditions to encourage new entrepreneurs and to establish more and more industrial units through the Liberalization policy.

Major Small Medium Enterprises (MSMEs) and start-up companies were encouraged with the financial support of the

government and banking organisations to remove the unemployment situation to the educated youth. Instead of seeking employment youth must be able to provide employment in their industrial units. Then the employment problem will be solved, and the services of the educated youth also shall be used for the growth and development of Indian Economy. During the year 1990-91, with the gulf war situation, our country economic situation completely in bad condition, payment of Import bills was held up, Public Sector undertakings were deeply in losses, Foreign Exchanges balances were completely exhausted, No foreign exports. Country GDP drastically declined. At that time, we were deeply in financial crisis. In that situation new coalition government took charge under the leadership Sri P. V. Narasimha Rao as Prime Minister and Dr. Manmohan Singh as Finance Minister.

They are boldly taken steps to track our economy through the implementation of industrial and financial sector reforms;

their team of financial experts took dare steps to introduce L.P.G. All the sick industries, with heavy losses were given for privatization and boost up giving oxygen through financial supports, subsidies, domestic and foreign market. Under the private management the sick industries were revived and achieved export quality productivity. Foreign exports increased and raised the Forex balances in the country. Privatization Policy in LPG given good results for boost up of Indian economy. For the growth and development of Indian Economy, Export of goods and services to foreign countries are essentially needed to improve foreign relations and foreign exchange balances. Government encouraged the industrial and manufacturing concerns to export their products and services throughout the world where the market for their

products is reasonable, relaxing the terms and conditions on foreign trade policy with the reduction central excise duty on exports. Like this Globalization Policy given good results improving the foreign trade, forex balances. For the sustainable growth and development of Indian economy Priority sector should be developed. Growth in GDP should be recorded, through the quality products and services, Adoption of information technology, computerised monitoring, application of artificial intelligence, automation process of routine industrial portfolio, Blockchain Technology, cloud computing, machine learning should be acquainted and habituated in the processing of manufacturing, supply chain management and supply & distribution and the process of transportation of goods to the consumer points.

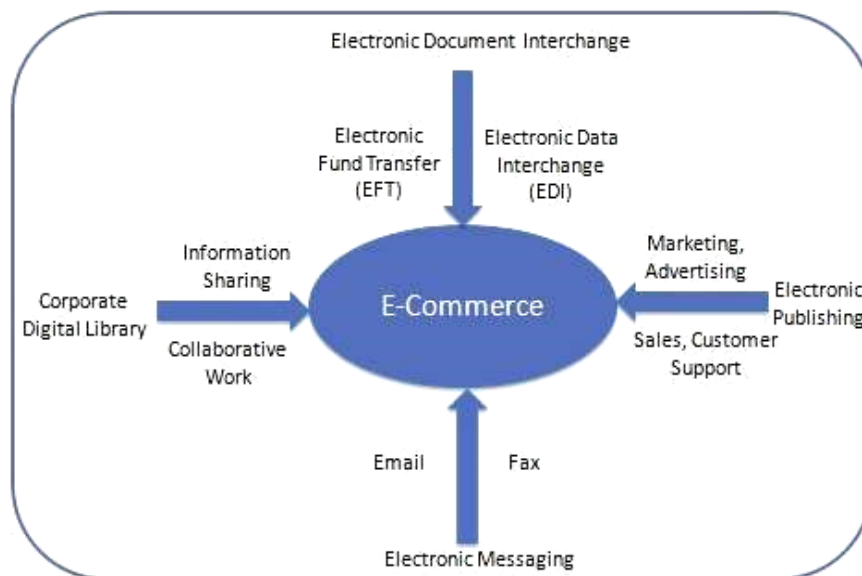


Fig 1: E.commerce

Significance of Technology, E-commerce, A.I. and Automation Process:

Business world is changing frequently and quickly according to the needs and desires of the customers and consumers. Moreover, the business and trade will be with heavy and tough competition. Financial and policy decisions in the business organisations and implementation are very complicated. Adoption of Technology I.C.T tools, computers, automation, artificial intelligence using computer, with data analysis, and cloud computing, machine learning and the blockchain technology changing the industrial and manufacturing process continuously. Computer system and automation will be processing the manufacturing, administrative, accounts and financial portfolios in business and trading organisations.

Robotic technology is also widely being used today in manufacturing, industrial organisation activities and medical and health operations. E-Commerce, the business and trading activities and transactions are to be done with the support of electronic devices and equipment, Manual trading operations, physical shopping gradually disappearing with busy life schedule of employees and public.

“The incorporation A.I in the business decision-has the probability of transforming making how companies plan and function” Roadside, corner Kirana shops, petty retail grocery shops are now closing by force with the establishment of large scale corporate super markets, big size grocery malls. Customers visit these shops, select the required branded material in the quantity and the computerised bill will be paid through electronic system, Google pay, phone pay, UPI

system at the counter. After the payment the packed material will be delivered to them. Only cash and carry business. No customer relations. No recognition for the regular customers. They are interested to do online-trading, online-shopping, e-banking using computerised equipment. Online ordering of goods and services for the home delivery of goods. Online payments shall be made through the internet, mobile-phones, card payments, Google Pay, Paytm, UPI Apps. Digital-marketing, activities, are now in operation replacing the physical marketing activities. From the ordering level of goods and services to the reach of consumer point through the electronic and digital equipment will play an important role.

Artificial Intelligence is playing a dynamic role in many fields today like in industrial manufacturing, Medical & Health, Corporate hospital portfolio, Outpatient case processing, pathological testing process, diagnosis robotic surgeries Etc., will be through computerised artificial intelligence Accounts, Finance and Planning portfolio department and as follows;

Finance& Planning, Banking and Insurance organisations, Stock trading organisations, Retail and wholesale marketing, customer care, energy, Education and web counselling, Transportation Railways, Road transportation and Air transportation travel ticket booking services, allotment of seats to passengers etc.

Statistical survey departments, land survey and settlement departments, Population Census and Survey departments are widely using the data processing through computerised artificial intelligence.



Fig 2: AI for E.commerce

Review of Literature

Many authors expressed their views on E Commerce, digital marketing, online trading very recently in an edited book “E Commerce and Management” published by IoT Academy and in the Book “ E Commerce” published by Dr. B. R. Ambedkar Open University. E Commerce is the recent trend using the technology devices, and payment technologies.

Dr. Prasuna, V.G. and Dr, Vasudha, V *et al* (2020) in the Book” E-Commerce” studied the fundamental concepts, Nature, features, merits procedures, tools and techniques used for E Commerce activity. Further they also studied, security aspects, attacks, frauds, cyber threats with certain suggestions to encounter them. Legal aspects, complications, litigation, government regulations were also has been covered in their study.

Dr. Brinda Sanjeevani and Ch V.S. Suryanarayana (2020) in their above “E-Commerce” book studied, Models of E-Commerce., Traditional Vs. E-Commerce. Its impact on trade. Applications of E-Commerce Net banking, E-Newspaper, advantages, demerits, online shopping techniques, total structure of e-commerce protocols, Security. Firewall networks, Merchant process models, technology architectural frame works etc., topics they covered and created awareness to the readers.

Dr. Padmakar, S.S. (2022) in their topic “Study on the application of E Commerce” published in the book titled E Commerce and Management by IoT Academy, Coimbatore, Tamil Nadu. elaborated the concepts B to B., B to C., C to C, C to B., B to A and C to A. Application of E Commerce Spread and adopted many fields, sectors, departments of all business organisations, like Banking and Insurance organisations, transportation and travel organisation, Postal & telecommunications, Accounts and Audit departments, corporate sector business organisation, Tourism and Hotel Management., Stock Exchange Organizations, Public works and Engineering Architecture departments, irrigation departments. Like so many organisations adopted today the E Commerce technique for the growth and development of their business.

Divyabharathi, U (2022) in her topic Analysis of Ecommerce, security Challenges and Responses: Published by IOT Academy, examined mainly the security challenges, problems, security threats cyber threats, online frauds. Also suggested many solutions, how to identify them and

overcome those frauds in advance before E Commerce transaction finalised.

Dr. Kalyani, A (2022): in her topic “Managing E Commerce industry in India” she studied the, types of E-Commerce, effects, impacts and influences of E Commerce online trading system in India, Payment to be made after the delivery of goods and service through the cards, and mobile phone, net banking or through various Apps, The suitability of E Commerce to the Indian trading system, and to the rural India, illiterate farmers also she studied in her article.

Overall Review: The above authors mainly focussed on fundamental concepts, nature and scope, feature and models, types of and applications of E-Commerce, procedures, tools and techniques used in E Commerce activity. Some more authors also studied the security threads, cyber frauds, problems and issues, online frauds, mismatching of material and price variations like and with their suggestion.

Statement of the Problem and Scope of the Study

In this paper, How the E Commerce is suitable for our country, and how the Indian Economy enriched with the growth and development of Indian economy mainly concentrated. How the technology is useful for the development national and international trade relations

Statistical Analysis of Online Business Transaction from FY 2020 Onwards:

Digital payments: 2017-18 Rs.2071 Cr. April 2020 through Cr.Cards. Rs.2701.91 crs. Raised to Rs. 18737crs in 2023-24; UPI remains dominants in the digital payment system. The number of UPI payment transactions rose significantly from Rs.8.03 billion in January 2023 raised to Rs.13.9 billion by June 2024. In January 2025 the UPI payments facilitated a total of 16996 cr. Business transactions amount to Rs, 23.48 lakh crs.

Mobile payments conducted through mobile phone apps, have experienced substantial growth. The value of mobile transactions reached in the 1 half year 2024 Rs.76.04 billion from Rs.52.15 billion in 2023 year. Indian e-Commerce industry valued at Rs. 10,82,875 Cr. in financial year 2024 will be expected to growth Rs. 29,88,735 by financial year 2030. After the China and U.S, India had third largest online e-commerce shopping market in financial year 150million in F,Y, 2021 to 350 million by FY 2026. According to Deloitte

India Report India is moving towards moving the third largest consumer market.

Objectives of the Study

- To Study the procedures, formalities, protocols of E-Commerce, and techniques and tools used in E Commerce for the online trading and online payment system.
- To Examine the suitability of the technique of E Commerce for the Indian trading system, while encountering challenges, like cyber threats, online frauds.
- To give suggestions and solutions, for the E Commerce problems, risk and challenges.

Conceptual Framework

1. E Commerce Tools and Techniques, Their Usage

Traditional and convention or physical marketing is gradually disappearing. As the technology is now at the fingertips of our young generation, everything made easy through online. There are so many supplying delivery channels like Amazon, Flipkart, Snapdeal, Zomato, Big basket, country delight and Swiggy.

All the commercial activities of the business organisation like, displaying the goods and services, ordering of material, trading, sending the material, exchange of goods and service, and finally the payment of the goods and services also will be done through the electronic devices like Smart, Android, I Phone or Apple Phone and with online order through the net support.

Observation of the material, services, its branding, packing, weight, working performance, public market rating, pricing,

discounting, date of manufacturing, date of expiry(Use before) like all the details will be observed through the company website. If all are satisfied, order shall be made through their mail id.

Ordering of the goods and services, booking travel tickets like train, bus and air travel tickets, temple seva tickets, movie ticket booking also shall be made through online advance or current bookings mobile pay system. Paying the amount through the debit or credit card Google pay, phone pay or UPI pay apps.

In the present days e-marketing in our hands, no need to move from our house, no physical carrying heavy physical cash, no risk, no bags carrying, no transportation of material, door delivery facility also available. Using digital technologies, traders facilitating the customers to select and order the materials. It is now online shopping, no need to maintain heavy shopping mall, heavy establishment, no infrastructure, no salesman needed. Simply getting online orders from the individuals, communicating them to the shopper stop procure and deliver them to customers. It's a wonderful mechanism.

The Following are the Basic Concepts of E Commerce

- There are certain clients, members of Commerce, consumers, business organisations and the financial organisations like banks.
- Basic of E-Commerce systems of arbitration, payment and trading activity and the service delivery to the customers.
- Trade and service processing together E-Commerce. Getting orders and processing them., market survey analysis result, Sale of services, information, goods distribution, settlement of payment



Fig 3: Structure of E-commerce

2. Benefits, Challenges, Problems and Risks, E Commerce, and its Suitability:

Benefits, & Advantages:

- E-Commerce, online marketing, net marketing or digital marketing are the common platforms of direct selling with an affordable price without publicity expenditure burden on product to the customers or consumers. This E Commerce or network marketing, digital marketing are the worldwide web reach marketing. It is available always to anybody in 24/7 in 365 days.
- Order can be received and can be processed, delivered to the doorsteps of the customers, No middlemen interference only the goods will be moved from the

producer to consumer through direct selling through the quick transportation system for immediate usage.

- Recurrence of sales from trader to customer, once habituated keeping with trustworthy, the same procedure shall be continued with transparency in the transaction.
- Electronic devices, advance electronic phones, laptops with internet technology play a dominant role in the process of the transaction upto the completion of the payment.
- "Organisation can use A.I technologies to automate the business issues and tasks"
- "Artificial intelligence support managers for the data analysis and to take the policy decisions"



Fig 4: E.commerce benefit

Problems, Risks and Challenges

- i). While doing online shopping safety and security measures are to take. Tendering and submitting the debit or credit cards to trader at Point of sale (P.o.S) and in communicating or revealing orally the pass codes to trader without self-generation of 4digit pin. It is not advisable. It leads to future security threats.
- ii). No Privacy, no confidentiality. In shopping complexes for the digital payments Customer Bank data may be captured in the digital platforms, cell phone numbers, Aadhar card, Pan Card numbers synchronised with bank Accounts.
- iii). Security and integrity and legitimacy of both customer and vendor must be s'gured. Mutual trust worthiness must be there in online shopping.
- iv). Issues of cyber frauds, cyber security threats are growing every day due to data sharing, data capturing, data transferring through mail software of cyber criminals. Both the traders and customers financial institutions are facing number of cyber security problems.
- v). Improving the technology, artificial intelligence is also a route cause for the cyber security threats. Individual id card Aadhar, Pan, bank cards data is now in cyber criminals due to their continuous sharing to many agencies as the government insisting to submit Aadhar, Pan ids on financial transactions. Getting awareness on technology advancements to a common man and illiterate rural people is big challenge.
- vi). While doing online digital payments, cards, mobile payments, Google pay and phone pay UPI payments through software technology. Authentication code and passwords may be captured and stolen while observing the customer hand and finger movements.
- vii). There is every scope in cyber fraud while dealing card payments, mobile payments, electronic payment at P.o.S (Point of Sale). Shopping malls. Because the cyber criminals closely watching the movements of customers in shopping complexes.
- viii). Risks to Personal information.
 - a) Spam unwanted messages. Sent by agencies in large quantities through mails. Mailbox will be filled with unwanted unnecessary mails.
 - b) Brute Force Attacks means systematic guess of login information, credentials and encrypted data messages. The attackers will attempt many usernames and passwords to guess login information

- c) Trojan Horse is a malware that poses as trustworthy programmes. Attackers have access to all actions that a legitimate user performs once they are within the network. Including files transferring shifting, data transfer, editing delete the files etc.

As the technology is updating day by day, cyber criminals also updating their strategies and with their new updated techniques. Still many other cyber frauds are now in force daily attacking common man in stealing their money using their bank pass words, duplicate card, usernames and with other stolen bank account information.



Fig 5: Challenges of E.commerce on business

3. Suggestion & Recommendations

- i). Cybercrime and fraud detectors must be identified and spread to online customers, bank customers, continuous alerts and awareness, must be created among bank accountholder, net users, A.T.M users and in inline digital shopping areas while using card payment, avoid to open the pass words to shop owners, and customer himself operate pos. terminal with password.
- ii). Government and banking organisations must give training to customers on a working date calling them on working day to give suggestion of cybercrime frauds with some precautions, and reset the pass words very frequently without leakage them outsiders.
- iii). While operating the A.T.Ms for cash withdrawal and remittance, or deposit and money transfer, only the bank customer alone must enter the ATM cabin and operate ATM for his transaction, he must ensure that no other person watching his way of transaction in ATMs, it is better not to give card to others for withdrawals and deposit assistance and help leaking the OTPs and Passwords.
- iv). While making digital payments Google pay or phone pay, passwords and OTPs should not be revealed to others
- v). While doing transaction through the mobile phones, I phone and Android phones, privacy, confidentiality should be observed. If any doubt arises, while doing payments, must complaint the branch managers in case of wrong debit of account without making payment.
- vi). If the card and the information hacked by the cybercrime culprits, he must notice and block the bank account immediately and report the matter to the cybercrime police.
- vii). Don't leak cards information OTPs, Passwords, and account information details to the persons calling as they are the bank officials calling. Bankers and Airtel officials will not ask bank account information, OTPs, passwords, KYC details.

References

1. Sandra Marcela Zapata Vega *et al.* “Artificial Intelligence in Business”. Published by *South Florida Journal of Development*, Miani, 2023, DOI 10.46932/sfjdv/4n9-015–Vol.4n.9.p.no.3547-3564.
2. Shankar Achary. Working paper No. 139 – on India: Crisis, Reforms, and Growth in Nineties-Stanford University CA, 2002.
3. Vijaya Sree. LPG and its impact on higher education–published by-IJAMSR, 2023, 6(2).
4. Anupama Prasanth *et al.* Role of AI and Business Decision Making. *IJACSA* vide, 2023, 14(6).
5. Revenio and Jalagat. A.I and Management decision making a bibliometric-Analysis. Published by IJEBMR vide, 2024, 8(4).
6. Jainambu Gani Abbas, Shirley Leo Pereira. “A.I in Business Management” published by *IJRAR* vide in, 2023, 10(1).