International Journal of Management, IT & Engineering
Vol. 14 Issue 04, April 2024
ISSN: 2249-0558 Impact Factor: 7.119
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gate as well as in Cabell's Directories of Publishing Opportunities, U.S.A

Impacts of Cloud Computing in India on E-Commerce Business

Dr Raj Sinha
Assistant Professor
School of Computer Applications
Lovely Professional University, Punjab
rajsinha2310@gmail.com

Harsh Chandrikapure
School of Computer Applications
Lovely Professional University, Punjab
harshchandrikapure265@gmail.com

Abstract: One of the newest technologies in the field of information technology is cloud computing. Cloud computing has evolved over the past few years from a purely theoretical idea to actual applications in sectors like telecommunications and healthcare. To manage user data and applications, cloud computing employs the Internet and remote servers. Customers and enterprises can access their personal files, data, and information from anywhere in the globe using the internet and use programmes without installing them. Different kinds of software programmes are currently operating in the cloud computing environment. One of the key services of cloud computing is e-commerce. To satisfy them, small and medium-sized businesses must offer superior e-commerce services. In this essay, we addressed how cloud computing has an impact on e-commerce businesses. In addition to this, it examined the factors that influenced how E-commerce changed during the cloud computing age. By building a framework for an e-commerce application based on a cloud computing environment and understanding how cloud computing affects e-commerce services and applications, this article addresses the issue of e-commerce and the lack of resources.

Keywords: Cloud Computing, E-Commerce, Network Security, Business Models

I. INTRODUCTION

Since 2007, cloud computing has progressed from being an abstract idea to having practical applications in a variety of sectors, including telecommunications and healthcare. [1] To manage user data and applications, cloud computing employs the Internet and remote servers. A brand-new and developing technology innovation called cloud computing introduces the idea of virtualizing data and information storage in local infrastructure. Customers and enterprises can access their personal files, data, and information from anywhere in the globe using the internet and use programmes without installing them. Additionally, it offers dynamic

computing power, storage capacity, and networking-based data and information exchange services. The "cloud" is an allegory; it is an abstraction that conceals the intricate Internet Technology infrastructure. The end users have a low-cost, useable option in which IT-related capabilities are provided "pay-as-a-service," enabling users to access Internet technology, which supplies and delivers to the users with Information Technology services in accordance with

their needs. According to a 2008 survey by International Data Corporation, cloud computing is the greatest option for developers, research projects, and even e-commerce businesses looking for quick solutions and services to get their business off the ground. According to some analysts, cloud computing has a bigger impact than e-commerce. Essentially, e-commerce is the exchange of products and services across a network employing internet technologies. Online shopping, hotel and ticket booking, and education are all included in e-commerce. Services for e-commerce are quite expensive. Cloud computing gives e-commerce businesses the ability to cut labour, material, and financial costs associated with implementing E-Business systems, as well as maintenance costs for back-end services or software. The companies that offer cloud computing services can handle all of these tasks. The characteristics of cloud computing services are having an impact on a variety of industries, including e-commerce. This essay examines how cloud computing has impacted e-commerce businesses and offers useful advice for enhancing e-business in the cloud environment.

Literature Review:

1. Gupta, S. (2017). Cloud computing in e-commerce: an Indian perspective. Journal of Enterprise Information Management, 30(3), 423-438.

Gupta (2017) investigated the impact of cloud computing on e-commerce businesses in India. The study found that cloud computing can help e-commerce businesses to overcome the challenges of scalability, availability, and security. Cloud computing also reduces the cost of IT infrastructure and provides flexibility in terms of resource utilization. The study concluded that cloud computing can be a game-changer for e-commerce businesses in India.

2. Mohan, M., & Babu, B. R. (2019). Impact of cloud computing on the performance of e-commerce companies in India. Journal of Information Technology Management, 30(4), 36-47.

Mohan and Babu (2019) examined the impact of cloud computing on the performance of e-commerce companies in India. The study found that cloud computing has a positive impact on the performance of e-commerce companies in terms of agility, scalability, and availability. The study also found that cloud computing reduces the cost of IT infrastructure and increases the speed of service delivery. The study concluded that cloud computing is essential for e-commerce companies in India to stay competitive.

3. Rani, G., & Reddy, M. K. (2018). The impact of cloud computing on e-commerce: A study of Indian e-commerce sector. Journal of Emerging Technologies and Innovative Research, 5(12), 293-300.

Rani and Reddy (2018) conducted a study to examine the impact of cloud computing on the e-commerce sector in India. The study found that cloud computing can help e-commerce businesses to overcome the challenges of scalability, availability, and security. The study also found that cloud computing reduces the cost of IT infrastructure and provides flexibility in terms of resource utilization. The study concluded that cloud computing is a game-changer for the e-commerce sector in India.

4. Srinivasan, S. (2017). Cloud computing and e-commerce in India: A review of the literature. Journal of Indian Business Research, 9(4), 306-323.

Srinivasan (2017) conducted a literature review to examine the impact of cloud computing on e-commerce in India. The study found that cloud computing has a positive impact on e-commerce businesses in India in terms of agility, scalability, and availability. The study also found that cloud computing reduces the cost of IT infrastructure and increases the speed of service delivery. The study concluded that cloud computing is essential for e-commerce businesses in India to stay competitive.

II. RELATED WORK

The primary background of the influences of cloud computing must be established because the paper's focus is on how cloud computing settings affect e-commerce.
Many works of literature have discussed the effects of cloud environments. Initially, Kasherfi, F., et al. [2] investigate how the cloud environment affects operations before introducing a novel cloud computing technique. The benefits of the cloud environment for both large and small e-commerce businesses, including Google, Yahoo, and others, are discussed in the paper. Instead than focusing on the business effects of cloud computing, the writers emphasise its technological significance. Lai, S.[4] analyses how cloud computing has affected traditional software projects and determines which softwares it has replaced. It primarily processes migration plans, security tactics, and

corresponding tools. Li J. and Liu J.[1] study how a shortage of instructional materials is hindering schooling in rural China. The authors claim that cloud computing aids in problem solving. Many of these potential advantages of the cloud computing environment are merely hypothetical. According to Zhang, H.[12], cloud computing would be the greatest option for virtual operations because of its properties like security and dependability and the fact that it can be used at various levels of management. There are primarily three issues with the existing research, according to the review of related work: First of all, there aren't many studies that discuss how the cloud computing environment affects e-commerce. Indeed, the rapid growth of e-commerce necessitates the incorporation of cloud computing into its technical foundation, organisational structure, and services. As a result, there will be a big impact on how e-commerce enterprises and the industry develop. Second, the existing study frequently concentrates on just one or two aspects of how cloud computing affects a particular industry. There is no publication that provides a thorough review of how cloud computing has affected e-commerce businesses. Finally, a few studies provide case studies to strengthen their arguments. The study studies the effects of cloud computing on E-commerce firms and industry chain in depth by describing the changes in E-commerce in the cloud age.

III. THE APPROACH OF CLOUD COMPUTING

There are numerous cloud computing explosions happening right now. As stated by Wikipedia, cloud computing entails setting up networks of numerous remote servers and software programmes that enable various data sources to be uploaded for real-time processing in order to produce results without the need to keep (processed) data on the cloud. In other words, it uses the general public to calculate or exchange resources and information in other ways.

IV. DEPLOYMENT MODEL OF CLOUD COMPUTING

Which cloud model is chosen for secure cloud services is of utmost importance. In cloud computing, there are essentially three different deployment model types.

Figure 1. Development Model of Cloud Computing

4.1 Public Cloud

When cloud computing services are provided on a network that is solely accessible to the general public, the cloud is referred to as a "public cloud." Similar to prepaid electric metre technology, this strategy is based on a pay-per-use methodology. It is perfect for companies looking for hosting for less complex information technology. Users of public clouds can access the cloud through standard

web browser interfaces. Apps that run on it get either predictable or unpredictable traffic. Cloud model security is less.

4.2 Private Cloud

The internal enterprise data centre of the company informs the architecture of the private cloud model. Here, scalable resources and virtual services offered by cloud vendors are combined and made accessible to users of the cloud for usage and sharing. Only those affiliated with the organisation and the designated stakeholders may use a particular private cloud. Hence, compared to public cloud models, private cloud models are significantly more secure. All of the resources and apps are handled by the corporation itself, just as the intranet.

4.3 Hybrid Cloud

The term "hybrid cloud" refers to a system that combines the characteristics of both private and public clouds and is controlled and confined in one location via a secure network. It enables different parties to access data and information through the Internet and provides more secure control over the data and applications.

V. CLOUD COMPUTING DELIVERY MODEL

There are three different types of cloud delivery models after cloud deployment models. The following delivery types -

5.1Infrastructure as a Service (Iaas)

IaaS is a single-layer cloud computing paradigm in which only paid users have access to a cloud computing vendor's specialised resources. Because computer resources may be added or released considerably more quickly and affordably than in an internal data servers, this model also offers a variety of financial and functional flexibility that is not found in inside data servers or with co-location services. The cost of computer servers, data, networking technology, processing power, and other initial investments are kept to a minimum.

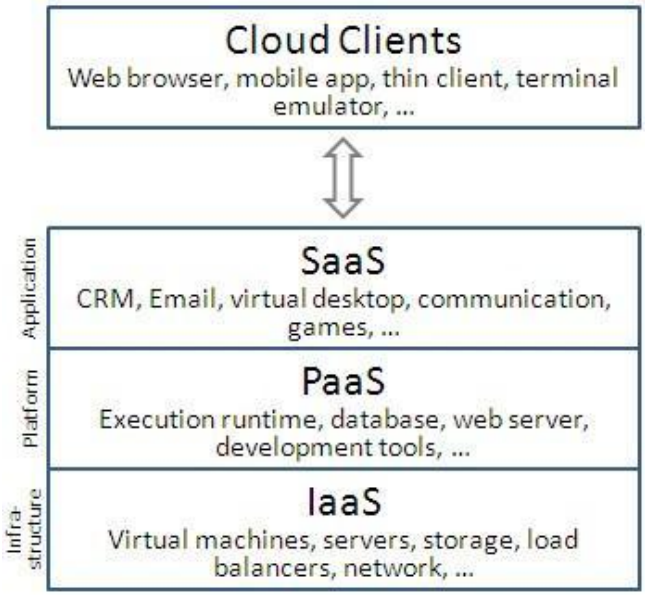

Figure 2. Delivery Model of Cloud Computing

5.2Software as a Service (Saas)

Software applications are leased to contractual companies by specialised SaaS suppliers under the pay-per-use concept of SaaS. The programme may be hosted by the SaaS provider in their own data centre. Software can be easily customised based on demand and initially has restricted capabilities; this customization is then charged for. Software can be viewed online with a protected web browser. Data protection for transmission over the Internet is enforced using Web services (WS) security, XML encryption, Secure Socket Layer (SSL), and other technologies.

5.3 Platform as a Service (Paas)

With extra "rented" features, the PaaS cloud model layer is comparable to the IaaS model. Virtual machines are protected from unauthorised intrusions by hackers and cloud viruses. PaaS model services cost more than IaaS and SaaS type services. Both cloud buyers and users are responsible for upholding network security across all interfaces. Physical resources, infrastructures, business applications, and middleware environments are all utilised in virtual platforms as cloud services.

VI. E-COMMERCE AND ITS MODELS

One of the primary drivers of the information technology and communication revolution in the economy is electronic commerce. Electronic commerce, which refers to electronic transactions including purchasing, selling, information flow, and financial transfers over the internet, is currently the competitive advantage for businesses. E-commerce broadly refers to all business activity conducted online. Following are the models used in e-commerce:

- Business-to-Business (B2B): the transaction between business enterprises.
- Consumer-to-Business (C2B): this mean the customers selling products and services to the Business Enterprises.
- Business-to-Consumer (B2C): this means the transaction among Business Enterprises and customers.
- Consumer-to-Consumer (C2C): this mean the business transaction among users or consumers.

VII. CLOUD COMPUTING AND ELECTRONIC COMMERCE (E-COMMERCE)

E-commerce and cloud computing are now two key components of our daily lives. Both are well-known because they are economical. While e-commerce enables traders to conduct business without renting or purchasing a business entity shop, cloud computing services save businesses money on the expense of IT infrastructure. The cloud offers e-commerce organisations beneficial prospects, but before using it, businesses should weigh costs and benefits. Many studies show that the most lucrative industries are cloud computing and e-commerce. that has rapidly developed in recent years as a result of the favourable effects of economic, political, technological, and sociological factors. Many researchers have provided the following descriptions of e-commerce and cloud computing:

- The quick growth of the global economy increase the developing of online web based transactions.
- Online shopping is becoming a new trend as it is more convenient comparing to traditional way of shopping.
- The security of data and information technologies are improved rapidly.

- Because of this, the level of education and IT skills of customers have been improved.
- The developing of telecommunications techniques accelerate the implement of e-commerce Industry across all over the world.
- Cloud Computing give chances for small-scale and middle-scale business companies to move to the Internet technology with less efforts

VIII. A FRAMEWORK FOR E-COMMERCE BASED ON CLOUD COMPUTING

Instead of using a traditional architectural paradigm, cloud computing enables users to utilise network resources more affordably and for free. It also helps users avoid the effects of a single piece of computer equipment failing, such as data loss, inaccessible devices, and other similar issues. Many consumers no longer have to purchase their own software, hardware, or even care who is delivering the service thanks to cloud computing, allowing them to concentrate on the essential services and resources they really need. We may explain the whole image of the infrastructure of the cloud-based e-commerce service if it is based on the fundamental application form known as the e-commerce cloud as shown in figure 2.

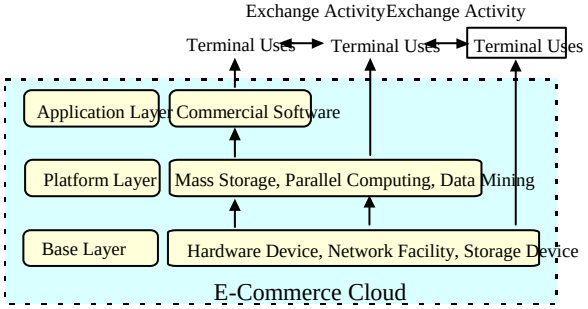

Figure 2. A Framework for E-commerce Cloud

8.1 The Base Layer of E-Commerce Cloud

The basic layer of e-commerce cloud also connects the vast systems of the many service providers and shares IT infrastructure resources, pooling them together to offer services. Cloud computing makes it possible to share hardware resources and use the hardware layer to operate in the most logical way. It also makes it possible to access data resources in a safe and scalable manner. To decouple the operating system from the physical hardware, a technology known as virtualization is used. And as a result, it allows calculation, the existing server's storage capacity is divided into smaller sizes, and then it is reintegrated, allowing for improved utilisation of IT resources and flexibility. Additionally, it permits the dissemination of calculations and the integration of massive cloud computing on a common interface. Base layer can offer the platform layer with the essential hardware resources, which users can use just like regular local devices.

8.2. The Platform Layer of E-Commerce Cloud

With the use of powerful hardware, tasks that were previously difficult to complete can now be accomplished, such as platform layer data storage tasks, software development tasks, original mass storage task computation, business intelligence processing tasks, and others. The number of devices relies on the users' choice of devices and how difficult it is to manage content. Virtualization technology enables a high amount of flexibility.

8.3. The Application Layer of E-Commerce Cloud

Professional e-commerce providers use the e-commerce system to collect payments in order to profit from cheaper costs, eliminate waste, and enable the use of more resources that aid in the smooth operation of business operations. Cost is based on demand and accessibility.

IXINFLUENCES ON E-COMMERCE BACKEND SERVICE MODE

Alternatives to traditional IT services are now available thanks to cloud computing. First off, cloud platforms used by e-commerce businesses provide access to IT resources like software, hardware, infrastructure, and data. Second, E-commerce Companies are permitted to use IT resources on the cloud platform in the same way that they can use utility services and pay for those services. By using a rental system, no business is forced to spend a lot of money on equipment purchases; instead, they can select the most suitable gadgets and pay rent for their services. In brief, the concept of traditional IT licencing has altered as a result of the rise of cloud computing, and a new philosophy of services has emerged that offers the benefit of cheap cost. A big contribution to the migration of outsourcing into e-commerce is made by cloud computing, which enables businesses to develop standardised, consistent service platforms that meet client demands. The backend process that needs to be completed is delivered by E-commerce under a contract-based outsourcing arrangement. Outsourcing refers to the close-end services that a service provider modifies to carry out local technical assistance. The main goals of outsourcing are to reduce costs, increase efficiency and service quality, and strengthen an organization's core skills. E-commerce organisations may concentrate on their core activities since cloud computing frees them from difficult technical architectural planning, designing, and maintenance. Typical example of the new outsourcing based on cloud computing is virtual business.

X. INFLUENCES ON E-COMMERCE BUSINESS STRATEGIES

Owing to the shifting business landscape towards cloud computing, well-known e-commerce companies like Google, Amazon, and Alibaba are developing long-term strategies that incorporate cloud computing. The following are the factors or forces driving the integration of cloud computing into e-commerce strategies: 1) When e-commerce provides better services due to the rapid advancement of information technology, such as reduced cost benefits, more efficiency, diversity, and more flexibility, its demand rises. For instance, the largest B2B ecommerce company, Alibaba, uses cloud computing to offer online loan services since it aids in determining the trustworthiness of the consumers. 2) Because cloud computing allows for the storage of data in small sizes and later re-integration, small and medium-sized businesses may now afford it. 3) Quick access to knowledge and high-quality architectural facilities drive demand.

XI CONCLUSION

In this study, we propose that cloud computing services, such as large-scale data storage, high-speed processing capabilities, ideal resource allocation, and resource sharing, can be used to build

an E-Commerce service model. A new ecosystem service being developed by the rapidly developing field of cloud computing will unite all existing E-commerce services and enable new service delivery models. Cloud computing gives businesses a way to leverage their investments in information technology hardware and software more effectively and provides a way to hasten the adoption of new technologies. Teams and companies can now expedite drawn-out acquisition processes thanks to cloud computing.

Since cloud computing is still a relatively new technology, there is still space for improvement in this area. An appropriate strategy for traditional E-commerce businesses to use in the age of cloud computing is to embrace it rather than shy away from it. E-commerce can only achieve sustained development when it integrates cloud computing into its company strategy and establishes core competences.

XII. SUGGESTIONS

As a new business model based on computer networking and the internet, e-commerce should focus on its core strengths and activities. The efficient management and operation of the business should receive the appropriate attention. As e-commerce companies put greater strain on online software, their market share starts to fall significantly. As a result, e-commerce companies shouldn't worry too much about cost increases because cloud computing will handle them. As a result of the development of cloud computing, cutting information technology costs is not a major concern anymore. Hence, it is advised that e-commerce companies should fully utilise cloud computing to improve the quality of their work. In this way, with cloud computing's assistance, a new road will open for the small and medium-sized businesses, and e-commerce can achieve new heights.

REFERENCES

[1] J. Li and J. Z. Liu, “Influence of Cloud Computing on Educational Informationization of China Rural Areas,” *The Proceedings of Information Science and Engineering Conference*, Hangzhou, 4-6 December 2010, pp. 281-283.

[2] F. Kashefi, M. Majd, M. Darbandi, H. Purhosein, K. Ali-zadeh and O. Atae, “Perusal about Influences of Cloud Computing on the Processes of These Days and Present- ing New Ideas about Its Security,” *The Proceedings of the 5th International Conference on Application of Informa- tion and Communication Technologies* (*AICT*), Baku, 12-14 October 2011, pp. 1-4.

[3] S. Qin, “What Will Cloud Computing Provide for Chi- nese M-Learning?” *The Proceedings of International Con- ference on E-Education, Entertainment and E-Manage- ment*, Bali, 27-29 December 2011, pp. 171-174.

[4] S. L. Lai, “The Influences of Cloud Computing to the Traditional Software Project and Our Corresponding Stra- tegies,” *The Proceedings of the* 3*rd International Con- ference on Intelligent System Design and Engineering Applications*, Hong Kong, 16-18 January 2013, pp. 1461- 1464.

[5] H. X. Zhang, "Research on the Influences of Cloud Com- puting on the Virtual Operation Performance Manage- ment," *The proceedings of the 7th International Confer- ence on Computer Science & Education*, Melbourne, 14- 17 July 2012, pp. 235-238.

[6] Wang D, (May,2013), "Influences of Clouds Computing on E-Commerce Businesses and Industry",
Journal of Software Engineering and Applications, Vol. 6, pp. 313-318

[7] Leavitt N, (2009),"Is Clouds Computing Really Ready for Prime Time?",*Computer*, Vol. 42, pp.15-20.

[8] Weinhardt C, Anandasivam A, Blau B, and Stosser J, (2009), "Business Models in the Service World", *IT Professional*, Vol. 11, pp. 28-33

[9] Gens F, (2009), "New IDC IT Clouds Services Survey: Top Benefits and Challenges", *IDC eXchange*, viewed 18 February 2010

[10] Juncai S and Shao Q, (June, 2011), "Based on Clouds Computing E-commerce Models and Its
Security", *International Journal of e-Education, e-Business, e-Management and e-Learning*,Vol. 1, No. 2

[11] http://en.wikipedia.org/wiki/Cloud_computing_and_e_commerce

[12] H. X. Zhang, (July),"Research on the Influence of Clouds Computing on the Virtual Operation Performance Management", *The proceedings of the 7th International Conference on Computer Science & Education*, Melbourne, 14-17 July 2012, pp. 235-238.

[13] Dooley B, (2010), "Architectural Requirement Of The Hybrid Cloud", *Information Management Online*, viewed 10 February 2010

[14] Global NetoptexIncorporated , (2009), "Demystifying the clouds. Important opportunities, crucial choices"

[15] Brodkin J, (2008), "Gartner: Seven clouds-computing security risks",*Infoworld*, viewed 13 March 2009

[16] ISO. ISO 7498-2:1989. *Informations processing systems- Open Systems Interconnection*. ISO 7498-2

[17] Sinha R , Kaur N, Gupta S, Thakur P., "**Diagnosis of Parkinson's Disease using Hybrid Ensemble Technique**" IEEE, DOI:10.1109/AIKIIE60097.2023.10390458

[18] Sinha R MahawarHema,"**Cybersecurity, Cyber-Physical Systems And Smart City Using Big Data**" Webology, ISSN: 1735-188X, Volume 18, Number 3, 2021

[19] Sinha R Kavita., "**An Analysis on CyberCrime against Women in the State Of Bihar and Various Preventing Measures Made by Indian Government**" Turkish Journal of Computer and Mathematics Education. e-ISSN: 1309-4653, Vol. 11 No. 1 (2020), Page No: 534-547

[20] Sinha R Lal S., "Cyber Crime Trends In Covid-19 Era" Kalyan Bharti, ISSN NO: 0976-0822, Impact Factor: 5.90, Vol. 36, No.(XVI) : 2021, Page: 160-171 (UGC-CARE List Group I)

[21] Sinha R Lal S., "Study Of Malware Detection Using Machine Learning" ANVESAK ISSN : 0378 – 4568, Impact Factor: 6.20, Vol. 51, No.1(VIII) January – July 2021: 2021, Page: 145- 154 (UGC Care Group 1 Journal)

[22] Sinha R Lal S., "Cyber Growth Due To Covid-19" Shodhsamhita ISSN: 2277-7067, Impact Factor: 7.816, Volume- VIII, Issue 2, 2021-2022, Page: 126- 134 (UGC CARE Group 1)

[23] Sinha R., "Quality Of Patient Care in Hospital Setting: A critical Analysis" International Journal of Research in Medical and Basic Sciences", ISSN NO: 2455-2569, Impact Factor: 4.457, Volume 5, Issue 6, June 2019, Page No: 36-44 (UGC Approved)

[24] Sinha R., "A Study on Quality of Hospital facilities and Patient Satisfaction through various health care Departments" International Journal of Management, IT & Engineering", ISSN 2249-0558, Impact Factor: 7.119, Vol. 9 Issue 6(1) , June 2019, Page No: 6-16 (UGC Approved)

[25] Sinha R., Keshav Kr Sinha "A Study on Impact of Health Awareness in Education" JMRA: Journal of Management Research and Analysis, ISSN NO: 2394-2770, Impact Factor: 6.303, Volume 06, Issue I(2), March 2019, Page No: 135-140 (UGC Approved)

[26] [10]Sinha R., "A Comparative Analysis on different aspects of Database Management System" JASC: Journal of Applied Science and Computations, ISSN NO: 1076-5131, Impact Factor: 5.8, Volume VI, Issue II, February/2019, Page 2650-2667 (UGC Approved)

[27] Sinha R., "A Study on Structured Analysis and Design Tools" International Journal of Management, IT & Engineering", ISSN 2249-0558, Impact Factor: 7.119, Vol. 9 Issue 2(1), February 2019, Page 79-97 (UGC Approved)

[28] Sinha R., "Analytical Study on System Implementation and Maintenance" JASC: Journal of Applied Science and Computations, ISSN NO: 1076-5131, Impact Factor: 5.8, Volume VI, Issue II, February/2019, Page No: 2668-2684 (UGC Approved)

[29] Sinha R., "Analytical Study of Data Warehouse" International Journal of Management, IT & Engineering", ISSN 2249-0558, Impact Factor: 7.119, Vol. 8 Issue 1(1), January 2019, Page 105-115 (UGC Approved)

[30] Sinha R., "A comparative analysis of traditional marketing v/s digital marketing" Journal of Management Research and Analysis (JMRA), ISSN 2250-0588, Impact Factor: 4.878, Volume 05 Issue 04, December 2018, Page 234-243 (UGC Approved)

[31] Sinha R., "A Study on Client Server System in Organizational Expectations" Journal of Management Research and Analysis(JMRA), ISSN 2394-2770, Impact Factor: 4.878, Volume 05 Issue 4, December 2018, Page 74-80 (UGC Approved)

[32] Sinha R., "A Study on Importance of Data Mining in Information Technology" International Journal of Research in Engineering, IT and Social Sciences, ISSN 2250-0588, Impact Factor: 6.565, Volume 08 Issue 11, November 2018, Page 162-168 (UGC Approved)

[33] Sinha R., Kumar H, "A Study on Preventive Measures Of Cyber Crime" International Journal of Research in Social Sciences, ISSN 2249-2496, Impact Factor: 7.081, Volume 08 Issue 11(1), November 2018, Page 265-272 (UGC Approved)

[34] Sinha R., "A Analytical Study of Software Testing Models" International Journal of Management, IT & Engineering", ISSN 2249-0558, Impact Factor: 7.119, Volume 08 Issue 11(1) , November 2018, Page 76-89 (UGC Approved)

[35] Sinha R., Vedpuria N, "Social Impact Of Cyber Crime: A Sociological Analysis" International Journal of Management, IT &Engineering", ISSN 2249-0558, Impact Factor: 7.119, Volume 08 Issue 10(1) , October 2018, Page 254-259 (UGC Approved)

[36] Sinha R. Lal S., "Need of Popularization of Cyber Security" University Research Resource Journal Jayoti Vidyapeeth Women's University, Jaipur, ISSN NO: 2581 - 3730 Volume – 4, Issue – 2 (January – March - 2021) Page No: 75-97

[37] Sinha R Lal S., "Review Of Teaching Methodologies With Cyber World" University Research Resource Journal Jayoti Vidyapeeth Women's University, Jaipur, ISSN NO: 2581 - 3730 Volume – 4, Issue – 1 (January – March - 2021) Page No: 55-65

[38] Sinha R Lal S., "Cyber Crime: A Hidden Evil" Aegaeum Journal ISSN: 0776-3808, Impact Factor: 6.1, Volume- 7, Issue 12, 2019, Page: 326-333 (UGC-CARE Group II)