iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 8 **Issue:** XI **Month of publication:** November 2020

DOI: https://doi.org/10.22214/ijraset.2020.32169

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 8 Issue XI Nov 2020- Available at www.ijraset.com

A Multi-Dimensional Research Study in E-Commerce to Capture Consumer Expectations

Parag G Gidh
Academic Research Student, Department of Information Technology, B.K. Birla College of Arts, Science and Commerce (Autonomous) Kalyan, Thane, India

Abstract: ***E-Commerce is one of the finest branches of the IT industry. With the use of Artificial Intelligence in the e-commerce sector helps many giants of businesses to fulfil the demands of the customers in an efficient and convenient manner. Artificial Intelligence is a branch of computer science which is used by many businesses to manage the big data of the products. AI also helps to retarget potential customers, enhance a better personalization which makes customers to buy products in a good environment. This paper highlights the role of Artificial Intelligence in E-commerce sector, its application in the e-commerce industry and some of the basic e-commerce models.***
Keywords: Artificial Intelligence, e-commerce, customer satisfaction, comfort, transparency.

I. INTRODUCTION

Artificial Intelligence (AI) is one of the popular and widest branch of computer science in today's life. Artificial Intelligence are some of the smart machines which are able perform as that of human intelligence. Nowadays, humans are more attracted to the AI machines which makes their work easy and comfortable. AI based e-commerce will generates jobs in IT sectors to maintain and develop the software those running AI algorithms. E-commerce is buying the products or services over the network and invest in the e-commerce brand intensively can easily boost the brand competitiveness and customer loyalty. The most used of AI in e-commerce will provide an enhanced user experience, generates new leads. The concept of Artificial Intelligence is used in every fields such as e-learning and e-commerce as well. The use of AI is from small grocery stores to big airports with smart and advanced machines. In today's date e-commerce is one of the fields which uses Artificial Intelligence at its best by understanding the customer requirements, generating a huge customer base, generating real-time data, and a lot more. Transaction plays an important role in the e-commerce industry and for the transaction to be secured AI algorithms are used. Artificial Intelligence in e-commerce deals with Customer Relationship Management, Product Control Management, invents chatbots and much more. Inventory Management is the key role where AI is used a lot. Many e-commerce companies or small-scale stores uses AI for their inventories to be managed properly. Evaluation of internal and external factors with better planning improves the status of the inventory. Customer satisfaction is the most important factor for the e-commerce industry. The AI in e-commerce customer service helps the customer to buy products 24/7 and provides a good user experience which makes the profit for the company and helps for the better purchase in the future.

II. OBJECTIVES

1) To attain the credibility of e-commerce in logistics and meeting the customer expectations.
2) To understand the problems faced by e-commerce.

Following hypotheses are proposed to attain the above objectives using survey analysis: -

a) *H1:* "Transforming traditional commerce to e-commerce delivers concise management, dynamic visualization and comfort."
b) *H2:* "Transparency in e-commerce gains trust of the customers reduces the risk in business."

III. LITERATURE REVIEW

In [1], Soni, V. proposed that AI plays an important role for boosting and for benefit of the economic industry as chatbots, CRM-Customer Relationship Management, to ensure high sales, Product Content Management, Customer Service. In [2], Kakkar, S. et al. stated that AI has two types: weak AI and Strong AI. AI threat is Threat to privacy and Threat to job. Using AI in e-commerce, the e-commerce platform utilizes large dataset regarding customer behaviour and usage pattern.AI in e-commerce are Real time product targeting, visual search, virtual personnel shoppers, virtual assistant, AI based hiring process, etc. In [3], Song, X. et al. proposed that AI in the field of e-commerce consists of AI assistant, recommendation, Intelligent Logistics, Optimal-Pricing. Electronic Commerce intelligent system consist of intelligent scheduling system and intelligent recommendation system. In [5], J. Martinez-Navarro et al. proposed a test and a conceptual model that analyses the relations between sense of presence, brand recall and purchase intention.

©IJRASET: All Rights are Reserved

In a virtual store the emotions experience by a consumer, the consumers affective evaluations have positively influence on the sense of presence and the brand recall. In [9], Chaudhuri, A. et al. proposed that the quality of the product images is the key role for the customers satisfaction. The DL and ML algorithms are used for the product images to be ordered in a well-defined manner and discard the images which are not of good quality. In [12], Ullal, M.S. et al. proposed an experimental model on effects of marketing with 4500 customers with AI and humans. Revealing the identity of AI after purchase decision, before purchase decision and in between the purchase decision. In [13], J. Tang proposed the multi tenancy in SaaS software and defined the optimal solution of it, entropy model and test different database with BI's core technology. In [15], Ping, N. L. et al. proposed SERVQUAL model is for the study of AI in ecommerce. The proposed model consists of main 4 constructs which are personalization, intelligence, responsiveness, and assurance. In [18], Chen M. proposed an AI model for electronic commerce in mobile customer relationship management to help business to setup mobile customer relationship management. The model contains two businesses: outside business includes customer database, crm, gateway, server and media mix and inside business include campaign logic, pricing, number regulator, mobile infrastructure. In [19], Den, S. et al. proposed five AI enabled tools such as Product Recommender, Virtual Agent, Email Management, Speech Recognition and Visual Perception. These tools are used to analyze customer experience in terms of awareness, effectiveness and loyalty. In [22]. Jia, R. et al. proposed a prediction method by Bayesian classification approach using clicking behavior features. The experimental results alleviate the problem of data sparseness which traditional algorithms fails to deal.

IV. RELATED STUDIES AND MODELS IN E-COMMERCE

A. *SERVQUAL Model*

A multi-dimensional research instrument known as SERVQUAL is created to understand expectations and perceptions of customer towards a service using the five dimensions which are considered as the representation of service quality. The original SERVQUAL model was comprised of ten dimensions of service quality when created: tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding the customer, and access. However, several dimensions were believed to be autocorrelated. Therefore, the total number of dimensions was reduced to five which are tangibles, reliability, responsiveness, assurance and empathy [15].

B. *E-S-QUAL and E-RecS-QUAL Model*

E-S-QUAL, developed by Parasuraman, Zeithaml, & Malhotra (2005), offers a more detailed approach as it involves the measurement of both pre and post electronic service quality aspects. The dimensions of this model include efficiency, system availability, fulfillment and privacy. This model's dimensions were developed based on the data obtained from qualified respondents with effective internet shopping experience. Hence, this model is able to provide more representative information in terms of eservice quality. Besides that, a model called E-RecS-QUAL, also developed by Parasuraman et al. (2005) aims to identify the impact of issues faced during the online transactions on customers' perceptions toward the quality of electronic services. There are three dimensions in this model: responsiveness, compensation, and contact. When customer had unconventional encounters, the model is adopted as the measurement of the effectiveness of handling problems and return, compensation for problems, and availability of assistance [15].

C. *Lodging Quality Index (LQI) Model*

LQI model is a dependable and effective quantitative measuring instrument to provide true understanding of quality service, thus forming a tool that hospitality managers can employ to obtain the efficiency of service delivery strategies. The LQI is designed to overcome some issues relating to the SERVQUAL model in assessing service quality in hotel industry. While the SERVQUAL can be employed in all the service-based industries, the LQI model is specifically designed and employed only in the hotel industry [15].

V. APPLICATIONS OF AI IN E-COMMERCE

Many applications of AI in e-commerce allow companies to increase their profits by streamlining and automating decision making, from website design to customer service.

A. By integrating deep learning and AI into security solutions, e-commerce platforms help prevent common network vulnerabilities and spam and secure customer data.
B. Adding AI capabilities to an e-commerce store's inventory campaign helps avoid overstocking, reduce inventory, and release space.
C. AI has the potential to enhance the accessibility of e-commerce sites and to supply users with language wizards.

©IJRASET: All Rights are Reserved

D. E-commerce giants like Amazon already allow users to look for the simplest deals and buy online using voice assistants.
E. AI has the facility to enhance the performance of e-commerce sites, and forward-thinking retailers are using this technology with great success.
F. When a buyer opens an account on an e-commerce portal, every browsing session and each transaction generates data.
G. AI helps online businesses recognize patterns in unstructured data sets and enables them to provide a personalized experience.
H. The experience of browsing and merchandise selection leads a buyer to return to an e-commerce platform to find out more.
I. The greatest responsibility of e-commerce stores is the security of customer data.
J. Powerful website developers like Wix offer AI-based design support that permits you to make stores in as little as half-hour.
K. Similarly, AI also can help refine sales forecasts for any e-commerce business.

VI. METHODOLOGY

An online survey was held using Google Form. The link of the form was circulated in social media platform. The questionnaires in the form were designed to test the proposed hypothesis which verified certain parameters.

A. Participants

To test the proposed hypothesis, this study used two conditions i.e. Comfort and Transparency. A total of 50 participants data was collected from different states of India. Among the 50 participants 68% were male and remaining 32% were female.

B. Measures

Participants were asked to indicate their agreement on a three-point scale (1 = bad, 2 = Average, 3 = Good).
The survey items for each scale were summed and average to create overall variable scores. In Comfort level $\mu_a = 2.70$ and $\mu_b = 2.68$. In Transparency level $\mu_a = 2.20$ and $\mu_b = 2.31$.

VII. EXPERIMENT

The test scores of independent samples were calculated at the confidence level of 95 percent using t-test. The score of survey parameters were summed and averaged to create overall variable scores. The participants presented multiple questions to test the parameters in the test (e.g. How far e-commerce is better in comfort level? How far e-commerce is better to provide transparency to the customers? Which type of e-commerce sites do you frequently use? How far do you think that the product is valuable for money in e-commerce?). The statistical t-values of parameters at p-level of 0.05 are 0.735 for comfort and -1.467 for transparency.

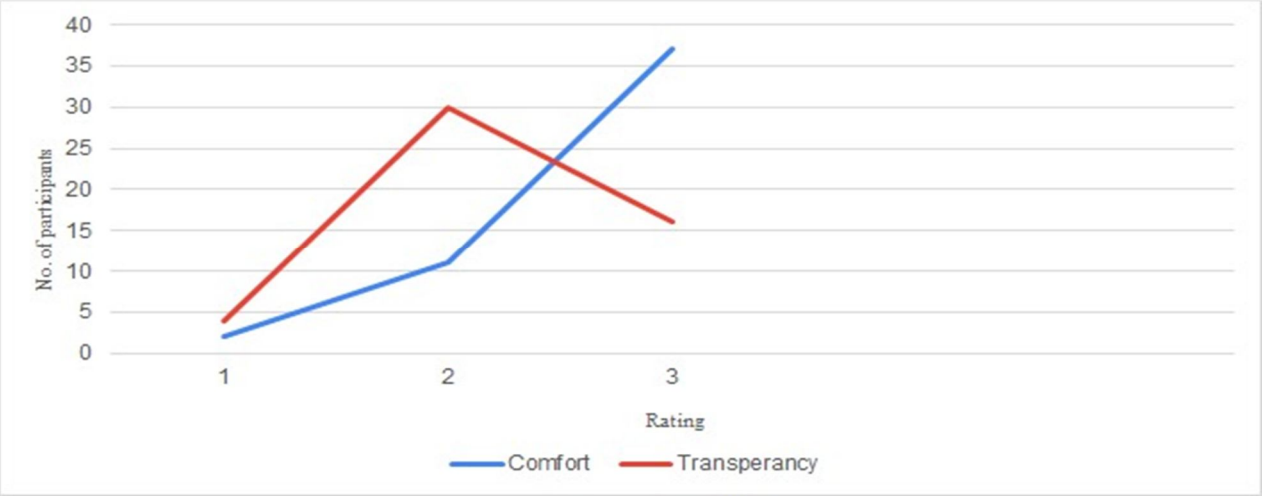


Fig. 1 Test Parameter Rating

VIII. RESULT

The test scores of independent samples calculated using t-test using survey analysis resulted that the participants have better comfort level using e-commerce. Customers find variety of products in e-commerce, products can be access anywhere at any time, eliminates geographical limitations, better convenience, enabling online-based marketing strategies. Therefore, the hypothesis “H1” is accepted.

©IJRASET: All Rights are Reserved

The transparency that e-commerce provides to the customers results that customers feel e-commerce sites and shops to provide relevant and minute information regarding product which helps them tracking it easily and understand the product specifications to compare with different competitive products in market it is also beneficial for business organizations in setting their benchmarks and metrics. Thus, greater transparency leads to less abandon carts(shop) and more customer satisfaction. Thus, the hypothesis "H2" is accepted.

IX. LIMITATIONS and FUTURE SCOPE

This study has various limitations. The study utilizes male and female participants with less age groups of the samples. Future researcher should expand the population size with various age groups with various parameters in the study. The models are only explained in this study, hence in future research the researcher can use some of the models explained in the above study. In this study the data collected is from customers whereas in future the researcher should take the data from both the customers as well as the suppliers.

X. CONCLUSION

In E-commerce, good customer satisfaction is the end approach for the companies. Comfort and the Transparency are some basic parameters which deals with better customer satisfaction. Maximization of profit and satisfaction of all stakeholders for delivering good quality products.

XI. ACKNOWLEDGEMENT

A special gratitude is conveyed to our Prof. Swapna Augustine Nikale, Department of Information Technology of B.K. Birla College of Arts, Science and Commerce (Autonomous) Kalyan, Thane and thankful to the participants who responded to the survey.

REFERENCES

[1] Soni, V. (2020). Emerging Roles of Artificial Intelligence in ecommerce. International Journal of Trend in Scientific Research and Development (IJTSRD), 4(5), 223–225. https://www.ijtsrd.com/papers/ijtsrd31768.pdf

[2] Kakkar, S., & Monga, V. (2017). A Study on Artificial Intelligence In E- Commerce. International Journal of Advances in Engineering & Scientific Research, 4(4), 62–68. https://www.arseam.com

[3] Song, X., Yang, S., Huang, Z., & Huang, T. (2019). The Application of Artificial Intelligence in Electronic Commerce. Journal of Physics: Conference Series, 1302, 1–7. https://doi.org/10.1088/1742-6596/1302/3/032030

[4] Girdher, S. (2019). Role of Artificial Intelligence in Transforming E-commerce Sector. RESEARCH REVIEW International Journal of Multidisciplinary, 04(06), 282–284. https://www.rrjournals.com

[5] J. Martinez-Navarro et al. (2018). The influence of virtual reality in e-commerce. Journal of Business Research, 475–482. https://doi.org/10.1016/j.jbusres.2018.10.054

[6] Bosyi, A., Simkiv, O., & Savchenko, N. (2019). ARTIFICIAL INTELLIFENCE IN E-COMMERCE. Vasyl Stefanyk Precarpathian National University, 208–211. https://scholar.google.com/scholar?cluster=15106287129416682762&hl=en&as_sdt=0,5

[7] Kumar, T., & Trakru, M. (2019). THE COLOSSAL IMPACT OF ARTIFICIAL INTELLIGENCE IN E-COMMERCE: STATISTICS AND FACTS. International Research Journal of Engineering and Technology (IRJET), 6(5), 570–572. https://www.irjet.net

[8] Lingam, Y. (2018). The role of Artificial Intelligence (AI) in making accurate stock decisions in E-commerce industry. International Journal of Advance Research, Ideas and Innovations in Technology, 4(3), 2281–2286. https://www.ijariit.com

[9] Chaudhuri, A., Messina, P., Kokkula, S., Subramanian, A., Krishnan, A., Gandhi, S., Magnani, A., & Kandaswamy, V. (2018). A Smart System for Selection of Optimal Product Images in E-Commerce. 2018 IEEE International Conference on Big Data (Big Data), 1–9. https://arxiv.org/pdf/1811.07996.pdf

[10] Gite, G., & Ghole, R. (2019). AI based Smart E-Commerce Management. International Journal of Advanced Research in Science, Communication and Technology, 59–65. https://www.ijarsct.co.in

[11] Gkikas, Dimitris & Theodoridis, Prokopis. (2019). Artificial Intelligence (AI) Impact on Digital Marketing Research. 1251-1259. https://doi/10.1007/978-3-030-12453-3_143

[12] Ullal, M.S., Hawaldar, I.T., Mendon, S., Joseph, N. 2020. The effect of artificial intelligence on the sales graph in Indian market. Entrepreneurship and Sustainability Issues, 7(4), 2940-2954. http://doi.org/10.9770/jesi.2020.7.4(23)

[13] J. Tang, "Artificial Intelligence-based E-commerce Platform based on SaaS and Neural Networks," 2020 Fourth International Conference on Inventive Systems and Control (ICISC), Coimbatore, India, 2020, pp. 421-424, http://doi:10.1109/ICISC47916.2020.9171193

[14] Kolodin, D., Telychko, O., Rekun, V., Tkalych, M., & Yamkovyi, V. (2020). Artificial Intelligence in E-Commerce: Legal Aspects. Proceedings of the III International Scientific Congress Society of Ambient Intelligence 2020 (ISC-SAI 2020), 129, 96–102. https://doi.org/10.2991/aebmr.k.200318.012

[15] Ping, N. L., Hussin, A. R. b. i. n. C., & Ali, N. b. i. n. t. i. M. (2019). Constructs for Artificial Intelligence Customer Service in E-commerce. 2019 6th International Conference on Research and Innovation in Information Systems (ICRIIS), 1–6. https://doi.org/10.1109/icriis48246.2019.9073486

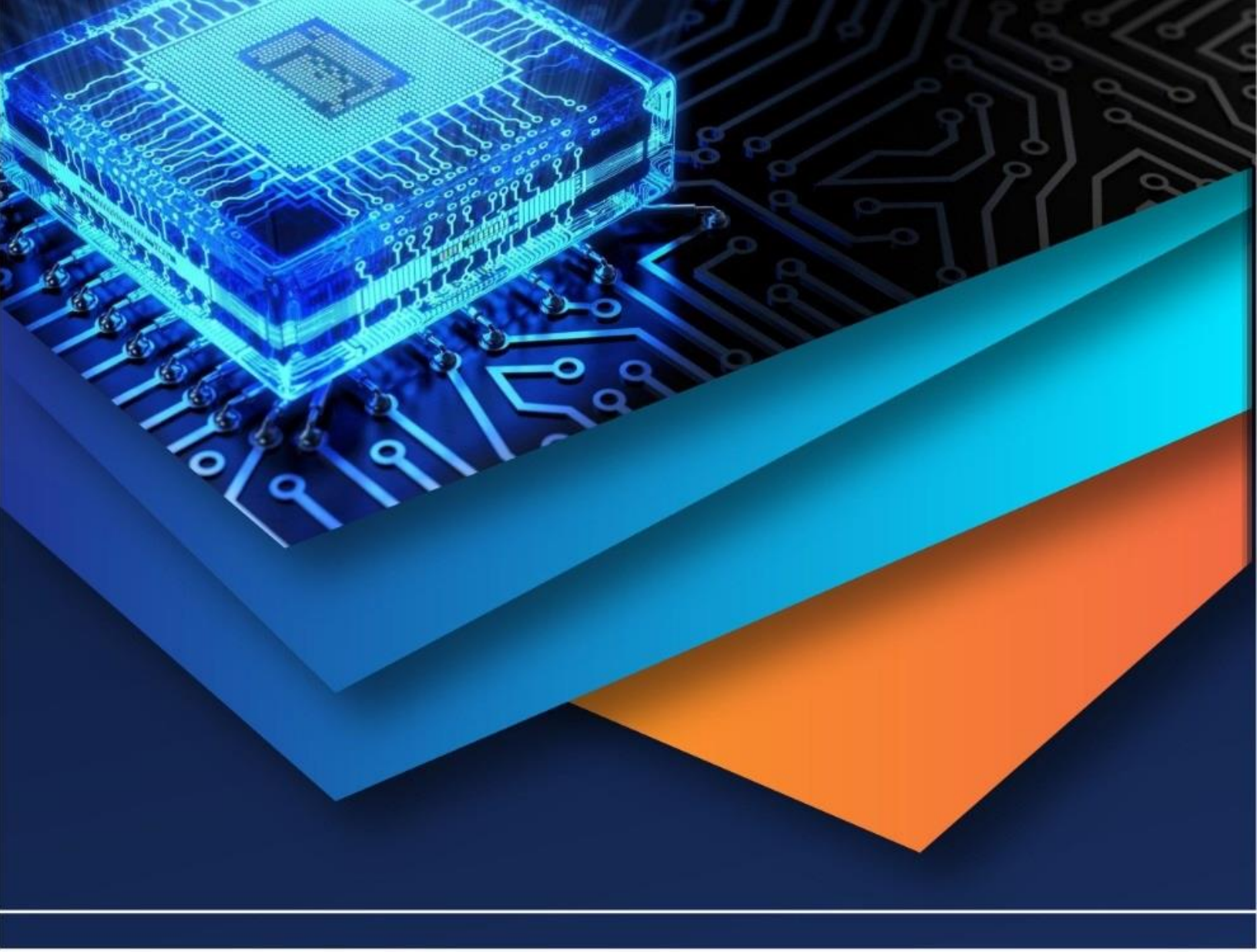
[16] Isaac, G., Meacham, S., Hamzeh, H., Stefanidis, A., & Phalp, K. (2018). An Adaptive E-Commerce Application using Web Framework Technology and Machine Learning. Faculty of Science and Technology, Bournemouth University, 1–15. https://www.researchgate.net/publication/325659182

[17] Gajewska, T., Zimon, D., Kaczor, G., & Madzík, P. (2019). The impact of the level of customer satisfaction on the quality of e-commerce services. International Journal of Productivity and Performance Management, 69(4), 666–684. https://doi.org/10.1108/ijppm-01-2019-0018

©IJRASET: All Rights are Reserved

[18] Chen, M. (2018). The analysis of model for electronic commerce - artificial intelligent. Journal of Asian Business Strategy, 7(2), 39–43. https://doi.org/10.18488/journal.1006/2017.7.2/1006.2.39.43
[19] Deb, S., Jain, R., & Deb, V. (2018). Artificial Intelligence - Creating Automated Insights for Customer Relationship Management. International Conference on Cloud Computing, Data Science & Engineering (Confluence), 758–764. https://doi.org/10.1109/CONFLUENCE.2018.8442900
[20] Sha S, N., & M, R. (2019). Creating a Brand Value and Consumer Satisfaction in E-Commerce Business Using Artificial Intelligence. International Conference on Sustainable Computing in Science, Technology & Management, 232–238. https://doi.org/10.2139/ssrn.3351618
[21] Vanneschi, L., Horn, D. M., Castelli, M., & Popovič, A. š. (2018). An artificial intelligence system for predicting customer default in e-commerce. Expert Systems with Applications, 104, 1–21. https://doi.org/10.1016/j.eswa.2018.03.025
[22] Jia, R., Li, R., Yu, M., & Wang, S. (2017). E-commerce purchase prediction approach by user behavior data. 2017 International Conference on Computer, Information and Telecommunication Systems (CITS), 1–5. https://doi.org/10.1109/cits.2017.8035294
[23] Ingaldi, M., & Ulewicz, R. (2019). How to Make E-Commerce More Successful by Use of Kano's Model to Assess Customer Satisfaction in Terms of Sustainable Development. Sustainability, 11(18), 1–22. https://doi.org/10.3390/su11184830
[24] Liu, G., Nguyen, T. T., Zhao, G., Zha, W., Yang, J., Cao, J., Wu, M., Zhao, P., & Chen, W. (2016). Repeat Buyer Prediction for E-Commerce. Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 1–10. https://doi.org/10.1145/2939672.2939674
[25] Song, Z., Sun, Y., Wan, J., Huang, L., & Zhu, J. (2017). Smart e-commerce systems: current status and research challenges. Electronic Markets, 29(2), 221–238. https://doi.org/10.1007/s12525-017-0272-3

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)