Online Shoppers Purchasing Intention – Literature Review

Online shopping has permeated our societies so well that it is hard to think of a time when we were not shopping on our mobile phones and any shopping was a trip to store near or far and sometimes may be another city, depending on where one lived. For instance, in 2021 Global Online retail sales saw a 27.6% increase , totalling 4.3 trillion [6]. Now all this online shopping has not only created an opportunity for business to be making sales at all times of the day but has also brought along challenges like how to stay competitive, retain previous customers while attracting new customers who will make purchases. Considering the wide reach and potential for growth there have been numerous studies aimed at understanding various aspects of online visits on an e-commerce website, some of which I researched.

At first the study by Sakar [1] which proposed a real time behaviour analysis system that aimed to simultaneously predict a customers' shopping intent and in contrast their likelihood to leave the website without making a purchase. Their methodology used the aggregated page view data tracked during the visit along with some session and user information and employed two modules wherein the first module determined if the user should be offered content, and the second module came into action only if a customer seems likely to abandon the site. A potential concern addressed by the second [2] research was the risk of abandonment implied in their method. Their research used ML algorithms such as Random Forest, Support Vector Machines (SVM) and Multi Layer Perceptron Classifiers.

Another study along similar lines are the one by [2] Karim Baati and Mouad Mohsil where they intended to build on existing research and suggest a system that allows to detect users with high purchase intention once connected to the website so the website could attract them into making a purchase. Though their study was based off the same data as that of Sakar [1] , they only worked with

those pertaining to session and user information. Their research uses similar dataset as the second module of the first [1] research and while the first one predicts likelihood of abandonment; this research aims to predict customers with high purchasing intention or conversely likelihood of not leaving the website and then call another system to make recommendations for a potential purchase conversion. Their research primarily used Random Forest for their model.

Another interesting study in the same arena though a different research question is one specific to the time period after COVID-19 and consumers in Lebanon and Bahrain which aimed at exploring the intention of the customers to shop online in the post pandemic era. Their study extended the technology acceptance model [TAM] to prove two key Hypotheses ,first Perceived Usefulness (PU) is positively associated with Attitude Towards Online Shopping(ATU) for online shopping post COVID-19 and the second that PU is positively associated with Intention Towards Online Shopping (ITOS) post COVID-19.

Another similar research is the one by Shierly and Sihombing [3] which explored the hypothesis that the factors that affect consumers' purchase intention are perceived benefit , perceived risk , hedonic motivation, trust and attitude towards online shopping. Their research used Structural Equation Modelling (SEM) to validate these hypotheses and concluded that there was no indication of a relationship between either perceived benefits or perceived risk to online shopping.

A very important aspect of online shopping is reviews by previous customers which is explored in the article by Jin Yang, Rathindra Sarathy and JinKyu Lee [4]. Reviews play an important role in reducing the risk and uncertainty that online buyers would assume before purchasing a product. This study examines the effect of general feedback or opinion of previous shoppers in product reviews represented by review balance and the number of reviews for a product. Their study establishes that no significant causal effect between perceived uncertainty and purchase intention which would mean a customers'

decision to leave a website may or may not have been directly caused by perceived uncertainty related to a product.

As expected with the ongoing interest and research in this domain there have been a lot of similar research and papers that have explored various interesting aspects of customer's online shopping behaviour. The research in this field has been diverse with some looking at data for specific geographical region , before or after certain time periods. Some of them have been more focused on predicting behaviour patterns like customers who are more or less interested than other customers and in turn helping business improve their website or processes to improve purchase conversion. Some other researches have been more focused on understanding behaviour patterns and not necessarily making predictions like the study [3] for the region of Lebanon and Bahrain which extend the Technology Acceptance model among the others.

Among all this wonderful research my research question is more inclined towards making a prediction with analysing data collected during a user's website session, I will hope to be able to predict a customers' likelihood to make a purchase or not using machine learning models like Logistic Regression, Random Forest , Decision Trees etc.

Though there is a lot of wonderful research on this subject I wish to be able to explore the problem using different algorithms which have not been very common for e.g. Cross Fold Validation , KNN etc. I wish to compare and rank results produced by each algorithm.

Citations

[1] Sakar,C. and Kastro,Yomi. (2018). Online Shoppers Purchasing Intention Dataset. UCI Machine Learning Repository. https://doi.org/10.24432/C5F88Q.

[2] Baati K, Mohsil M. Real-Time Prediction of Online Shoppers' Purchasing Intention Using Random Forest. Artificial Intelligence Applications and Innovations. 2020 May 6;583:43–51. doi: 10.1007/978-3-030-49161-1_4. PMCID: PMC7256375.

[3] Shierly, L., & Sihombing, S. O. (2015, October). Predicting Online Purchase Intention: An Empirical Study. In Management Dynamics Conference (pp. 3-13).

[4] Jing Yang, Rathindra Sarathy, JinKyu Lee, The effect of product review balance and volume on online Shoppers' risk perception and purchase intention, Decision Support Systems, Volume 89, 2016, Pages 66-76, ISSN 0167-9236, https://doi.org/10.1016/j.dss.2016.06.009. (https://www.sciencedirect.com/science/article/pii/S0167923616301014)