

# Chapter 6

## Customer Purchase Prediction and Potential Customer Identification for Digital Marketing Using Machine Learning

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### **ABSTRACT**

*In recent years, digital marketing has surpassed traditional marketing as the preferred technique of reaching customers. Researchers and academics may utilize it for social media marketing and for predicting client buy intent, among other applications. It can boost customer happiness and sales by facilitating a more personalized shopping session, resulting in higher conversion rates and a competitive advantage for the retailer. Advanced analytics technologies are utilized in conjunction with a dynamic and data-driven framework to expect whether or not a customer will make a purchase from the organization within a certain time frame. To increase income and stay ahead of the competition, one must understand customer buying habits. Several sectors offered rules to explore a consumer's potential based on statistics*

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*results. A machine learning algorithm for detecting potential customers for a retail superstore is proposed using an engineering approach.*

## **INTRODUCTION**

For marketing decision-making, the ability to predict client behaviour is highly prized. For example, retargeting advertisements for online sales retail marketing can be improved by properly predicting which clients are most likely to purchase those who have already visited the site—the more accurate the forecast, the better the marketing investment's return on investment. Machine learning models have recently received attention as a technology capable of forecasting the behaviour of customers Kim & Lee (2022). From 2014 to 2021, the number of digital buyers worldwide (Figure 1). More than 1.66 billion consumers bought digital goods and services in 2016, predicted to rise to over 2.14 billion in 2021.

Machine learning can predict customer behaviour online, and marketing literature establishes numerous models to forecast consumer buying behaviour. Machine learning can forecast customer behaviour online rather than in offline environments by detecting the consumer journey and various clickstream data. The customer journey is a series of stages that a person goes through as they move from recognition to purchase (Chou et al. (2022)). Customer path mapping improves interactions and boosts income using ML models (i.e. Bayesian models, hidden Markov model etc.). Despite its great potential, a little experience utilizing machine learning to forecast online customer behaviour. The findings of the study fill up the following gaps.

1. Forecasting customer attrition has received much attention (Batra, 2016)), but predicting customer buy conversion has received less attention. Online shopping malls' performance depends heavily on their ability to convert visitors into buyers. So it is vital to study the problems of utilizing machine learning to predict online client behaviour.
2. The best machine learning models for forecasting online customer behaviour haven't been discussed sufficiently. All marketing decisions entail predicting certain results. As a result, utilizing machine learning improves forecast accuracy (Agrawal, (2018)). However, prior research has not explained which machine learning model is best used in online consumer behaviour.
3. There was no comparison of the best data sampling approach for converting online customer purchases. Because most marketing data is imbalanced, machine learning is hampered by bias. The asymmetry bias must be overcome to use machine learning in marketing. Currently, there isn't any research comparing two or more different methods of sampling (Migueis, (2017)).

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